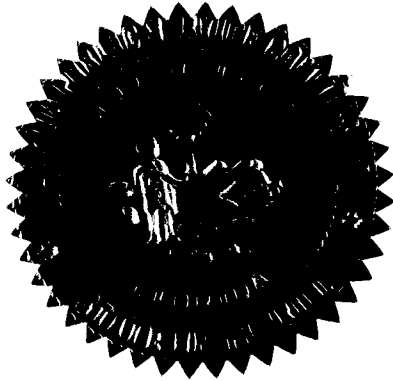


BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

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 1

Pages 1 through 177

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.

PLACE: Betty Easley Conference Center
Room 148
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: TRICIA DeMARTE
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12 Tallahassee, Florida 32399-0850, appearing on behalf of the
13 Commission Staff.

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I N D E X

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P R O C E E D I N G S

1
2 CHAIRMAN JACOBS: Good morning. We will go on the
3 record. Counsel, read the notice.

4 MR. JAEGER: Yes, Chairman. Pursuant to notice
5 issued October 12th, 2001, this time and place has been noticed
6 for hearing in Docket Number 010006-WS, the annual
7 reestablishment of authorized range of return on common equity
8 of water and wastewater utilities pursuant to Section
9 367.081(4)(f), Florida Statutes.

10 CHAIRMAN JACOBS: Take appearances.

11 MR. MENTON: Good morning, Commissioners.
12 Steve Menton of the firm of Rutledge, Ecenia, Purnell & Hoffman
13 on behalf of Florida Waterworks Association.

14 MR. BURGESS: Commissioners, I'm Steve Burgess here
15 for the Public Counsel's Office representing the Citizens of
16 the state of Florida.

17 MR. JAEGER: Ralph Jaeger on behalf of the Commission
18 Staff.

19 CHAIRMAN JACOBS: Very well. I understand, counsel,
20 we have some preliminary matters.

21 MR. JAEGER: Yes, Chairman. We have four proposed
22 stipulations in the prehearing order, and I just wanted the
23 Commission to vote on those and approve those. And we have, I
24 think, Dr. Morin standing by by telephone. One of the -- the
25 fourth stipulation is that he shall be excused if the

1 Commission determines that there are no cross-examination
2 questions. There are no cross-examination questions from any
3 of the parties, and so it's just whether the Commission wanted
4 him to stand by.

5 CHAIRMAN JACOBS: Very well. Why don't we take that
6 one first?

7 MR. JAEGER: Okay. The first proposed stipulation
8 is, is the standard. This docket should remain open to allow
9 Staff to monitor the movement --

10 CHAIRMAN JACOBS: No, no. Let's deal with whether or
11 not we want to hear from Dr. Morin first, and then we can go to
12 the others.

13 Commissioners, any questions for Dr. Morin?

14 COMMISSIONER DEASON: No, I'm fine with him not
15 having to participate to have questions. I'm fine with that.

16 COMMISSIONER PALECKI: I am also.

17 CHAIRMAN JACOBS: Very well, very well. Then we
18 don't even -- we won't swear in Dr. Morin. And we do need to,
19 I assume, put his testimony in and --

20 MR. JAEGER: Commissioners, we were going to do that
21 at the appropriate time. There are two changes to the rebuttal
22 testimony. Do you want to do that while he's here? Steve has
23 those two changes to the rebuttal testimony.

24 CHAIRMAN JACOBS: All right. Let's go ahead and do
25 that.

1 MR. MENTON: Okay. Thank you, Commissioners. The
2 changes that we would make to Dr. Morin's rebuttal testimony,
3 the first is on Page 5. And this relates to an objection that
4 Mr. Burgess had to the wording both of the subheading number
5 one on Line 13 and to the question itself. So in order to
6 avoid any dispute, what we have agreed to do is to reword
7 those. So we would change Line 13 from "Unreliable Estimate"
8 to "Estimate Techniques."

9 CHAIRMAN JACOBS: We're on Page 5?

10 MR. MENTON: Page 5 of Dr. Morin's rebuttal
11 testimony.

12 CHAIRMAN JACOBS: Okay. Thank you. Very well.

13 MR. MENTON: And we would also -- we've also
14 stipulated or agreed with Mr. Burgess that we would reword that
15 question to remove his objection that follows beginning on
16 Lines 14 through 17, and the question would now read: Do you
17 have concerns regarding the reliability of Mr. Cicchetti's cost
18 of equity estimation process? And the answer would just change
19 from, "Yes, it does" on Line 18 to just "Yes," period.

20 CHAIRMAN JACOBS: Okay.

21 MR. MENTON: And I believe those alleviate the
22 objections that Mr. Burgess had.

23 MR. BURGESS: That's correct.

24 MR. MENTON: And then there's just one additional
25 change on Page 8 of the rebuttal testimony. On Line 6, the

1 words "in the electric utility industry" should be stricken.
2 That's repetitive of what follows a couple of lines down.

3 CHAIRMAN JACOBS: All right. With those
4 modifications, I assume you would move then that Dr. Morin's
5 direct and rebuttal testimonies be entered into the record as
6 though read. Without objection, show them -- they are entered.

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1 **Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.**

2 A. My name is Dr. Roger A. Morin. My business address is Georgia State
3 University, Robinson College of Business, University Plaza, Atlanta, Georgia,
4 30303. I am Professor of Finance at the College of Business, Georgia State
5 University and Professor of Finance for Regulated Industry at the Center for the
6 Study of Regulated Industry at Georgia State University. I am also a principal in
7 Utility Research International, an enterprise engaged in regulatory finance and
8 economics consulting to business and government.

9 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.**

10 A. I hold a Bachelor of Engineering degree and an MBA in Finance from McGill
11 University, Montreal, Canada. I received my Ph.D. in Finance and Econometrics at
12 the Wharton School of Finance, University of Pennsylvania.

13 **Q. PLEASE SUMMARIZE YOUR ACADEMIC AND BUSINESS**
14 **CAREER.**

15 A. I have taught at the Wharton School of Finance, University of Pennsylvania,
16 Amos Tuck School of Business at Dartmouth College, Drexel University, University
17 of Montreal, McGill University, and Georgia State University. I was a faculty
18 member of Advanced Management Research International, and I am currently a
19 faculty member of The Management Exchange Inc. and Exnet where I continue to
20 conduct frequent national executive-level education seminars throughout the United
21 States and Canada. In the last twenty years, I have conducted numerous national
22 seminars on "Utility Finance," "Utility Cost of Capital," "Alternative Regulatory

1 Frameworks," and on "Utility Capital Allocation" which I have developed on behalf
2 of The Management Exchange Inc. in conjunction with Public Utilities Reports, Inc.

3 I have authored or co-authored several books, monographs, and articles in
4 academic scientific journals on the subject of finance. They have appeared in a
5 variety of journals, including The Journal of Finance, The Journal of Business
6 Administration, International Management Review, and Public Utility Fortnightly.
7 I published a widely-used treatise on regulatory finance, Utilities' Cost of Capital,
8 Public Utilities Reports, Inc., Arlington, Va. 1984. My more recent book, Regulatory
9 Finance, is a voluminous treatise on the application of finance to regulated utilities
10 and was released by the same publisher in late 1994. I have engaged in extensive
11 consulting activities on behalf of numerous corporations, legal firms, and regulatory
12 bodies in matters of financial management and corporate litigation. Exhibit No. ____
13 (RAM-1) describes my professional credentials in more detail.

14 **Q. HAVE YOU TESTIFIED ON COST OF CAPITAL BEFORE?**

15 A. Yes, I have been a cost of capital witness before more than 40 regulatory
16 bodies in North America, including the Florida Public Service Commission ("the
17 Commission"), the Federal Energy Regulatory Commission, and the Federal
18 Communications Commission. I have also appeared before the following state and
19 provincial commissions:

1	Alabama	Indiana	New Jersey	Quebec
2	Alaska	Iowa	New York	South Carolina
3	Alberta	Louisiana	Newfoundland	Tennessee
4	Arizona	Manitoba	North Carolina	Texas
5	British Columbia	Michigan	North Dakota	Utah
6	California	Minnesota	Ohio	Vermont
7	Colorado	Mississippi	Oklahoma	Washington
8	Georgia	Montana	Ontario	West Virginia
9	Hawaii	Nevada	Oregon	
10	Illinois	New Brunswick	Pennsylvania	
11				

12 The details of my participation in regulatory proceedings are provided in
13 Exhibit ____ (RAM-1).

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

15 A. The purpose of my testimony is to present an independent analysis of the fair
16 and reasonable rate of return on equity upon which the Commission should base its
17 leverage formula methodology for water and wastewater utilities in the state of
18 Florida, with particular emphasis on the fair return on a company's common equity
19 capital committed to that business. Based upon this appraisal, I have formed my
20 professional judgment as to a range of returns on such capital which would (1) be fair
21 to ratepayers, (2) allow a utility to attract capital on reasonable terms, (3) enable a
22 utility to maintain its financial integrity; and (4) be comparable to returns offered on
23 comparable risk investments. My testimony in these proceedings will outline what
24 I believe to be the appropriate analytical tools for determining a fair and reasonable
25 return on equity. I will also delineate my conclusions as to a reasonable range of
26 returns based upon the results of these analytical models. I will also comment on the

1 Commission's leverage formula employed in setting the allowed rate of return
2 ("ROE").

3 **Q. HAVE YOU REVIEWED THE NOTICE OF PROPOSED AGENCY**
4 **ACTION ORDER, ORDER NO. PSC-01-1226-PAA-WS (THE "PAA ORDER")**
5 **ESTABLISHING AN AUTHORIZED RANGE OF RETURNS ON COMMON**
6 **EQUITY FOR WATER AND WASTEWATER UTILITIES WHICH WAS**
7 **ENTERED BY THE COMMISSION ON JUNE 1, 2001?**

8 A. Yes. The Order proposes a continuation of the current leverage formula
9 methodology with a range of return on equity from 9.14% at 100% equity to 10.24%
10 at 40% equity.

11 **Q. DO YOU BELIEVE THAT THE RANGE OF RETURN ON EQUITY**
12 **SET FORTH IN THE PAA ORDER IS FAIR AND REASONABLE FOR THE**
13 **WATER AND WASTEWATER INDUSTRY IN FLORIDA?**

14 A. No. For the reasons set forth below, it is my opinion that the range of returns
15 set forth in the PAA Order is too low.

16 **Q. WOULD YOU PLEASE BRIEFLY IDENTIFY THE EXHIBITS AND**
17 **APPENDICES ACCOMPANYING YOUR DIRECT TESTIMONY?**

18 A. Yes. I have attached to my direct testimony Exhibits ____ (RAM-1 through
19 RAM-7) and Appendix A. These Exhibits and Appendix relate directly to points in
20 my testimony, and are described in further detail in connection with those points.

21 **Q. PLEASE SUMMARIZE YOUR FINDINGS.**

1 A. It is my opinion that a just and reasonable range of return on common equity
2 to be used as part of the leverage formula methodology for ratemaking purposes on
3 a company's common equity capital should be 10.0% to 13.4% with a midpoint of
4 11.7% for a typical Florida water and wastewater utility ("FWU") with an average
5 capital structure. Individual FWU rates of return on equity can be determined within
6 that range in accordance with a leverage adjustment based on the common equity
7 ratio of each company. Alternatively, until a formal comprehensive review of the
8 leverage formula is completed, individual FWU rates of return on equity can be
9 determined in accordance with a revised leverage formula that replicates the range
10 of results obtained.

11 My recommendation is derived from studies I performed using the Capital
12 Asset Pricing Model (CAPM), Risk Premium, and Discounted Cash Flow (DCF)
13 methodologies. I performed two CAPM analyses, one using the plain vanilla CAPM
14 and another using an empirical approximation of the CAPM (ECAPM). I performed
15 four risk premium analyses: two historical risk premium analyses on comparable
16 regulated industries, and two studies of the risk premiums allowed in those same
17 regulated industries. I also performed DCF analyses on three surrogates for the water
18 and wastewater industry. They are: a group of large water utilities (which are larger
19 than the typical Florida water and wastewater utilities), a group of generation
20 divested electric utilities, and a group of natural gas distribution utilities. My
21 recommended range of returns reflects the application of my professional judgment

1 to the results in light of the indicated returns from my Risk Premium, CAPM, and
2 DCF analyses.

3 **Q. PLEASE DESCRIBE HOW YOUR TESTIMONY IS ORGANIZED.**

4 A. My testimony is organized in four (4) broad sections:

5 I. Regulatory Framework and Rate of Return

6 II. Cost of Equity Estimates

7 III. Summary of Results

8 IV. Leverage Formula Methodology

9 The first section discusses the rudiments of rate of return regulation and the
10 basic notions underlying rate of return. The second section contains the application
11 of CAPM, Risk Premium, and DCF tests. In the third section, the results from the
12 various approaches used in determining an appropriate range of returns are
13 summarized. The fourth section discusses the use of a leverage formula
14 methodology.

15 **I. REGULATORY FRAMEWORK AND RATE OF RETURN**

16 **Q. WHAT ECONOMIC AND FINANCIAL CONCEPTS HAVE GUIDED**
17 **YOUR ASSESSMENT OF THE INDUSTRY?**

18 A. Two fundamental economic principles underlie the appraisal of the cost of
19 equity, one relating to the supply side of capital markets, the other to the demand
20 side. According to the first principle, a rational investor is maximizing the
21 performance of his portfolio only if he expects the returns earned on investments of
22 comparable risk to be the same. If not, the rational investor will switch out of those

1 investments yielding lower returns at a given risk level in favor of those investment
2 activities offering higher returns for the same degree of risk. This principle implies
3 that a company will be unable to attract the capital funds it needs to meet its service
4 demands and to maintain financial integrity unless it can offer returns to capital
5 suppliers that are comparable to those achieved on alternate competing investments
6 of similar risk. On the demand side, the second principle asserts that a company will
7 continue to invest in real physical assets if the return on these investments exceeds
8 or equals the company's cost of capital. This concept suggests that a regulatory
9 commission should set rates at a level sufficient to create an equality between the
10 return on physical asset investments and the company's cost of capital.

11 **Q. CAN YOU EXPLAIN THE CONTEXT IN WHICH RATE OF**
12 **RETURN IS EVALUATED FOR A REGULATED PRIVATE ENTERPRISE**
13 **SUCH AS A WATER AND WASTEWATER UTILITY?**

14 A. Under a traditional cost-based regulatory framework, utilities are obligated
15 to provide safe, reliable, adequate service to all customers willing and able to pay for
16 service within their designated service area. Customers must be served without
17 undue discrimination at fair and reasonable prices. Utilities are usually given
18 exclusive rights to provide service within the designated service area and may
19 establish or are subject to a regulatory body's rules and regulations covering such
20 matters as safety, payment, and other commercial aspects of service. The utility is
21 a private enterprise and is entitled to charge a fair and reasonable price which covers
22 the costs it incurs to provide service subject to oversight and approval of the state

1 regulatory entity. In Florida, that regulatory entity is the Commission. The owners
2 of the utility are entitled to a fair rate of return on their investment used to deliver
3 utility services.

4 **Q. WHAT ARE THE REGULATORY PRACTICES AND PROCEDURES**
5 **FOR DETERMINING FAIR AND REASONABLE PRICES UNDER THIS**
6 **REGULATORY FRAMEWORK?**

7 A. Fair and reasonable prices begin with the costs of providing utility service.
8 Costs are limited to those reasonably and prudently incurred. In addition, a utility
9 is entitled to include in its prices a return on the capital it has prudently invested for
10 the provision of utility service.

11 Expenses of activities unrelated to the provision of utility service are
12 excluded from the price of utility services as are returns on capital not devoted to
13 utility service.

14 **Q. PLEASE EXPLAIN HOW A REGULATED COMPANY'S RATES**
15 **SHOULD BE SET UNDER TRADITIONAL COST OF SERVICE**
16 **REGULATION.**

17 A. Under the traditional regulatory process, a regulated company's rates should
18 be set so that the company covers its costs, including taxes and depreciation, plus a
19 fair and reasonable return on its invested capital. The allowed rate of return must
20 necessarily reflect the cost of the funds obtained, that is, investors' return
21 requirements. In determining a company's rate of return, the starting point is
22 investors' return requirements in financial markets. A rate of return can then be set

1 at a level sufficient to enable the company to earn a return commensurate with the
2 cost of those funds.

3 Funds can be obtained in two general forms, debt capital and equity capital.
4 The cost of debt funds can be easily ascertained from an examination of the
5 contractual interest payments. The cost of common equity funds, that is, investors'
6 required rate of return, is more difficult to estimate. One of the goals of my
7 testimony is to estimate a fair and reasonable return on common equity capital for
8 water and wastewater utilities.

9 **Q. HOW IS THE AMOUNT OF CAPITAL DEVOTED TO THE**
10 **PROVISION OF UTILITY SERVICE DETERMINED?**

11 A. This amount cannot be specifically or directly identified. It is common for
12 a utility to engage in some non-utility investing activities--if only for short-term cash
13 management purposes. In addition, many companies operate non-utility businesses
14 or operate in more than one regulatory jurisdiction. And, of course, many utilities
15 have utility assets under construction or, which even if complete and ready for
16 service are, for one reason or another, not considered to be yet devoted to utility
17 service. While the total amount of capital is easily identified from the utility's books
18 and records, it is not readily determinable what proportion of that capital is devoted
19 to utility service. Consequently, among those practices and procedures which have
20 evolved in the art of cost-based ratemaking is the method of estimating how much
21 capital is devoted to utility service.

1 **Q. HOW IS THE AMOUNT OF CAPITAL DEVOTED TO UTILITY**
2 **SERVICE ESTIMATED?**

3 A. Working with values and/or transactions shown on the utility's books of
4 account, a study is made to identify the cost of assets devoted to the provision of
5 utility service. This would include utility plant, inventories, prepayments and other
6 assets together with an allowance for the amount of money needed to fund utility
7 expenses prior to receipt of customers' payment for service. These amounts are
8 reduced by accumulated depreciation, amounts advanced by vendors or customers
9 and other cost-free capital. The amount determined through this technique has come
10 to be known as "rate base."

11 "Rate base" is a surrogate for the amount of capital investors have supplied
12 for the provision of utility service. "Rate base" represents not so many feet of pipe
13 or number of meters, pumps or structures, but rather the number of dollars of
14 common stock equity or long-term debt devoted to utility service. It is this amount
15 of capital upon which investors are entitled to earn a reasonable return.

16 **Q. HOW IS A REASONABLE RETURN DETERMINED?**

17 A. It begins with the amounts of capital shown on the utility's books of account.
18 For those utilities that utilize debt or preferred stock as part of their capital, the cost
19 of these elements of capital can be calculated. The cost of common equity capital
20 (common stock, other paid-in capital and retained earnings) is estimated using stock
21 market data. The weighted cost of these forms of capital (together with cost-free

1 capital, if any) is the “reasonable return” which is allowed on investors’ capital (“rate
2 base”).

3 These methods and procedures result in prices based upon historic original
4 costs rather than current values of the resources devoted to utility service. However
5 calculated, courts have held that a reasonable return must be sufficient to enable the
6 utility to maintain its credit standing and financial integrity, sufficient to enable it to
7 attract new capital at reasonable costs and commensurate with returns being earned
8 on investments attended by corresponding risks.

9 **Q. ARE UTILITY INVESTORS TOTALLY PROTECTED FROM RISK**
10 **WHEN RATES ARE SET AS YOU DESCRIBE?**

11 A. Utility investments are not risk free. Utility investors carry the risk of the
12 success or failure of the enterprise as in any other kind of business. This generally
13 includes weather, customer usage, management’s ability to control costs, competition
14 from other providers, inflation and regulatory lag, as well as market risks. The water
15 and wastewater industry has additional risks beyond these normal risks. The rate of
16 return allowed on utility investors’ capital is generally lower than might be earned
17 in some other types of businesses, but should include an allowance for the risks
18 investors do face.

19 **Q. ARE UTILITY INVESTORS EXPOSED TO CAPITAL LOSSES ON**
20 **THEIR INVESTMENTS?**

21 A. Yes, they are. Depending on factors both related and unrelated to the specific
22 utility, some investors have suffered substantial capital losses.

1 **Q. DO CHANGES IN THE VALUE OF ASSETS DEVOTED TO UTILITY**
2 **SERVICE AND INCLUDED IN "RATE BASE" RESULT IN AN INCREASE**
3 **OR DECREASE IN THE AMOUNT OF RETURN ON CAPITAL ALLOWED**
4 **BY REGULATORS?**

5 A. No, values other than actual cost - - usually historic original cost - - are
6 generally not considered. The Commission's interpretation of Chapter 367, Florida
7 Statutes, is that returns allowed must be limited to the original cost of utility assets
8 at the time of dedication to public use. This interpretation has been consistently
9 applied for many years and was reaffirmed in its Order No. 25729 issued February
10 17, 1992 which states "This Commission has consistently interpreted the "investment
11 of the utility" as contained in Section 367.081(2)(a), Florida Statutes, to be the
12 original cost of the property when first dedicated to public service, not only in the
13 context of acquisition adjustments, but elsewhere as well."

14 Thus, although the book values of utility assets may be significantly lower
15 than replacement values of those assets, customers are totally shielded from price
16 increases which might otherwise reflect those increased costs. For those assets which
17 provide service to customers until retirement from service, neither depreciation nor
18 return allowances included in utility service prices reflect the higher costs which
19 investors will face upon replacing such assets. This risk rests squarely on investors.

20 **Q. WHAT MUST BE CONSIDERED IN ESTIMATING A FAIR RETURN**
21 **ON EQUITY?**

1 A. As discussed in the next section, the basic premise is that the allowable return
2 on equity should be commensurate with returns on investments in other firms having
3 corresponding risks. The allowed return should be sufficient to assure confidence in
4 the financial integrity of the firm, in order to maintain creditworthiness and ability
5 to attract capital on reasonable terms. The attraction of capital standard focuses on
6 investors' return requirements that are generally determined using market value
7 methods, such as the Risk Premium, CAPM, or the DCF methods. These market
8 value tests define fair return as the return investors anticipate when they purchase
9 equity shares of comparable risk in the financial marketplace. This is a market rate
10 of return, defined in terms of anticipated dividends and capital gains as determined
11 by expected changes in stock prices, and reflects the opportunity cost of capital. The
12 economic basis for market value tests is that new capital will be attracted to a firm
13 only if the return expected by the suppliers of funds is commensurate with that
14 available from alternatives of comparable risk.

15 **Q. HOW IS A UTILITY'S FAIR RATE OF RETURN DERIVED?**

16 A. The fair rate of return in dollars is obtained by multiplying the established
17 rate of return set by the regulator by the "rate base". The rate base is essentially the
18 net book value of the utility's plant considered used and useful in dispensing service.
19 As discussed in the section IV, regulatory entities will frequently establish a
20 methodology for determining a reasonable range of returns that varies depending
21 upon an enterprise's debt/equity ratio.

1 **Q. WHAT FUNDAMENTAL PRINCIPLES UNDERLIE THE**
 2 **DETERMINATION OF A FAIR AND REASONABLE RATE OF RETURN?**

3 A. The heart of utility regulation is the setting of just and reasonable rates by
 4 way of a fair and reasonable return. There are two landmark United States Supreme
 5 Court cases that define the legal principles underlying the regulation of a public
 6 utility's rate of return and provide the foundations for the notion of a fair return:

- 7 1. Bluefield Water Works & Improvement Co. v. Public Service
 8 • Commission of West Virginia, 262 U.S. 679 (1923).
 9
 10 2. Federal Power Commission v. Hope Natural Gas Company, 320 U.S.
 11 391 (1944).

12 The Bluefield case set the standard against which just and reasonable rates of return
 13 are measured:

14 *"A public utility is entitled to such rates as will permit it to*
 15 *earn a return on the value of the property which it employs for the*
 16 *convenience of the public equal to that generally being made at the*
 17 *same time and in the same general part of the country on investments*
 18 *in other business undertakings which are attended by corresponding*
 19 *risks and uncertainties ... The return should be reasonable, sufficient*
 20 *to assure confidence in the financial soundness of the utility, and*
 21 *should be adequate, under efficient and economical management, to*
 22 *maintain and support its credit and enable it to raise money*
 23 *necessary for the proper discharge of its public duties."* (emphasis
 24 added)

25
 26 The Hope case expanded on the guidelines to be used to assess the
 27 reasonableness of the allowed return. The Court reemphasized its statements in the
 28 Bluefield case and recognized that revenues must cover "capital costs". The Court
 29 stated:

1 "*From the investor or company point of view it is important*
 2 *that there be enough revenue not only for operating expenses but also*
 3 *for the capital costs of the business. These include service on the*
 4 *debt and dividends on the stock ... By that standard the return to the*
 5 *equity owner should be commensurate with returns on investments in*
 6 *other enterprises having corresponding risks. That return, moreover,*
 7 *should be sufficient to assure confidence in the financial integrity of*
 8 *the enterprise, so as to maintain its credit and attract capital.*"
 9 (emphasis added)

10 The United States Supreme Court reiterated the criteria set forth in Hope in
 11 Federal Power Commission v. Memphis Light, Gas & Water Division, 411 U.S. 458
 12 (1973), in Permian Basin Rate Cases, 390 U.S. 747 (1968), and most recently in
 13 Duquesne Light Co. vs. Barasch, 488 U.S. 299 (1989). In the Permian cases, the
 14 Supreme Court stressed that a regulatory agency's rate of return order should:
 15

16 "*...reasonably be expected to maintain financial integrity, attract*
 17 *necessary capital, and fairly compensate investors for the risks they*
 18 *have assumed...*"

19 Therefore, the "end result" of this Commission's decision should be to allow
 20 a utility the opportunity to earn a return on equity that is: (1) commensurate with
 21 returns on investments in other firms having corresponding risks, (2) sufficient to
 22 assure confidence in the company's financial integrity, and (3) sufficient to maintain
 23 the company's creditworthiness and ability to attract capital on reasonable terms.

24 **Q. HOW IS THE FAIR RATE OF RETURN DETERMINED?**

25 A. The aggregate return required by investors is called "cost of capital". The
 26 cost of capital is the opportunity cost, expressed in percentage terms, of the total pool
 27 of capital employed by the utility. It is the composite weighted cost of the various

1 classes of capital (bonds, preferred stock, common stock) used by the utility, with the
2 weights reflecting the proportions of the total that each class of capital represents.

3 While utilities enjoy varying degrees of monopoly in the sale of public utility
4 services, they must compete with everyone else in the free, open market for the input
5 factors of production, whether labor, materials, machines, or capital. The prices of
6 these inputs are set in the competitive marketplace by supply and demand, and it is
7 these input prices that are incorporated in the cost of service computation. This is
8 just as true for capital as for any other factor of production. Since utilities and other
9 investor-owned businesses must go to the open capital market and sell their securities
10 in competition with every other issuer, there is obviously a market price to pay for
11 the capital they require, for example, the interest on debt capital, or the expected
12 return on equity.

13 **Q. HOW DOES THE CONCEPT OF A FAIR RETURN RELATE TO THE**
14 **CONCEPT OF OPPORTUNITY COST?**

15 A. The concept of a fair return is intimately related to the concept of opportunity
16 costs. When investors supply funds to a utility by buying its stocks or bonds, they
17 are not only postponing consumption, giving up the alternative of spending their
18 dollars in some other way, they are also exposing their funds to risk. Investors are
19 willing to incur this double penalty only if they are adequately compensated. The
20 compensation they require is the price of capital. If there are differences in the risk
21 of the investments, competition among firms for a limited supply of capital will bring
22 different prices. These differences in risk are translated by the capital markets into

1 price differences in much the same way that differences in the characteristics of
2 commodities are reflected in different prices.

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

7 **Q. HOW DOES A UTILITY COMPANY OBTAIN ITS CAPITAL?**

8 A. The funds employed by a utility are obtained in two general forms, debt
9 capital and equity capital. The latter consists of preferred equity capital and common
10 equity capital. The cost of debt funds and preferred stock funds can be easily
11 ascertained from an examination of the contractual interest payments and preferred
12 dividends. The cost of common equity funds, that is, equity investors' required rate
13 of return, is more difficult to estimate because the dividend payments received from
14 common stock are not contractual or guaranteed in nature. They are uneven and
15 risky, unlike interest payments. The return on common equity estimate can then be
16 easily combined with the embedded cost of debt and preferred stock together with
17 the capital structure, in order to arrive at the overall cost of capital.

18 **Q. WHAT IS THE MARKET REQUIRED RATE OF RETURN ON**
19 **EQUITY CAPITAL?**

20 A. The market required rate of return on common equity, or cost of equity, is the
21 return demanded by the equity investor. Investors determine the price for equity
22 capital through their buying and selling decisions in capital markets. Investors set

1 return requirements according to their perception of the risks inherent in the
2 investment, recognizing the opportunity cost of foregone investments in other
3 companies, and the returns available from other investments of comparable risk.

4 **II. COST OF EQUITY ESTIMATES**

5 **Q. DR. MORIN, HOW DID YOU ARRIVE AT YOUR RANGE OF THE**
6 **FAIR RATES OF RETURN ON COMMON EQUITY FOR FLORIDA**
7 **WATER AND WASTEWATER UTILITIES?**

8 A. I employed three methodologies: (1) the CAPM, (2) the Risk Premium, and
9 (3) the DCF method. All three are market-based methods and are designed to
10 estimate the return required by investors on the common equity capital committed
11 to the utility.

12 **Q. WHY DID YOU USE MORE THAN ONE APPROACH FOR**
13 **ESTIMATING THE COST OF EQUITY?**

14 A. No one individual method provides the necessary level of precision for
15 determining a fair return, but each method provides useful evidence so as to facilitate
16 the exercise of an informed judgment. Reliance on any single method or preset
17 formula is inappropriate when dealing with investor expectations because of possible
18 measurement errors and vagaries in individual companies' market data. The
19 advantage of using several different approaches is that the results of each one can be
20 used to check the others.

21 As a general proposition, it is extremely dangerous to rely on only one
22 generic methodology to estimate equity costs. The difficulty is compounded when

1 only one variant of that methodology is employed. Hence, several methodologies
2 applied to several comparable risk companies should be employed to estimate the
3 cost of capital.

4 **Q. HOW DID YOU APPLY THE RISK PREMIUM METHOD TO THIS**
5 **INDUSTRY?**

6 A. In order to quantify the risk premium for the industry, I have performed six
7 risk premium studies. The first two studies deal with aggregate stock market risk
8 premium evidence and the other four deal directly with the utility industry.

9 **1. CAPM ESTIMATES**

10 **Q. PLEASE DESCRIBE YOUR APPLICATION OF THE CAPM RISK**
11 **PREMIUM APPROACH.**

12 A. I developed two risk premium estimates based respectively on the CAPM and
13 on an empirical approximation to the CAPM (ECAPM). The CAPM is a
14 fundamental paradigm of finance. The fundamental idea underlying the CAPM is
15 that risk-averse investors demand higher returns for assuming additional risk, and
16 higher-risk securities are priced to yield higher expected returns than lower-risk
17 securities. The CAPM quantifies the additional return, or risk premium, required for
18 bearing incremental risk. It provides a formal risk-return relationship anchored on
19 the basic idea that only market risk matters, as measured by beta. According to the
20 CAPM, securities are priced such that:

21
$$\text{EXPECTED RETURN} = \text{RISK-FREE RATE} + \text{RISK PREMIUM}$$

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

$$3 \quad K = R_F + \beta(R_M - R_F)$$

4 This is the seminal CAPM expression, which states that the return required
5 by investors is made up of a risk-free component, R_F , plus a risk premium given by
6 $\beta(R_M - R_F)$. To derive the CAPM risk premium estimate, three quantities are
7 required: the risk-free rate (R_F), beta (β), and the market risk premium, ($R_M - R_F$).
8 For the risk-free rate, I used 5.8%. For beta, I used 0.65, and for the market risk
9 premium, I used 7.8%. These inputs to the CAPM are explained below.

10 **Q. PLEASE EXPLAIN THE BASIS FOR THE RISK-FREE RATE THAT**
11 **YOU USED IN YOUR RISK PREMIUM ANALYSES?**

12 A. To implement the Risk Premium method, an estimate of the risk-free return
13 is required as a benchmark. As a proxy for the risk-free rate, I have relied on the
14 actual yields on long-term Treasury bonds. Long-term rates are the relevant
15 benchmarks when determining the cost of common equity, rather than short-term
16 interest rates. Short-term rates are volatile, fluctuate widely, and are subject to more
17 random disturbances than are long-term rates. For example, Treasury bills are used
18 by the Federal Reserve as a policy vehicle to stimulate the economy and to control
19 the money supply, and are also used by foreign governments, companies, and
20 individuals as a temporary safe house for money. Short-term rates are largely
21 administered rates.

1 As a practical matter, it is inappropriate to relate the return on common stock
 2 to the yield on short-term instruments. This is because short-term rates, such as the
 3 yield on 90-day Treasury Bills, fluctuate widely leading to volatile and unreliable
 4 equity return estimates. Moreover, yields on 90-day Treasury Bills typically do not
 5 match the equity investor's planning horizon. Equity investors generally have an
 6 investment horizon far in excess of 90 days.

7 As a conceptual matter, short-term Treasury Bill yields reflect the impact of
 8 factors different from those influencing long-term securities such as common stock.
 9 For example, the premium for expected inflation embedded into 90-day Treasury
 10 Bills is likely to be far different than the inflationary premium embedded into long-
 11 term securities yields. On grounds of stability and consistency, the yields on long-
 12 term Treasury bonds match more closely with common stock returns.

13 The level of U.S. Treasury long-term bond yields prevailing in June 2001 was
 14 5.8%.

15 **Q. WHAT BETA DID YOU SELECT FOR YOUR CAPM ANALYSIS?**

16 A. For my beta estimate, I examined the historical betas published by Value Line
 17 for various regulated utility groups. The average betas for the various groups are
 18 summarized in the table below:

19	Regulated Utility Group	Average Beta
20	Water Utilities	0.53
21	Generation Divested Electric Utilities	0.56
22	Natural Gas Distribution Utilities	0.60
23	Natural Gas Transmission Utilities	0.76

24
 25 Source: Value Line Investment Survey for Windows, 6/2001

1 The beta estimates range from a low of 0.53 for water utilities to a high of
2 0.76 for gas transmission utilities, with a midpoint of 0.65.

3 The beta estimate for water utilities, which constitutes the low end of the
4 range, is downward-biased by the so-called thin trading bias. Because most of the
5 publicly traded water utilities covered by Value Line and that appear in the
6 comparable group shown in Exhibit ____ (RAM-4) are thinly traded and are small-
7 capitalization stocks with a market capitalization well below \$500 million for which
8 there is only periodic trading, beta estimates are downward biased. You can actually
9 corroborate this phenomenon by comparing the betas of the larger capitalization
10 water utilities with the group average of 0.53. The average beta of the larger
11 capitalization utilities (>\$250 million) is actually 0.61, versus the group average of
12 0.53. This can be seen on Exhibit ____ (RAM-4).

13 This thin trading bias occurs because observed returns contain stale
14 information about past period returns rather than current period returns. Intuitively,
15 suppose the stock market index surges forward but an individual company stock price
16 remains unchanged due to lack of trading, the estimated beta is imparted a downward
17 bias. The stock is unable to catch up to market-wide movements and appears to be
18 a lower beta stock. Adjustment for the thin trading effect increases the beta estimate.

19 Furthermore, the water utility industry is somewhat unstable at this time.
20 Water utility stocks have become increasingly disconnected from overall stock
21 market movements and have been increasingly driven by industry-specific factors in
22 recent years, including consolidation, corporate restructurings, mergers, and

1 environmental compliance burdens. The net result of this “distancing” between the
2 water utility industry and the overall equity market is a downward effect on utility
3 betas, as water utility stocks increasingly reflect factors unique to the industry.

4 The historical betas of electric utilities are downward-biased as well.
5 Ongoing changes in risk fundamentals are not yet be fully reflected in historical beta
6 estimates. The historical betas of approximately 0.56 reported by Value Line for the
7 electric utility industry are not indicative of future trends in the industry. By
8 construction, backward-looking betas are sluggish in detecting fundamental changes
9 in a company's risk. For example, if an electric utility suddenly experiences a
10 quantum increase in its business risk, as is the case under the stimulus of imminent
11 restructuring and competition, one expects an increase in beta. However, if 60
12 months of return data are used to estimate beta, only one of the 60 data points reflects
13 the new information, one month after the company experiences its increase in
14 business risk. Thus, the change in risk only has a minor effect on the historical beta.
15 Even one year later, only 12 of the 60 return points reflect the event.

16 By the same token, I consider the historical beta estimate of 0.76 for gas
17 transmission utilities, which constitutes the high end of the range, upward-biased.
18 As a result of gas deregulation, several of the business risks have shifted from the
19 merchant pipeline to the LDC, and these changes in risk fundamentals have yet to be
20 fully reflected in historical beta estimates.

1 I use the midpoint of the range, 0.65, as my estimate for the beta applicable
2 to water and wastewater utility operations. This is a conservative approach for the
3 industry as a whole, especially in Florida, where water and wastewater utility
4 companies are comparatively very small in size. This beta estimate is close to the
5 beta for large capitalization water utilities. The midpoint of the range also
6 corresponds to the beta estimate of natural gas distribution utilities. It is not
7 unreasonable to postulate that a water and wastewater utility's operations possess an
8 investment risk profile comparable to that of today's natural gas distribution utility
9 business. Natural gas utility companies possess economic characteristics similar to
10 those of water utilities. They are both involved in the transmission-distribution of
11 regulated infrastructure commodity products at regulated rates in a cyclical and
12 weather-sensitive market. They both employ a capital-intensive network with
13 comparable physical characteristics. They are both subject to rate of return
14 regulation.

15 **Q. WHAT MARKET RISK PREMIUM ESTIMATE DID YOU USE IN**
16 **YOUR CAPM ANALYSIS?**

17 A. For the market risk premium, I used 7.8%. This estimate was based on the
18 results of both forward-looking and historical studies of long-term risk premiums.
19 Two studies guided the assumed range. First, the Ibbotson Associates study of
20 historical returns from 1926 to 1999 shows that a broad market sample of common
21 stocks outperformed long-term Treasury bonds by 7.8%. Second, a DCF analysis

1 applied to the aggregate equity market indicates a prospective market risk premium
2 of nearly the same magnitude.

3 **Q. WHY DID YOU USE LONG TIME PERIODS IN ARRIVING AT**
4 **YOUR HISTORICAL MARKET RISK PREMIUM ESTIMATE?**

5 A. It is important to employ returns realized over long time periods rather than
6 returns realized over more recent time periods when estimating the market risk
7 premium with historical returns. This is because realized returns can be substantially
8 different from prospective returns anticipated by investors, especially when measured
9 over short time periods. Therefore, a risk premium study should consider the longest
10 possible period for which data are available. Short-run periods during which
11 investors earned a lower risk premium than they expected are offset by short-run
12 periods during which investors earned a higher risk premium than they expected.
13 Only over long time periods will investor return expectations and realizations
14 converge.

15 I have therefore ignored realized risk premiums measured over short time
16 periods, since they are heavily dependent on short-term market movements. Instead,
17 I relied on results over periods of enough length to smooth out short-term
18 aberrations, and to encompass several business and interest rate cycles. The use of
19 the entire study period in estimating the appropriate market risk premium minimizes
20 subjective judgment and encompasses many diverse regimes of inflation, interest rate
21 cycles, and economic cycles.

1 To the extent that the historical equity risk premium estimated follows what
2 is known in statistics as a random walk, one should expect the equity risk premium
3 to remain at its historical mean. The best estimate of the future risk premium is the
4 historical mean. Since I found no evidence that the market price of risk or the
5 amount of risk in common stocks has changed over time, that is, no significant serial
6 correlation in the Ibbotson study, it is reasonable to assume that these quantities will
7 remain stable in the future.

8 **Q. PLEASE DESCRIBE YOUR PROSPECTIVE APPROACH IN**
9 **DERIVING THE MARKET RISK PREMIUM IN THE CAPM ANALYSIS.**

10 A. For my second estimate of the market risk premium, I applied a DCF analysis
11 to the aggregate equity market using Value Line's "Value Line Investment Survey for
12 Windows" ("VLIS") software. The dividend yield on the aggregate market is
13 currently 2.5% (VLIS 4/2001 edition), and the projected growth for the more than
14 5000 stocks covered by Value Line is in the range of 6.1% to 15.4%. Adding the two
15 components together produces an expected return on the aggregate equity market in
16 the range of 8.6% to 17.9%, with a midpoint of 13.2%. Following the tenets of the
17 DCF model, the spot dividend yield must be converted into an expected dividend
18 yield by multiplying it by one plus the growth rate. This brings the expected return
19 on the aggregate equity market to 13.5%. Recognition of the quarterly timing of
20 dividend payments rather than the annual timing of dividends assumed in the annual
21 DCF model brings this estimate to approximately 13.7%. The implied risk premium

1 is therefore 7.9% over long-term U.S. Treasury bonds that are currently yielding
2 5.8%. This estimate is virtually identical to the 7.8% estimate obtained from
3 historical market risk premium data.

4 **Q. WHAT IS YOUR RISK PREMIUM ESTIMATE USING THE CAPM**
5 **APPROACH?**

6 A. Inserting those input values in the CAPM equation, namely a risk-free rate
7 of 5.8%, a beta of 0.65, and a market risk premium of 7.8%, the CAPM estimate of
8 a typical water company's cost of common equity is: $5.8\% + 0.65 \times 7.8\% = 10.9\%$.
9 This estimate becomes 11.2% with flotation costs, discussed later in my testimony.

10 **Q. WHAT IS YOUR RISK PREMIUM ESTIMATE USING THE**
11 **EMPIRICAL VERSION OF THE CAPM?**

12 A. It is well established in the academic finance literature that the CAPM
13 produces a downward-biased estimate of equity cost for companies with a beta of
14 less than 1.00. Expanded CAPMs have been developed which relax some of the
15 more restrictive assumptions underlying the traditional CAPM responsible for this
16 bias, and thereby enrich its conceptual validity. These expanded CAPMs typically
17 produce a risk-return relationship that is "flatter" than the traditional CAPM's
18 prediction, consistent with the empirical findings of the finance literature. The
19 following equation provides a viable approximation to the observed relationship
20 between risk and return, and provides the following cost of equity capital estimate:

$$21 \quad K = R_F + 0.25 (R_M - R_F) + 0.75 \beta (R_M - R_F)$$

1 Inserting 5.8% for R_F , a market risk premium of 7.8% for $R_M - R_F$ and a beta
2 of 0.65 in the above equation, the return on common equity is 11.6% without
3 flotation cost and 11.9% with flotation costs.

4 **2. RISK PREMIUM ESTIMATES**

5 **Q. DR. MORIN, HOW DID YOU IMPLEMENT YOUR RISK PREMIUM**
6 **ANALYSIS OF THE REGULATED UTILITY INDUSTRY?**

7 A. Because of the unavailability of historical data over a sufficiently long period
8 of time and because of the heterogeneous nature of the water companies that make
9 up the industry, I examined the risk premiums in the electric and natural gas utility
10 industries. There is a severe shortage of pure-play water utilities whose shares are
11 publicly listed and actively traded, and are therefore subject to the opinions and
12 actions of investors in a measurable way. Given this situation, the need to extend the
13 sample to companies of comparable risk is obvious. Furthermore, from a purely
14 practical viewpoint, the historical Risk Premium approach model is difficult, if not
15 impossible, to apply to water utilities data. There are very few “degrees of freedom”
16 and very few comparable risk pure-play water utilities with clean homogeneous
17 historical financial data extending over sufficiently long time periods, and, therefore,
18 the risk premium results from such studies are likely to prove unreliable, even if data
19 were available to begin with. Therefore, as a surrogate for the risk premiums of the
20 regulated water utility industry, I examined the historical risk premiums of both the
21 electric and natural gas utility industries.

1 A historical risk premium for the electric utility industry was estimated with
2 an annual time series analysis from 1931 to 1999 applied to the electric utility
3 industry as a whole, using Moody's Electric Utility Index as an industry proxy. The
4 analysis is depicted on Exhibit ____ (RAM-2). The risk premium was estimated by
5 computing the actual return on equity capital for Moody's Index for each year from
6 1931 to 1999 using the actual stock prices and dividends of the index, and then
7 subtracting the long-term government bond return for that year.

8 The average risk premium over the period was 5.2% over long-term Treasury
9 bonds. Given that long-term Treasury bonds are currently yielding about 5.8%, the
10 implied cost of equity for the average electric utility from this particular method is
11 $5.8\% + 5.2\% = 11.0\%$.

12 The same risk premium analysis was applied to the natural gas utility
13 industry. A historical risk premium for the natural gas distribution utility industry
14 was estimated with an annual time series analysis from 1955 to 1999 applied to the
15 natural gas distribution industry as a whole, using Moody's Natural Gas Distribution
16 Index as an industry proxy. Data for this particular index was unavailable prior to
17 1955. The analysis is depicted on Exhibit ____ (RAM-3). The risk premium was
18 estimated by computing the actual return on equity capital for Moody's Index for
19 each year from 1954 to 1999 using the actual stock prices and dividends of the index,
20 and then subtracting the long-term government bond return for that year. The
21 average risk premium over the period was 5.8% over long-term Treasury bonds.

1 Given that long-term Treasury bonds are currently yielding about 5.8%, the implied
2 cost of equity for the average gas distribution utility from this particular method is
3 $5.8\% + 5.8\% = 11.6\%$.

4 **Q. DID YOU ADJUST YOUR RISK PREMIUM RESULTS TO**
5 **ACCOUNT FOR THE FACT THAT WATER AND WASTEWATER**
6 **UTILITIES ARE RISKIER THAN THE OTHER REGULATED UTILITIES?**

7 A. Yes, I did. The cost of equity estimate from the two Moody's groups reflects
8 the risk of the average utility. To the extent that the risk premium estimate is drawn
9 from a less risky group of companies, the expected equity return applicable to the
10 water and wastewater industry is downward-biased. I estimate the bias to be of the
11 order of 35 basis points. This adjustment increases the risk premium estimate from
12 11.0% to 11.4% obtained from the electric utility industry and from 11.6% to 12.0%
13 from the natural gas industry.

14 It is a rudimentary tenet of basic finance that the greater the amount of
15 financial risk borne by common shareholders, the greater the return required by
16 shareholders in order to be compensated for the added financial risk imparted by the
17 greater use of senior debt financing.

18 The results of empirical studies and theoretical studies indicate that equity
19 costs increase by 8 to 14 basis points per one percentage point increase in the debt
20 ratio.

1 The size phenomenon is well documented in the finance literature. Investment
2 risk increases as company size diminishes, all else remaining constant. Reinganum
3 ("Misspecification of Capital Asset Pricing: Empirical Anomalies Based on Earnings,
4 Yields and Market Values," Journal of Financial Economics, 9, no. 1 March 1981)
5 examined the relationship between the size of the firm and its P/E ratio, and found
6 that small firms experienced average returns greater than those of large firms that
7 were of equivalent systematic risk (beta). He found that small firms produce greater
8 returns than could be explained by their risks. These results were confirmed in a
9 separate test by Banz ("The Relationship between Return and Market Value of
10 Common Stock," Journal of Financial Economics, 9, no. 1 March 1981), who
11 examined stock returns over the much longer 1936-1975 period, finding that stocks
12 of small firms earned higher risk-adjusted abnormal returns than those of large firms.

13 Ibbotson Associates' widely used compilation of historical returns from 1926
14 to the present reinforces this evidence (see *Stocks, Bonds, Bills, and Inflation 2000*
15 *Yearbook*, Ibbotson Associates, Chicago 2000). Small companies have very
16 different returns than large ones and on average those returns have been higher. The
17 greater risk of small stocks does not fully account for their higher returns over many
18 historical periods. The average small stock premium is approximately 4% over the
19 average stock, more than could be expected by risk differences alone, suggesting that
20 the cost of equity for small stocks is considerably larger than for large capitalization
21 stocks. In addition to earning the highest average rates of return, small stocks also
22 had the highest volatility, as measured by the standard deviation of returns.

1 The size effect is particularly relevant for smaller water utilities whose equity
2 market value is less than \$250 million. Not only do these small water utilities
3 possess higher risks than their larger counterparts but they are also subjected to a
4 significant size effect, strongly suggesting that their cost of equity capital is higher.

5 **Q. PLEASE DESCRIBE YOUR ANALYSIS OF ALLOWED RISK**
6 **PREMIUMS IN THE REGULATED UTILITY INDUSTRY.**

7 A. To estimate a typical water and wastewater utility's cost of common equity,
8 I examined the historical risk premiums implied in the ROEs allowed by regulatory
9 commissions in hundreds of ROE decisions over the period 1987-2000 relative to the
10 contemporaneous level of the long-term Treasury bond yield in both the electric and
11 natural gas utility industry. No such comprehensive data in a statistically meaningful
12 quantity is available for water utility regulatory decisions.

13 As far as the electric utility industry is concerned, the average ROE spread
14 over long-term Treasury yields was 4.6% for the 1987-2000 time period as shown by
15 the horizontal line in the graph of Exhibit ____ (RAM-7) Page 1. The graph also
16 shows the year-by-year allowed risk premium.

17 A more careful review of these ROE decisions relative to interest rate trends
18 also reveals a narrowing of the risk premium in times of rising interest rates, and a
19 widening of the premium as interest rates fall. The following statistical relationship
20 between the risk premium (RP) and interest rates (YIELD) emerges over the 1987-
21 2000 period:

$$\begin{array}{l}
 1 \qquad \qquad \qquad RP = 0.0772 - 0.422 \text{ YIELD} \qquad \qquad R^2 = 0.65 \\
 2 \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad (t = 4.92) \\
 3
 \end{array}$$

4 The relationship is statistically significant as indicated by the high R^2 and
 5 statistically significant t-value of the slope coefficient. The graph on Exhibit ____
 6 (RAM-7) Page 2 shows the inverse relationship between the allowed risk premium
 7 and interest rates as revealed in past ROE decisions.

8 Inserting the current long-term Treasury bond yield of 5.8% in the above
 9 equation suggests a risk premium estimate of 5.3% that would be allowed for the
 10 average risk electric utility. The risk premium applicable to a riskier than average
 11 water and wastewater utility is understated as discussed earlier. This adjustment
 12 would raise the risk premium higher.

13 As far as the natural gas utility industry is concerned, the average ROE spread
 14 over long-term Treasury yields was 4.6% for the 1987-2000 period as shown by the
 15 horizontal line in the graph shown on Page 3 of Exhibit ____ (RAM-7). The graph
 16 also shows the year-by-year allowed risk premium.

17 As was the case with the electric utility industry, a more careful review of
 18 these ROE decisions relative to interest rates reveals a narrowing of the risk premium
 19 in times of rising interest rates, and a widening of the premium as interest rates fall.
 20 The following statistical relationship between the risk premium (RP) and interest
 21 rates (YIELD) emerges over the 1987-2000 period:

$$\begin{array}{l}
 22 \qquad \qquad \qquad RP = 0.0751 - 0.41 \text{ YIELD} \qquad \qquad R^2 = 0.68 \\
 23 \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad (t=5.1)
 \end{array}$$

1 The relationship is statistically significant as indicated by the high R^2 and
 2 statistically significant t-value of the slope coefficient. The graph shown on Page 4
 3 of Exhibit ____ (RAM-7) shows the inverse relationship between the allowed risk
 4 premium and interest rates as revealed in past ROE decisions.

5 Inserting the current long-term Treasury bond yield of 5.8% in the above
 6 equation suggests a risk premium estimate of 5.2% that would be allowed for an
 7 average risk natural gas utility. The risk premium applicable to a riskier water and
 8 wastewater utility is understated as discussed earlier. This adjustment would raise
 9 the risk premium even higher.

10 **Q. PLEASE SUMMARIZE YOUR RISK PREMIUM ESTIMATES.**

11 A. The table below summarizes the ROE estimates obtained from the various
 12 risk premium studies:

	RISK PREMIUM STUDY	ROE
13	CAPM	11.2%
14	ECAPM	11.9%
15	Historical Risk Premium Electric	11.4%
16	Historical Risk Premium Natural Gas	12.0%
17	Allowed Risk Premium Electric Utilities	11.5%
18	Allowed Risk Premium Natural Gas Utilities	11.4%
19		
20		

21 The various risk premium estimates are remarkably convergent and
 22 homogeneous within the 11.5% - 12.0% range, attesting to their reliability.

23 **3. DCF ESTIMATES**

24 **Q. PLEASE DESCRIBE THE DCF APPROACH TO ESTIMATING THE**
 25 **COST OF EQUITY CAPITAL.**

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

$$7 \qquad K_e = D_1/P_o + g$$

8 where: K_e = investors' expected return on equity

9 D_1 = expected dividend during the coming year

10 P_o = current stock price

11 g = expected growth rate of future dividends

12 The traditional DCF formula states that under certain assumptions, which are
 13 described in the next paragraph, the equity investor's expected return, K_e , can be
 14 viewed as the sum of an expected dividend yield, D_1/P_o , plus the expected growth
 15 rate of future dividends and stock price, g . The returns anticipated at a given market
 16 price are not directly observable and must be estimated from statistical market
 17 information. The idea of the market value approach is to infer ' K_e ' from the observed
 18 share price, the observed dividend, and from an estimate of investors' expected future
 19 growth.

20 The assumptions underlying this valuation formulation are well known. The
 21 assumptions are discussed in detail in Chapter 4 of my book, Regulatory Finance.

1 The traditional DCF model requires the following main assumptions: a constant
2 average growth trend for both dividends and earnings, a stable dividend payout
3 policy, a discount rate in excess of the expected growth rate, and a constant price-
4 earnings multiple, which implies that growth in price is synonymous with growth in
5 earnings and dividends. The traditional DCF model also assumes that dividends are
6 paid annually when in fact dividend payments are normally made on a quarterly
7 basis.

8 **Q. HOW DID YOU ESTIMATE AN APPROPRIATE COST OF EQUITY**
9 **WITH THE DCF MODEL?**

10 A. I applied the DCF model to three proxy groups: a group of water utilities
11 drawn from the Value Line Investment Survey coverage, a group of “wires” electric
12 utilities, and a group consisting of widely-traded dividend-paying natural gas
13 distribution companies drawn from the Value Line Gas Distribution Group.

14 To apply the DCF model, two components are required: the expected
15 dividend yield (D_1/P_0) and the expected long-term growth (g). The expected
16 dividend D_1 in the annual DCF model can be obtained by multiplying the current
17 indicated annual dividend rate by the growth factor $(1 + g)$.

18 From a conceptual viewpoint, the stock price to employ is the current price
19 of the security at the time of estimating the cost of equity. The reason is that current
20 stock prices provide a better indication of expected future prices than any other price
21 in an efficient market. An efficient market implies that prices adjust rapidly to the

1 arrival of new information. Therefore, current prices reflect the fundamental
2 economic value of a security. A considerable body of empirical evidence indicates
3 that capital markets are efficient with respect to a broad set of information. This
4 implies that observed current prices represent the fundamental value of a security,
5 and that a cost of capital estimate should be based on current prices.

6 In implementing the DCF model, I have used the spot dividend yields
7 reported in the April 2001 edition of VLIS. The vagaries of individual company
8 stock prices are attenuated when using a large group of companies.

9 **Q. HOW DID YOU ESTIMATE THE GROWTH COMPONENT OF THE**
10 **DCF MODEL?**

11 A. The principal difficulty in calculating the required return by the DCF
12 approach is in ascertaining the growth rate that investors currently expect. Since no
13 explicit estimate of expected growth is observable, proxies must be employed.

14 As a proxy for expected growth, I relied mainly on the growth estimates
15 developed by professional analysts employed by large investment brokerage
16 institutions. Projected long-term growth rates actually used by institutional investors
17 to determine the desirability of investing in different securities influence investors'
18 growth anticipations. These forecasts are made by large reputable organizations, and
19 the data are readily available to investors and are representative of the consensus
20 view of investors. Because of the dominance of institutional investors in investment
21 management and security selection, and their influence on individual investment

1 decisions, analysts' growth forecasts influence investor growth expectations and
2 provide a sound basis for estimating the cost of equity with the DCF model. Growth
3 rate forecasts of several analysts are available from published investment newsletters
4 and from systematic compilations of analysts' forecasts, such as those tabulated in
5 Institutional Brokers' Estimate System's ("IBES") monthly publications. I used
6 analysts' long-term growth forecasts contained in IBES as proxies for investors'
7 growth expectations in applying the DCF model. I also used Value Line's growth
8 forecast as an additional proxy.

9 **Q. WHAT DCF RESULTS DID YOU OBTAIN FOR THE WATER**
10 **UTILITIES GROUP?**

11 A. Exhibit ___ (RAM-4) displays a group of nine water utilities described as
12 "Water Utilities" by Value Line. As shown on Column 4 of page 1 of Exhibit ___
13 (RAM-4), the average long-term growth forecast obtained from IBES is 5.6% for this
14 group. Adding this growth rate to the average expected dividend yield of 4.2%
15 shown in Column 5 and adding 30 basis points to recognize the quarterly timing of
16 dividend payments¹ produce an estimate of equity costs of 9.8% for the group,
17 unadjusted for flotation costs. Allowance for flotation costs to the results of Column
18 4 brings the cost of equity estimate to 10.0%, shown in Column 6.

19 Using Value Line's long-term earnings growth forecast of 7.1% instead of the
20 IBES consensus forecast, the cost of equity is 11.3%, inclusive of flotation costs and

¹ See Morin, R. A., Regulatory Finance, Public Utility Reports Inc., Arlington, VA, 1994, Chapter 7 for a discussion of the quarterly timing adjustment.

1 the quarterly timing adjustment. This analysis is displayed on page 2 of Exhibit ____
2 (RAM-4). I note that Value Line growth forecasts are available for only four of the
3 nine companies in the group.

4 A similar analysis using historical earnings growth instead of analysts'
5 growth forecasts produces a cost of equity estimate of 10.4%, as shown on page 3 of
6 Exhibit ____ (RAM-4).

7 I consider the DCF results obtained from the water utilities group somewhat
8 unreliable in view of the scarcity of available companies. Moreover, the DCF results
9 are somewhat clouded by pending merger negotiations for several of the water
10 companies in the sample. There is a very strong possibility that the stock price of
11 these companies used as input in the DCF dividend yield component is biased by
12 ongoing merger negotiations. The DCF analysis of these companies is therefore
13 susceptible to the singular vagaries of these particular companies. An abnormally
14 low or high ROE recommendation can result from a biased DCF estimate. It is fairly
15 common practice amongst experts and investment analysts to exclude companies
16 currently involved in merger negotiations when applying the DCF model to a sample
17 of comparable risk companies. Unfortunately, I could not afford the luxury of
18 eliminating companies where the number of publicly traded water utilities is so small
19 to begin with. Hence, there is a need to apply the DCF method to other comparable
20 utility groups.

1 **Q. WHAT DCF RESULTS DID YOU OBTAIN FOR THE GENERATION**
2 **DIVESTED ELECTRIC UTILITIES GROUP?**

3 A. Exhibit ___ (RAM-5) displays a group of 15 electric utilities labeled
4 “Generation Divestiture Electric Utilities” by Moody’s. These are publicly listed
5 parent companies whose electric utility operating subsidiaries have divested
6 generation assets or are in the process of doing so and whose remaining operations
7 are natural regulated monopolies. It is reasonable to postulate that the water and
8 wastewater business possesses an investment risk profile similar to those
9 transmission-distribution (“T&D”) utilities that have divested their generation
10 business.

11 As shown on Column 2 of page 1 of Exhibit ___ (RAM-5), the average long-
12 term growth forecast obtained from IBES is 7.1% for this group. Adding this growth
13 rate to the average expected dividend yield of 5.5% shown in Column 3 produces an
14 estimate of equity costs of 12.7% for the group, unadjusted for flotation costs.
15 Allowance for flotation costs to the results of Column 4 brings the cost of equity
16 estimate to 13.0%, shown in Column 5. Edison International and PG&E were
17 excluded from the group due to the bankruptcy filing of the latter and the interruption
18 of dividends of the former, precipitated by the California energy crisis. Niagara
19 Mohawk was also eliminated due to the interruption of dividends. The truncated
20 average, obtained by removing the low and high estimates from the computation of
21 the average, is 12.8%. Because the water and wastewater utilities are riskier than

1 average on account of their small size, the DCF estimate applicable to this industry
2 is downward-biased as discussed earlier. This adjustment increases the DCF cost of
3 equity estimate.

4 Using Value Line's long-term earnings growth forecast of 6.8% instead of the
5 IBES consensus forecast, the cost of equity for the generation divestiture electric is
6 12.4%, unadjusted for flotation costs. Allowance for flotation costs brings the cost
7 of equity estimate to 12.7%. The truncated average is 13.0%. This analysis is
8 displayed on page 2 of Exhibit ____ (RAM-5). Adjustment for industry's higher than
9 average risk increases this estimate.

10 In the interest of conservatism, the DCF results for the electric and natural gas
11 utilities do not reflect the quarterly timing of dividend payments.

12 **Q. WHAT DCF RESULTS DID YOU OBTAIN FOR THE GAS**
13 **DISTRIBUTION UTILITY INDUSTRY USING THE SAME APPROACH?**

14 A. As discussed earlier, as a proxy for a water and wastewater operations, I have
15 examined the expected returns of dividend-paying natural gas distribution utilities
16 contained in Value Line's natural gas distribution universe with a market value in
17 excess of \$500 million. The group is shown in Exhibit ____ (RAM-6).

18 As shown on Column 4 of page 1 of Exhibit ____ (RAM-6), the average long-
19 term growth forecast obtained from the IBES corporate earnings database is 6.6% for
20 the gas distribution group. Adding this growth rate to the average expected dividend
21 yield of 4.8% shown in Column 5 produces an estimate of equity costs of 11.3% for

1 the gas distribution group, unadjusted for flotation costs. Allowance for flotation
 2 costs to the results of Column 6 brings the cost of equity estimate to 11.6%, shown
 3 in Column 7. The truncated average is 11.5%. Adjustment for higher than average
 4 risk increases this estimate.

5 Repeating the exact same procedure, only this time using Value Line's long-
 6 term earnings growth forecast of 9.8% instead of the IBES consensus growth
 7 forecast, the cost of equity for gas distribution group is 14.7%, unadjusted for
 8 flotation costs. Allowance for flotation costs brings the cost of equity estimate to
 9 14.9%. The truncated average is 14.2%. This analysis is displayed on page 2 of
 10 Exhibit ___ (RAM-6). Again, adjustment for industry's higher than average risk
 11 increases this estimate.

12 **Q. PLEASE SUMMARIZE YOUR DCF ESTIMATES.**

13 A. The table below summarizes the DCF estimates:

	DCF STUDY	ROE
14	Water Utilities IBES Growth	10.0%
15	Water Utilities Value Line Growth	11.3%
16	Water Utilities Historical Growth	10.4%
17	Transmission – Distribution Electrics IBES Growth	13.2%
18	Transmission – Distribution Electrics Value Line Growth	13.4%
19	Natural Gas Distribution IBES Growth	11.9%
20	Natural Gas Distribution Value Line Growth	14.6%
21		
22		

23 **Q. PLEASE DESCRIBE THE NEED FOR A FLOTATION COST**
 24 **ALLOWANCE.**

25 A. All the market-based estimates (CAPM, Risk Premium, DCF) reported above
 26 include an adjustment for flotation cost. The simple fact of the matter is that

1 common equity capital is not free. Flotation costs associated with stock issues are
2 exactly like the flotation costs associated with bonds and preferred stocks. Flotation
3 costs are incurred, they are not expensed at the time of issue, and therefore must be
4 recovered via a rate of return adjustment. This is routinely done for bond and
5 preferred stock issues by most regulatory commissions. Clearly, the common equity
6 capital accumulated by a utility is not cost-free. The flotation cost allowance to the
7 cost of common equity capital is regularly discussed and applied in most corporate
8 finance textbooks.

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

18 Investors must be compensated for flotation costs on an ongoing basis to the
19 extent that such costs are not expensed in the past, and therefore the adjustment must
20 continue for the entire time that these initial funds are retained in the firm. Appendix
21 A to my testimony discusses flotation costs in detail, and shows: (1) why it is

1 necessary to apply an allowance of 5% to the dividend yield component of equity
2 cost by dividing that yield by 0.95 (100% - 5%) to obtain the fair return on equity
3 capital; (2) why the flotation adjustment is permanently required to avoid
4 confiscation even if no further stock issues are contemplated; and (3) that flotation
5 costs are only recovered if the rate of return is applied to total equity, including
6 retained earnings, in all future years.

7 By analogy, in the case of a bond issue, flotation costs are not expensed but
8 are amortized over the life of the bond, and the annual amortization charge is
9 embedded in the cost of service. The flotation adjustment is also analogous to the
10 process of depreciation, which allows the recovery of funds invested in utility plant.
11 The recovery of bond flotation expense continues year after year, irrespective of
12 whether the company issues new debt capital in the future, until recovery is
13 complete, in the same way that the recovery of past investments in plant and
14 equipment through depreciation allowances continues in the future even if no new
15 construction is contemplated. In the case of common stock that has no finite life,
16 flotation costs are not amortized. Thus, the recovery of flotation cost requires an
17 upward adjustment to the allowed return on equity.

18 A simple example will illustrate the concept. A stock is sold for \$100, and
19 investors require a 10% return, that is, \$10 of earnings. But if flotation costs are 5%,
20 the company nets \$95 from the issue, and its common equity account is credited by
21 \$95. In order to generate the same \$10 of earnings to the shareholders, from a

1 reduced equity base, it is clear that a return in excess of 10% must be allowed on this
2 reduced equity base, here 10.52%.

3 According to the empirical finance literature discussed in Appendix A, total
4 flotation costs amount to 4% for the direct component and 1% for the market
5 pressure component, for a total of 5% of gross proceeds. This in turn amounts to
6 approximately 30 basis points, depending on the magnitude of the dividend yield
7 component. To illustrate, dividing the average expected dividend yield of around
8 5.6% for utility stocks by 0.95 yields 5.9%, which is 30 basis points higher.

9 Sometimes, the argument is made that flotation costs are real and should be
10 recognized in calculating the fair return on equity, but only at the time when the
11 expenses are incurred. In other words, the flotation cost allowance should not
12 continue indefinitely, but should be made in the year in which the sale of securities
13 occurs, with no need for continuing compensation in future years. This argument is
14 valid only if a company has already been compensated for these costs. If not, the
15 argument is without merit. My own recommendation is that investors be
16 compensated for flotation costs on an on-going basis rather than through expensing,
17 and that the flotation cost adjustment continues for the entire time that these initial
18 funds are retained in the firm.

19 There are several sources of equity capital available to a firm including:
20 common equity issues, conversions of convertible preferred stock, dividend
21 reinvestment plan, employees' savings plan, warrants, and stock dividend programs.

1 Each carries its own set of administrative costs and flotation cost components,
2 including discounts, commissions, corporate expenses, offering spread, and market
3 pressure. The flotation cost allowance is a composite factor that reflects the
4 historical mix of sources of equity. The allowance factor is a build-up of historical
5 flotation cost adjustments associated and traceable to each component of equity at its
6 source. It is impractical and prohibitively costly to start from the inception of a
7 company and determine the source of all present equity. A practical solution is to
8 identify general categories and assign one factor to each category. My recommended
9 flotation cost allowance is a weighted average cost factor designed to capture the
10 average cost of various equity vintages and types of equity capital raised by the
11 company.

12 **Q. IS A FLOTATION COST ADJUSTMENT REQUIRED FOR A**
13 **COMPANY THAT DOES NOT TRADE PUBLICLY AND IS A SUBSIDIARY**
14 **OF A HOLDING COMPANY?**

15 A. Yes, it is. It is sometimes alleged that a flotation cost allowance is
16 inappropriate if the utility is a subsidiary whose equity capital is obtained from its
17 parent. This objection is unfounded since the parent-subsidiary relationship does not
18 eliminate the costs of a new issue, but merely transfers them to the parent. It would
19 be unfair and discriminatory to subject parent shareholders to dilution while
20 individual shareholders are absolved from such dilution. Fair treatment must

1 consider that, if the utility-subsiary had gone to the capital markets directly,
 2 flotation costs would have been incurred.

3 **III. SUMMARY OF RESULTS**

4 **Q. PLEASE SUMMARIZE YOUR RESULTS.**

5 A. I performed six risk premium analyses. For the first two risk premium
 6 studies, I applied the CAPM and an empirical approximation of the CAPM using
 7 current market data. The other four risk premium analyses were performed on
 8 historical and allowed risk premium data from both the electric utility and natural gas
 9 distribution industries aggregate data. I also performed DCF analyses on three
 10 surrogates for the Company: a group representative of the water utility industry, a
 11 group of transmission – distribution electric utilities, and a group representative of
 12 the natural gas utility industry. The results are summarized in the table below.

13	STUDY	ROE
14	CAPM	11.2%
15	ECAPM	11.9%
16	Historical Risk Premium Electric	11.4%
17	Historical Risk Premium Natural Gas	12.0%
18	Allowed Risk Premium Electric Utilities	11.5%
19	Allowed Risk Premium Natural Gas Utilities	11.4%
20	Water Utilities IBES Growth	10.0%
21	Water Utilities Value Line Growth	11.3%
22	Water Utilities Historical Growth	10.4%
23	Transmission – Distribution Electrics IBES Growth	13.2%
24	Transmission – Distribution Electrics Value Line Growth	13.4%
25	Natural Gas Distribution IBES Growth	11.9%
26	Natural Gas Distribution Value Line Growth	14.6%

27
 28 The DCF analysis performed on the natural gas distributors using Value
 29 Line's growth forecast might be considered an outlier, and I have accorded it little

1 weight. The remaining results range from 10.0% to 13.4%, with a midpoint of 11.7%
2 for a typical Florida water and wastewater utility (“FWU”) with an average capital
3 structure. Based on the results of all my analyses, the application of my professional
4 judgment, and the risk circumstances of the industry, it is my opinion that a just and
5 reasonable range of returns on common equity is 10.0% to 13.4% with a midpoint
6 of 11.7% for a typical FWU with an average capital structure.

7 **Q. HOW SHOULD THE COMMISSION DETERMINE A FAIR RATE OF**
8 **RETURN ON EQUITY FOR THE VARIOUS FWUs UNDER ITS**
9 **JURISDICTION?**

10 A. The Commission can do this in one of two ways. One way is to adjust the
11 cost of common equity for the degree of leverage of the individual utility. Another
12 would be to amend the Commission’s leverage formula so that it produces results
13 that match the cost of common equity results described above. I will describe each
14 approach in turn.

15 **Q. WHAT IS THE MAGNITUDE OF THE REQUIRED ADJUSTMENT**
16 **TO ACCOUNT FOR A CAPITAL STRUCTURE WHICH DIFFERS FROM**
17 **THE AVERAGE INDUSTRY CAPITAL STRUCTURE?**

18 A. As far as the first alternative is concerned, FWUs with low common equity
19 ratios (high leverage) should be accorded a return near the top end of the range while
20 FWUs with high common equity ratios (low leverage) should be accorded a return
21 near the bottom end of the range.

1 It is a rudimentary tenet of basic finance that the greater (lower) the amount
2 of financial risk borne by common shareholders, the greater (lower) the return
3 required by shareholders in order to be compensated for the added (diminished)
4 financial risk imparted by the greater (lower) use of senior debt financing. In other
5 words, the greater the debt ratio, the greater the return required by equity investors.
6 The converse is, of course, true as well.

7 Several researchers have studied the empirical relationship between the cost
8 of capital, capital-structure changes, and the value of the firm's securities.
9 Comprehensive and rigorous empirical studies of the relationship between cost of
10 capital and leverage for public utilities are summarized in Morin, Regulatory
11 Finance, Public Utilities Report, Inc., Arlington, VA, 1994, Chapter 17.

12 The results of empirical studies and theoretical studies obtained when the debt
13 ratio increases from 40% to 50% indicate that equity costs increase from a low of 34
14 to a high of 237 basis points. The average increase is 138 basis points from the
15 theoretical studies and 76 basis points from the empirical studies, or a range of 7.6
16 to 13.8 basis points per one percentage point increase (decrease) in the debt (common
17 equity) ratio. The more recent studies indicate that the upper end of that range is
18 more indicative of the repercussions on equity costs.

19 According to the PAA Order, the average capital structure for the barometer
20 group of water utilities used in the Commission's leverage formula consists of
21 43.66% common equity. To the extent that an individual FWU's common equity

1 ratio is less than 43.66%, an upward adjustment to the 11.7% cost of common equity
2 for the average water utility should be made. For example, for a weaker than average
3 FWU with a common equity ratio of 40%, the required upward adjustment to the cost
4 of equity ranges from 7.6 to 13.8 basis points times 3.66%, which equals 28 to 51
5 basis points. The capital structure difference, 3.66%, is determined as follows:
6 $43.66\% - 40.00\% = 3.66\%$. The midpoint of this adjustment range is 40 basis points.
7 The cost of equity becomes $11.7\% + 0.4\% = 12.1\%$.

8 The reverse is true as well. To the extent that a FWU's common equity ratio
9 is more than 43.66%, a downward adjustment to the 11.7% cost of common equity
10 for the average water utility is required. For a stronger than average FWU with a
11 common equity ratio of let us say 50%, the required downward adjustment to the cost
12 of equity ranges from 7.6 to 13.8 basis points times 6.34%, which equals 48 to 87
13 basis points. The capital structure difference, 6.34%, is determined as follows:
14 $50.00\% - 43.66\% = 6.34\%$. The midpoint of the adjustment range is 68 basis points.
15 The cost of equity becomes $11.70\% - 0.68\% = 11.02\%$.

16 In sum, the 11.7% midpoint of my recommended range should be adjusted
17 to reflect a particular FWU's capital structure. For typical capital structures that
18 range from a 60% common equity ratio to a 30% common equity ratio, the cost of
19 common equity varies from about 10% to 13%, which matches almost exactly the
20 range of the results I obtained from the various methodologies used to determine the
21 cost of common equity.

1 **IV. LEVERAGE FORMULA METHODOLOGY**

2 **Q. HOW DOES THE COMMISSION ESTABLISH THE ROE FOR**
3 **FLORIDA WATER UTILITIES?**

4 A. Since 1981, the Commission has established a leverage formula each year
5 which is intended to reasonably reflect the range of returns on common equity (ROE)
6 for an average FWU. Private FWUs are then authorized to apply this leverage
7 formula to their capital structure rather than file expert cost of capital testimony in
8 each rate proceeding.

9 **Q. PLEASE DESCRIBE THE COMMISSION'S LEVERAGE FORMULA.**

10 A. The Commission's leverage formula provides an automated generic
11 mechanism for determining the allowable ROE for the average FWU and for
12 adjusting the authorized ROE to reflect the degree of financial leverage of each
13 FWU, within a prescribed range of common equity ratios. Given that there are no
14 FWUs whose common stock is publicly-traded and given that traditional market
15 information (stock price, earnings per share, beta, bond rating, etc.) is lacking, an
16 indirect approach is required. The leverage formula and the attendant ROE
17 determination process are described in the PAA Order.

18 The current leverage formula to determine the cost of equity (k_e) for a given
19 equity ratio (ER) is:

20
$$k_e = 8.41\% + 0.731 / ER$$

1 The ROEs obtained from the above formula at equity ratios ranging from 100% to
2 40% is 9.14% to 10.24% for 2001.

3 **Q. DO YOU THINK THAT FLORIDA WATER UTILITIES POSSESS**
4 **THE SAME DEGREE OF RISK AS THE NATIONAL AVERAGE?**

5 A. No, I do not. While the assumption that all FWUs have similar business risk
6 is reasonable and allows the Commission to adopt a single leverage formula for all
7 FWUs, the assumption that they are similar in risk to the national industry at large,
8 as proxied by the index of water companies used by the Commission, is not
9 warranted.

10 FWUs are significantly riskier than the national industry. FWUs are different
11 than those in other states because they are generally much smaller, have less access
12 to capital markets and are subjected to additional regulatory risks in the form of used
13 and useful adjustments, high levels of CIAC, and substantial concerns about future
14 water supplies and deterioration of existing supplies.

15 Compared to the companies used in the index, the FWUs are considerably
16 smaller in size (revenues, net plant, rate base) than the index water companies. The
17 FWUs have very limited access to capital markets, generate less internal funds than
18 their larger counterparts, and are forced to borrow through personal guarantees and/or
19 private placements. They have a significantly larger proportion of contributed
20 property as compared to net plant, which also makes them riskier.

1 **Q. DO YOU HAVE ANY RESERVATIONS REGARDING THE USE OF**
2 **THE COMMISSION'S LEVERAGE FORMULA?**

3 A. Yes, I do. Although I generally endorse the notion of a generic mechanistic
4 approach to the determination of a fair ROE and although I applaud the
5 Commission's many improvements to the formula through the years, I still have
6 concerns that the results produced by the formula are unrealistically low and are not
7 responsive to the risks of the water utility industry, both in an absolute sense and
8 relative to other Florida utilities. For 2001, the ROE authorized range for FWUs is
9 only 9.14% to 10.24%, at 100% and 40% common equity ratio, respectively. For
10 the last several years, the ROEs authorized under the leverage formula have been
11 below those authorized for the much larger and financially strong electric, gas, and
12 telephone utilities despite the substantial increase in the risk of the water utility
13 industry.

14 **Q. DR. MORIN, PLEASE COMMENT ON THE RELATIVE**
15 **INVESTMENT RISKS OF THE WATER AND ELECTRIC & GAS UTILITY**
16 **INDUSTRIES.**

17 A. In a Commission workshop held on February 23, 1995, I provided the
18 Commission with an overview of the relative investment risks of the water and
19 electric-gas utility industry in a paper entitled Return on Common Equity
20 Determination for Florida Water & Wastewater Utilities. The paper described how
21 changes in the operating environment of FWUs have increased their investment risk

1 and their cost of capital, both in absolute terms and relative to other utilities. The
2 changing investment risk of water utilities relative to other utilities was analyzed by
3 examining trends in key financial variables.

4 **Q. WHAT DID YOUR EXAMINATION REVEAL ON THE RELATIVE**
5 **RISK STATUS OF THOSE INDUSTRIES?**

6 A. My examination revealed that water utilities are riskier than in prior years,
7 both in absolute terms and relative to energy utilities. Therefore, rate of return
8 awards should reflect the divergent trends of the water and energy utility industry.

9 FWUs are very small in size and their securities possess very low market
10 visibility and very low liquidity on capital markets. Compliance with the various
11 environmental problems, regulations and the securing of added sources of water
12 supply will necessitate large additional capital requirements and will also result in
13 significant increases in operating expenses.

14 A large portion of those supplementary capital needs will have to be financed
15 externally, thus increasing the industry's financial exposure and financial risks. The
16 investor-owned water utilities are much more dependent on external financing than
17 are gas and electric utilities, and this dependence will increase further as water
18 companies increase their capital investments to comply with new water standards.

19 Standard comparative measures of market valuation for the water utility
20 industry, such as the pre-tax interest coverage ratios, market-to-book (M/B) ratios,
21 and price-earnings (P/E) ratios, have been at or below those for the other utilities.

1 Both realized returns on average equity and authorized returns on equity for the water
2 industry are lower than for the gas and electric industries, in spite of the relative
3 reversal in risk between water and energy utilities.

4 Because of inadequate authorized returns, rising operating expenses and low
5 internal cash generation, the water industry's operating income has been gradually
6 eroding, in spite of a growing rate base. As a result of declining earning power,
7 deteriorating cash flow relative to capital expenditures, falling pre-tax interest
8 coverage ratios and falling realized returns on equity, stock prices relative to book
9 value have declined relative to electric utilities.

10 This comparative financial profile demonstrates clearly that the risks of water
11 utilities are at least equal to those of the energy utilities and that ROE awards should
12 reflect those circumstances.

13 **Q. WHY HAVE THE INVESTMENT RISKS OF FWUs ESCALATED?**

14 A. The major reasons why the investment risks of FWUs have increased, and
15 will continue to increase, include the following:

16 1. Water quality regulations. Evolving water quality regulations have
17 generated additional substantial capital and operational costs. These compliance
18 costs increase the utility's operating and financial leverage, which in turn increase the
19 utility's risk and cost of capital.

20 The final financial effects of the Safe Drinking Water Act (SDWA)
21 on water utilities remain uncertain. Water companies will need to continue

1 upgrading their facilities to comply with evolving environmental standards. Because
2 the standards are still evolving and are yet to be fully determined, there are
3 uncertainties related to upgrading and compliance costs. Some plants presently in
4 use do not comply with newly regulated contaminant levels. Consequently, new
5 plants may have to be installed to meet new standards.

6 2. Uncertainty regarding future demand. In earlier years when water
7 supplies were abundant, the conservation ethic was absent, and rates were stable,
8 forecasting demand for water was straightforward. Now, there is far greater
9 uncertainty about future demand. Higher service rates resulting from supply
10 adjustment charges and from increased water regulation compliance costs will cause
11 customers to curtail demand for water, compounding the forecasting risk. Moreover,
12 the Commission, Water Management Districts, and the Department of Environmental
13 Protection are all strongly encouraging and even requiring implementation of
14 conservation rate structures and other programs.

15 3. Uncertainty regarding future supply. Water supply issues and
16 shortages are noteworthy in Florida. Uncertainty about availability and reliability of
17 water supplies abounds. Fears of water shortages and uncertainty about rates are also
18 problems. Recent and continuing questions about the availability and costs of water
19 supplies suggest that this uncertainty will continue.

20 4. Earnings erosion. Water utilities are exposed to the risk of long run
21 earnings decline and deteriorating quality. The predictability of reported earnings

1 will deteriorate due to the volatility of earnings over time and the probability of a
2 permanent erosion of earnings power. Increased financial leverage from financing
3 the capital required by more stringent water quality requirements compounds the
4 problem, and even a small decline in operating income can cause low earnings and
5 impact the cost of capital.

6 5. Water Safety. The issues of water quality, facility closings, and
7 environmental accidents have heightened investors' awareness of water safety.
8 Contamination of drinking water from salt water intrusion, toxic waste dumping,
9 pesticides, and agricultural fertilizers are major concerns. Compliance with evolving
10 water quality standards will make licensure of new plants more difficult and existing
11 facilities may be closed permanently or for prolonged modifications.

12 6. Regulatory risks. How will regulators respond to the substantial
13 changes in the water utility industry? Will the allowed ROE respond to increased
14 risks faced by water utilities? Will innovative rate designs and automatic adjustment
15 clauses result? Or will prudence questions and possible exclusions of investments
16 from rate base prevail? If regulators succumb to the temptation to exclude some
17 compliance plant investment from rate base, a portion of investor-supplied capital
18 will have no earning power.

19 7. Construction risk. The term construction risk refers to the financial
20 risks caused by the magnitude of a company's capital budget. Water utilities
21 typically have a large construction program relative to their size. The large

1 compliance capital expenditures program over the next several years, relative to size,
2 will increase their dependence on capital markets which have become volatile and
3 more unpredictable.

4 Clearly, FWUs will require substantial external financing in the near future,
5 and it is imperative that these companies have access to needed capital funds on
6 reasonable terms and conditions. The companies must secure funds from capital
7 markets in order to fund new construction commitments irrespective of capital
8 market conditions, interest rates conditions, and quality consciousness of market
9 participants. The return allowed on common equity will play a crucial role in
10 determining those terms and conditions.

11 On debt markets, construction is one of several key determinants of credit
12 quality and, hence, of capital costs. Future construction plans are scrutinized by
13 lenders before assessing credit quality of a company. The construction budget in
14 relation to internal cash generation is a key quantitative determinant of credit quality,
15 along with construction expenditures as a proportion of capitalization.

16 Of course, construction risk and regulatory risk are directly related. Because
17 of large new construction programs over the next few years, rate relief requirements
18 and regulatory treatment uncertainty will increase regulatory risks. Generally,
19 regulatory risks include approval risks, lags and delays, potential rate base exclusions
20 and potential disallowances. Moreover, regulators must compensate the FWU
21 companies for the lack of liquidity of their securities in the marketplace. Allowed

1 rates of return should reflect their small size and the relatively illiquid nature of their
2 stock and bond offerings.

3 Based on these financial trends and new socio-political and economic forces,
4 the FWUs clearly confront higher risks and higher costs of capital.

5 **Q. PLEASE DESCRIBE THE FUNDAMENTAL RELATIONSHIP**
6 **BETWEEN COST OF CAPITAL AND LEVERAGE INHERENT IN THE**
7 **COMMISSION'S LEVERAGE FORMULA.**

8 A. Assuming perfectly functioning capital markets and the absence of corporate
9 taxes, Modigliani-Miller (MM) have shown that the cost of capital is independent of
10 capital structure. If the overall cost of capital remains unchanged with leverage, it
11 follows that the required return on equity resulting from the added risk of leverage
12 completely offsets the low-cost advantage of debt. Otherwise, the weighted average
13 cost of capital ("WACC") could not remain constant. The exact relationship between
14 leverage and the cost of equity is linear and is expressed as:

$$15 \quad K_e = \rho + (\rho - i) D/S \quad (1)$$

16 where ρ , is the cost of equity for an all-equity firm, D/S is the leverage ratio, and 'i'
17 is the current rate of interest. This equation states the cost of equity is equal to the
18 cost of capital of an unlevered (no debt) firm plus the after-tax difference between
19 the cost of capital of an unlevered firm and the cost of debt, weighted by the leverage
20 ratio. The cost of equity rises with the debt-equity ratio in a linear fashion, with the
21 slope of the line equal to $(\rho - i) D/S$. This is the capital structure model inherent in the

1 Commission's leverage formula. As discussed below, this formula produces the
2 lowest cost of equity estimate of all the conceptual approaches.

3 **Q. ARE THERE ANY OTHER CONCEPTUAL FRAMEWORKS WHICH**
4 **FORMALLY RELATE THE COST OF CAPITAL AND LEVERAGE?**

5 A. Yes. There are several other formulations of the formal relationship between
6 the cost of capital and leverage. Introducing corporate income taxes, the implied
7 relationship between the cost of equity and leverage remains linear as in the no-tax
8 situation of Equations 1, but the rate of increase (slope) is lessened by the tax
9 advantage of debt. Equation 1 becomes:

$$10 \quad K_e = \rho + (\rho - i)(1 - T) D/S \quad (2)$$

11 Miller (1977) explored the effect of personal taxes, in addition to corporate
12 taxes, on the overall cost of capital and concluded that, when personal tax effects are
13 considered, the tax advantages of debt financing dissipate. By introducing both
14 corporate and personal taxes into the analysis, Miller found the following
15 relationship between the cost of equity and financial leverage, which bears a close
16 family resemblance to the MM version in Equation 2, which only considers corporate
17 taxes:

$$18 \quad K_e = \rho + [\rho - i(1 - T)] D/S \quad (3)$$

19 There is yet another framework linking the cost of equity to leverage. Earlier,
20 the CAPM was discussed and took the following form:

$$21 \quad K = R_F + \beta (R_M - R_F) \quad (4)$$

1 The beta risk measure of the company can in turn be decomposed into a
2 business risk and a financial risk component. The fundamental idea is contained in
3 the following relationship:

$$4 \quad \boxed{\text{OBSERVED BETA} = \text{BUSINESS RISK BETA} + \text{FINANCIAL RISK PREMIUM}}$$

5 The following equation formally expresses the decomposition of observed beta
6 to a business risk-related component, or “unlevered beta”, and a financial risk
7 component related to the use of debt financing:

$$8 \quad \beta_L = \beta_U [1 + (1-T) D/S] \quad (5)$$

9 where β_L is the observed levered beta of a company, β_U is the unlevered beta of the
10 same company with no debt in its capital structure, D/S is the ratio of debt to equity,
11 and T is the corporate income tax rate.

12 Substituting the above equation into the CAPM for β_L produces the following
13 relationship between the cost of equity and leverage:

$$14 \quad K = R_F + \beta_U [1 + (1-T) D/S](R_M - R_F) \quad (6)$$

15 A similar relationship can be obtained using the empirical version of the
16 CAPM (“ECAPM”) described in Chapter 13 of my book, Regulatory Finance.

17 In a nutshell, we have five formal relationships linking the cost of equity to
18 leverage: MM with no tax, MM with tax, Miller, CAPM and ECAPM. The
19 Commission’s leverage formula produces the lowest cost of equity estimate from

1 among all the various conceptual frameworks while the Miller framework produces
2 results at the other end of the spectrum.

3 **Q. HOW CAN THE COMMISSION RECONCILE THE DISCREPANCY**
4 **IN THE RESULTS BETWEEN THE VARIOUS CONCEPTUAL**
5 **APPROACHES?**

6 A. One reasonable suggestion for remedying these discrepancies is to amend the
7 leverage formula so as to produce the same result as the average from all the five
8 frameworks.

9 **Q. DO YOU AGREE WITH THE COST OF DEBT ASSUMPTION IN**
10 **THE COMMISSION'S LEVERAGE FORMULA?**

11 A. No, I do not. The leverage formula assumes that the cost of debt remains
12 invariant over a common equity ratio ranging from 100% all the way up to 40%.
13 This assumption is unrealistic. Surely, the cost of debt is higher for a company with
14 40% equity than for a company which has no debt at all. The leverage formula
15 should allow for the rising cost of debt as leverage rises.

16 One way to accomplish the adjustment is to allow the cost of debt to vary in
17 a linear fashion over this range by plus or minus 50 basis points from the average
18 cost of debt assumed at a 40% common equity ratio. So, for example, if the assumed
19 average cost of debt is 8%, the cost of debt is allowed to vary from a low of 7.5% for
20 a company with 100% equity to a high of 8.5% for a company with 40% common
21 equity.

1 I also believe that there is nothing magical about the 40% common equity
2 floor imposed by the formula. While I sympathize with the Commission's desire to
3 discourage the employment of high leverage, there is nothing imprudent or unusual
4 about higher dosages of debt. The very small private FWUs do not have access to
5 the equity markets, generate limited internal funds, and therefore must resort to the
6 private debt markets for funding, particularly in light the SDWA compliance
7 requirements. I recommend that the 40%-100% common equity constraint be relaxed
8 to a lower level, perhaps to 30% - 100%.

9 **Q. PLEASE DESCRIBE THE SECOND METHOD BY WHICH THE**
10 **COMMISSION CAN DETERMINE A FAIR RATE OF RETURN ON**
11 **EQUITY FOR THE VARIOUS FWUs UNDER ITS JURISDICTION?**

12 A. Earlier, I mentioned that the Commission can do this in one of two ways.
13 One way is to adjust the cost of common equity for the degree of leverage of the
14 individual utility as previously described. Until a formal reexamination of the
15 leverage formula is completed, another way to determine the cost of equity is to
16 amend the Commission's leverage formula so that it produces results that match the
17 cost of common equity results described above.

18 The current leverage formula to determine the cost of equity (k_e) for a given
19 equity ratio (ER) is:

$$20 \quad k_e = 8.41\% + 0.731 / ER$$

1 The ROEs obtained from the above formula at equity ratios ranging from
2 100% to 40% is 9.14% to 10.24% for 2001. In order to produce the midpoint ROE
3 of 11.7% applicable to the average water utility company used in developing the
4 leverage formula, the above formula can be solved for the mathematical constant that
5 will produce a cost of equity of 11.7% with an average common equity ratio of
6 43.66%. Until a formal review is completed, the new leverage formula becomes

$$7 \qquad k_e = 8.41\% + 1.436 / ER$$

8 As a check, inserting the average common equity ratio of 43.66% in the
9 amended formula, the cost of equity is indeed 11.7%. The ROE obtained from the
10 above formula at equity ratios ranging from 100% to 40% is about 10% to 12%.

11 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

12 A. Yes, it does.

1 **Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.**

2 A. My name is Dr. Roger A. Morin. My business address is Georgia State
3 University, Robinson College of Business, University Plaza, Atlanta,
4 Georgia, 30303. I am Professor of Finance at the College of Business,
5 Georgia State University and Professor of Finance for Regulated Industry at
6 the Center for the Study of Regulated Industry at Georgia State University.
7 I am also a principal in Utility Research International, an enterprise engaged
8 in regulatory finance and economics consulting to business, regulators, and
9 government.

10 **Q. ARE YOU THE SAME DR. R. A. MORIN WHO HAS FILED RATE**
11 **OF RETURN TESTIMONY IN THIS PROCEEDING?**

12 A. Yes, I am.

13 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

14 A. This testimony is in rebuttal to Mr. Cicchetti's (Office of the Public Counsel),
15 and Mr. Lester's (Florida Public Service Commission Staff) cost of capital
16 testimonies.

17 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

18 A. My testimony is organized in two parts, dealing with Mssrs. Cicchetti's and
19 Lester's cost of capital testimonies, respectively. The majority of my
20 comments are directed at Mr. Cicchetti, as I am in large agreement with
21 several elements of Mr. Lester's methodology in determining cost of

1 common equity capital for the typical Florida water and wastewater utility
2 (“FWU”).

3 **I. COMMENTS ON MR. CICCHETTI'S TESTIMONY.**

4 **Q. PLEASE SUMMARIZE MR. CICCHETTI'S RATE OF RETURN**
5 **RECOMMENDATION.**

6 A. In determining the cost of common equity capital for the typical FWU, Mr.
7 Cicchetti applies a multi-stage DCF test to a very small group of publicly-
8 traded water utility companies using the “retention growth” approach in order
9 to specify the long-term growth component of the DCF analysis. He also
10 applies a DCF-based risk premium test to a sample of natural gas distribution
11 utilities. Curiously, he does not apply the DCF test to the latter group, nor
12 does he apply the risk premium test to the water utility group. Based on the
13 results of these two tests and an additional risk premium to recognize the
14 higher relative risk of FWUs, he recommends a return of only 9.71% on
15 common equity capital.

16 **Q. DO YOU HAVE ANY GENERAL COMMENTS ON MR.**
17 **CICCHETTI'S TESTIMONY?**

18 A. Yes. Before I engage in specific criticisms of Mr. Cicchetti's testimony, I
19 should set forth my general reaction to his testimony. His testimony is
20 extremely narrow in scope, relying exclusively on the DCF approach and on
21 one particularly fragile variant of the DCF approach, namely, the retention
22 growth approach.

1 Mr. Cicchetti's cost of equity recommendation is not a reliable estimate of the
2 FWUs' cost of common equity capital given **his sole reliance on one**
3 **particular and very fragile cost of equity methodology which requires**
4 **him to assume the answer before he even begins to implement the**
5 **methodology.** This very narrow approach stands in sharp contrast with the
6 practices of investment analysts, finance experts, corporate analysts, and
7 finance professionals. It is dangerous and inappropriate to rely on only one
8 method as Mr. Cicchetti has done. In addition, as I discuss later, the variant
9 he utilizes (the retention growth method) is extremely fragile conceptually
10 and of questionable validity empirically.

11 I also find that Mr. Cicchetti's recommended 9.7% cost of equity for
12 FWUs to be outside any zone of reasonableness and outside the zone of
13 currently authorized rates of return for regulated utilities in the United States.

14 Mr. Cicchetti's cost of equity recommendation of 9.7%, if ever adopted,
15 would result in one of the lowest, if not the lowest, rate of return award for
16 any utility in the country.

17 **Q. WHAT ARE THE BASIC CONCLUSIONS OF YOUR REBUTTAL TO**
18 **MR. CICHETTI'S COST OF EQUITY TESTIMONY?**

19 A. Mr. Cicchetti's recommendation is highly unreliable as it hinges entirely on
20 one variant of one particular methodology. Moreover, the one methodology
21 that supports Mr. Cicchetti's recommendation is logically circular and

1 empirically suspect. A proper application of cost of capital methodologies
2 would give substantially higher results.

3 **Q. PLEASE SUMMARIZE YOUR SPECIFIC CRITICISMS OF MR.**
4 **CICCHETTI'S TESTIMONY.**

5 A. I have the following specific criticisms:

6 1. **Unreliable estimate.** Mr. Cicchetti's cost of equity recommendation
7 is unreasonably low, and is not a reliable estimate of FWUs' cost of common
8 equity capital given his sole reliance on one particular and very fragile cost
9 of equity methodology.

10 2. **Allowed returns.** Mr. Cicchetti's recommended return is well outside
11 the zone of currently allowed rates of return for electric utilities in the United
12 States. The average allowed return for utilities is in excess of 11%, which is
13 significantly higher than his 9.7% recommendation for FWUs.

14 3. **DCF Retention Growth Method.** Mr. Cicchetti's recommendation
15 rests entirely on the retention growth DCF method, and there are serious
16 logical inconsistencies in this particular method because **Mr. Cicchetti is**
17 **forced to assume the answer to implement the method.** This method is the
18 least valid, both empirically and theoretically.

19 4. **DCF Analysts' Growth Forecasts.** Mr. Cicchetti fails to use
20 analysts' growth forecasts in his DCF analysis, even though the stock price
21 he uses in his DCF analysis is predicated on such forecasts. Investors expect

1 substantially higher growth rates for utilities than what Mr. Cicchetti employs
2 in his DCF analysis.

3 5. **Risk Premium.** Mr. Cicchetti's risk premium analysis of natural gas
4 distribution utilities is merely a disguised version of his DCF result, and does
5 not constitute an independent stand-alone methodology. As is the case for his
6 retention growth DCF analysis, the DCF-driven risk premium method he has
7 employed is highly circular. Mr. Cicchetti did not implement any of the
8 traditional risk premium methodologies, such as the Capital Asset Pricing
9 Model or historical Risk Premium analysis.

10 I will now discuss each criticism in turn. Because the crux of Mr.
11 Cicchetti's testimony lies in his retention growth DCF analysis, a great deal
12 of my remarks are devoted to his implementation of that particular method.

13 *Estimate Techniques*

14 1. ~~UNRELIABLE ESTIMATE~~

15 Q. ~~MR. CICCHETTI HAS LIMITED THE COST OF EQUITY~~
Do you have concerns regarding the reliability of
Mr. Cicchetti's cost of equity estimation process?
~~ESTIMATION PROCESS TO ONE METHODOLOGY, NAMELY~~
16 ~~THE DCF METHOD. DOES THIS AFFECT THE RELIABILITY OF~~
17 ~~HIS RESULTS?~~

18 A. *Yes.*
~~Yes, it does.~~ The major problem in his testimony is the lack of corroborating
19 evidence. There is simply no objective cross check on the result. The 9.7%
20 cost of equity recommended by Mr. Cicchetti is unreasonably low, and is not
21 a reliable estimate of FWUs' cost of equity capital.

1 **Q. DO YOU THINK THAT THE COST OF EQUITY SHOULD BE**
2 **ESTIMATED BY THE DCF MODEL ALONE?**

3 A. No, it should not, and especially not with the retention growth version of the
4 DCF approach. Some analysts estimate the cost of common equity capital by
5 relying heavily, and sometimes exclusively, on the DCF approach. The
6 major difficulty of relying exclusively on the DCF methodology is the lack
7 of corroborating evidence.

8 There are four broad generic methodologies available to measure the
9 cost of equity: DCF, Risk Premium, CAPM, which are market-oriented, and
10 Comparable Earnings, which is accounting-oriented. Each generic market-
11 based methodology in turn contains several variants. Mr. Cicchetti has
12 chosen to rely on only one of the four methods, namely a variation of the
13 DCF method known as the two-stage DCF model which he implements with
14 the retention growth approach.

15 When measuring equity costs, which essentially deals with the
16 measurement of investor expectations, no one single methodology provides
17 a foolproof panacea. Each methodology requires the exercise of considerable
18 judgment on the reasonableness of the assumptions underlying the
19 methodology and on the reasonableness of the proxies used to validate the
20 theory. It follows that more than one methodology should be employed in
21 arriving at a judgment on the cost of equity and that these methodologies
22 should be applied across a series of comparable risk companies.

1 There is no single model that conclusively determines or estimates the
2 expected return for an individual firm. Each methodology possesses its own
3 way of examining investor behavior, its own premises, and its own set of
4 simplifications of reality. Each method proceeds from different fundamental
5 premises which cannot be validated empirically. Investors do not necessarily
6 subscribe to any one method, nor does the stock price reflect the application
7 of any one single method by the price-setting investor. Absent any hard
8 evidence as to which method outdoes the other, all relevant evidence should
9 be used and weighted equally, in order to minimize judgmental error,
10 measurement error, and conceptual infirmities. I submit that the Commission
11 should rely on the results of a variety of methods applied to a variety of
12 comparable groups. There is no guarantee that a single DCF result is
13 necessarily the ideal predictor of the stock price and of the cost of equity
14 reflected in that price, just as there is no guarantee that a single CAPM or
15 Risk Premium result constitutes the perfect explanation of that stock price.

16 **Q. DOES THE FINANCIAL LITERATURE SUPPORT THE USE OF**
17 **MORE THAN A SINGLE METHOD?**

18 A. Yes. The financial literature strongly supports the use of multiple methods.

19 **2. ALLOWED RETURNS**

20 **Q. IS MR. CICCHETTI'S RATE OF RETURN RECOMMENDATION**
21 **COMPATIBLE WITH CURRENTLY ALLOWED RETURNS IN THE**
22 **UTILITY INDUSTRY?**

1 A. No, it is not. Allowed returns, while certainly not a precise indication of a
2 company's cost of equity capital, are nevertheless important determinants of
3 investor growth perceptions and investor expected returns. They also serve
4 to provide some perspective on the validity and reasonableness of Mr.
5 Cicchetti's recommendation.

6 The average allowed return ~~in the electric utility industry~~, as reported
7 by C.A. Turner Reports dated September 2001 was 11.8%, 11.70%, and
8 10.6% for electric, natural gas, and water utilities, respectively. More recent
9 orders indicate allowed returns in the 11.00% to 11.25% range. This far
10 exceeds Mr. Cicchetti's recommended 9.7% for FWUs. In short, Mr.
11 Cicchetti's recommendation is outside the mainstream of currently allowed
12 rates of return and would be among the lowest in the country.

13 **3. DCF RETENTION GROWTH RATES**

14 **Q. CAN YOU COMMENT ON MR. CICCHETTI'S GROWTH**
15 **ESTIMATES IN THE DCF MODEL?**

16 A. There are at least four techniques to estimate expected growth in the DCF
17 model: (1) historical growth rates in earnings per share, dividends per share,
18 and book value per share, (2) analysts' growth forecasts, (3) growth implied
19 in investors' required return, and (4) retention growth method. In the latter
20 method, the growth rate is based on the equation $g = b \times ROE$, where b is the
21 percentage of earnings retained and ROE is the expected earned rate of return
22 on book equity. In his DCF analysis, Mr. Cicchetti estimates the long-term

1 growth component using only the last method, which is highly inappropriate
2 for regulated utilities because of its inherent circularity.

3 A single technique to estimate investor growth expectations is likely
4 to contain a high degree of measurement error and may be distorted by short-
5 term aberrations. A regulatory authority's hands should not be bound to one
6 single estimate of growth in the DCF determination of equity costs. The
7 advantage of using several different approaches in estimating growth is that
8 the results of each one can be used to check the others. Moreover, the
9 method chosen by Mr. Cicchetti is inherently circular and empirically
10 unfounded.

11 **Q. PLEASE DESCRIBE MR. CICCETTI'S IMPLEMENTATION OF THE**
12 **RETENTION GROWTH METHOD.**

13 A. First, It should be pointed out that the retention growth estimate exerts a
14 much stronger influence on Mr. Cicchetti's final DCF result than the
15 intermediate growth rate assumed for the first four years, since it captures the
16 effects of growth from the fourth year into perpetuity. It is therefore
17 imperative that it be estimated accurately if the DCF results are to be reliable.

18 To apply the retention ratio growth method in his DCF analysis, Mr.
19 Cicchetti multiplies the utility's expected retention ratio ("b") by the expected
20 return on equity, "ROE":

21
$$g = b \times \text{ROE}$$

1 Mr. Cicchetti then assumes that investors obtain all their data from Value
2 Line. The investor's expected ROE is proxied by Value Line's forecast of
3 ROE for 2004-2006, which is 12.25% for his sample of water utilities. He
4 does not report the expected ROE data used in his DCF-based risk premium
5 analysis of natural gas utilities.

6 To compute the retention ratio, he takes the retention ratio forecast by
7 Value Line as he did for the expected ROE. Mr. Cicchetti does not recognize
8 any growth stemming from external financing through common stock issues
9 in developing his retention growth estimate. As shown on Exhibit MAC-3
10 page 1 the average long-term growth rate for his sample of water utilities is
11 5.8%.

12 **Q. DO YOU HAVE ANY OBJECTIONS TO THE RETENTION**
13 **GROWTH ESTIMATES USED BY MR. CICCETTI?**

14 A. Yes, I have several. Since Mr. Cicchetti's entire testimony and his 9.7% cost
15 of equity recommendation hinge on the retention growth cornerstone, it is
16 important to point out the dangers and flaws of this method. There are three
17 fundamental problems with Mr. Cicchetti's retention growth methodology.

18 **Q. PLEASE DISCUSS THE FIRST PROBLEM WITH MR.**
19 **CICCETTI'S RETENTION GROWTH ESTIMATES.**

20 A. Mr. Cicchetti's retention growth method contains a fatal logical flaw: the
21 method requires an estimate of ROE to be implemented. In other words, his
22 method requires him to assume the ROE answer to start with. But if the ROE

1 input required by the model differs from the recommended return on equity,
2 a fundamental contradiction in logic follows.

3 Mr. Cicchetti's recommended 9.7% return on equity is far removed
4 from the ROE's he uses in the retention growth method. On his Exhibit
5 MAC-3 page 1, he uses an average expected return ("ROE") of 12.25%,
6 which is well above Mr. Cicchetti's recommended 9.7% return:

7 Mr. Cicchetti is assuming in effect that the water companies will earn
8 a ROE exceeding his recommended cost of equity forever, but he is
9 recommending that a different rate be granted by the Commission. While
10 this scenario may be imaginable for an unregulated company with substantial
11 market power that can earn more than its cost of capital, it is *implausible for*
12 *a regulated company whose rates are set so that they will earn a return*
13 *equal to their cost of capital.* I consider this logical flaw extremely
14 damaging and sufficient to reject Mr. Cicchetti's results produced by the
15 method, the crux of his testimony. In essence, *Mr. Cicchetti is using an*
16 *ROE that differs from his final recommended cost of equity, and is*
17 *requesting the Commission to adopt two different ROEs.* For regulated
18 utilities, the return on book equity is set equal to the cost of capital by
19 virtue of the regulatory ratemaking process itself.

20 I am extremely perplexed as to why Mr. Cicchetti assumes that water
21 utilities are expected to earn 12.25% forever, but yet he recommends only
22 9.7%. The only way that water utilities can earn an ROE of 12.25% each and

1 every year forever is that rates be set so that they will in fact earn 12.25%.

2 So, how can the cost of equity be any different from 12.25%?

3 **Q. PLEASE DISCUSS THE SECOND PROBLEM WITH MR.**
 4 **CICCHETTI'S RETENTION GROWTH ESTIMATES.**

5 A. The second problem is that the empirical finance literature demonstrates that
 6 the retention growth method is a poor explanatory variable of value and is not
 7 significantly correlated to measures of value, such as stock price and
 8 price/earnings ratios. I discuss this point more fully below.

9 **Q. PLEASE DISCUSS THE THIRD PROBLEM WITH MR.**
 10 **CICCHETTI'S RETENTION GROWTH ESTIMATES.**

11 A. The third difficulty with Mr. Cicchetti's retention growth approach is that the
 12 forecasts of the expected return on equity published by Value Line are based
 13 on end-of-period book equity rather than on average book equity. The
 14 following formula, discussed and derived in Chapter 5 of my book,
 15 Regulatory Finance, adjusts the reported end-of-year values so that they are
 16 based on average common equity, which is the common regulatory practice:

$$17 \quad r_a = r_t \frac{2B_t}{B_t + B_{t-1}}$$

18
 19
 20
 21 Where: r_a = return on average equity

22
 23 r_t = return on year-end equity as reported

24 B_t = reported year-end book equity of the current year

25 B_{t-1} = reported year-end book equity of the previous year

26

1 The result of this error is that Mr. Cicchetti's DCF estimates are
2 understated by some 10-20 basis points, depending on the magnitude of the
3 book value growth rate.

4 **Q. DID YOU NOTICE ANY OTHER ANOMALIES IN MR.**
5 **CICCHETTI'S GROWTH RATES?**

6 A. Yes, I did. Mr. Cicchetti never clarifies why a two-stage two-growth rate
7 DCF model was selected as opposed to the constant growth rate DCF model.
8 It is not at all clear why Mr. Cicchetti assumes that the water utilities in his
9 sample will experience an anemic growth rate of only 2.83% over the next
10 four years and a sudden quantum increase in growth profile to 5.84%
11 thereafter¹. Such a drastic shift in retention policy (dividend policy) is
12 unrealistic and completely unjustified by the economics of the water utility
13 industry.

14 **4. ANALYSTS' GROWTH FORECASTS**

15 **Q. WHAT DOES THE PUBLISHED ACADEMIC LITERATURE SAY**
16 **ON THE SUBJECT OF GROWTH RATES IN THE DCF MODEL?**

17 A. Mr. Cicchetti's retention growth estimates in his DCF analysis fly in the face
18 of the financial research on the relationship between growth rates and stock
19 prices. Published studies in the academic literature demonstrate that growth
20 forecasts made by security analysts are reasonable indicators of investor

¹ From Mr. Cicchetti's Exhibit MAC-3, water utility dividends are assumed to grow from \$1.00 to \$1.11 from 2001 to 2005. The implied compound growth rate is 2.83%.

1 expectations, and that investors rely on analysts' forecasts. Cragg and
2 Malkiel, "Expectations and the Structure of Share Prices", Chicago:
3 University of Chicago Press, 1982, present detailed empirical evidence that
4 the average analysts' expectation is more similar to expectations being
5 reflected in the marketplace than are historical growth rates, and represents
6 the best possible source of DCF growth rates. Cragg and Malkiel show that
7 historical growth rates do not contain any information that is not already
8 impounded in analysts' growth forecasts. A study by Professors Vander
9 Weide and Carleton, "Investor Growth Expectations: Analysts vs. History",
10 The Journal of Portfolio Management, Spring 1988, also confirms the
11 superiority of analysts' forecasts over historical growth extrapolations.
12 Another study by Timme & Eiseman, "On the Use of Consensus Forecasts
13 of Growth in the Constant Growth Model: The Case of Electric Utilities,"
14 Financial Management, Winter 1989, produces similar results.

15 **Q. WHAT DCF RESULTS WOULD MR. CICHETTI HAVE**
16 **OBTAINED HAD HE SIMPLY USE THE CONSENSUS ANALYSTS'**
17 **GROWTH FORECASTS?**

18 A. The average growth forecast of analysts from Zacks for Mr. Cicchetti's water
19 company sample is 6.6% for American Water and 6.3% for Philadelphia
20 Suburban for an average of 6.43%. No analyst growth forecasts are available
21 for American States and California Water. The average long-term growth
22 forecast of 6.43% exceeds Mr. Cicchetti's estimate of 5.8% (Exhibit MAC-3

1 Page 1). The difference between the two estimates translates into a 70 basis
2 points downward bias of FWUs' cost of equity from that source alone.
3 Allowing for that bias would raise his ROE recommendation from 9.7% to
4 10.4% from that correction alone.

5 **Q. DO YOU SEE ANY DANGERS IN RELYING ON VALUE LINE AS**
6 **AN EXCLUSIVE SOURCE OF GROWTH FORECASTS IN**
7 **APPLYING THE DCF MODEL?**

8 A. I am perplexed as to why Mr. Cicchetti has relied exclusively on the Value
9 Line growth forecasts. Mr. Cicchetti's sole reliance on Value Line growth
10 forecasts runs the risk that such forecasts are not representative of investors'
11 consensus forecast. One would expect that averages of analysts' growth
12 forecasts such as those contained in IBES or Zacks, rather than one particular
13 firm's forecast, are more reliable estimates of the investors' consensus
14 expectations likely to be impounded in stock prices. As discussed earlier, the
15 empirical finance literature has shown that such consensus analysts' growth
16 forecasts are reflected in stock prices, possess a high explanatory power of
17 equity values, and are used by investors.

18 **Q. DID MR. CICCHETTI APPLY THE SAME DCF ANALYSIS TO HIS**
19 **SAMPLE OF NATURAL GAS DISTRIBUTION UTILITIES?**

20 A. No, he did not. Curiously, he performs a annual risk premium analysis on a
21 sample of natural gas utilities which is totally DCF-driven, using the very
22 same DCF method he employed for water utilities to obtain the cost of

1 common equity. However, he chooses not to report the DCF results for his
 2 sample of natural gas utilities which would presumably be far more reliable
 3 than the results obtained from his very small sample of only four water
 4 utilities, one of which (California Water) is going through very difficult
 5 times, compliments of the California energy crisis.

6 **Q. WHAT RESULTS DO YOU OBTAIN IF YOU APPLY A PLAIN**
 7 **VANILLA DCF ANALYSIS TO MR. CICHETTI'S SAMPLE OF**
 8 **NATURAL GAS UTILITIES.**

9 A. The table below shows the consensus analysts' growth forecasts obtained
 10 from Zacks Investment Research's Web site for Mr. Cicchetti's sample of six
 11 natural gas utilities. The average growth is 7.2%. The next column shows
 12 the Value Line growth forecasts. The average growth is 7.9% from that
 13 source.

14 **ANALYSTS' GROWTH FORECASTS**
 15 **NATURAL GAS DISTRIBUTION UTILITIES**

	COMPANY	Zacks	Value Line
18	1 AGL Resources	6.9	7.5
19	2 KeySpan Corp.	10.1	n.a.
20	3 Laclede Gas	7.5	6.5
21	4 Northwest Nat. Gas	6.3	8.5
22	5 Peoples Energy	6.8	8.5
23	6 WGL Holdings Inc.	5.9	8.5
24			
25	AVERAGE	7.2	7.9

26 Source: Zacks Investment Research
 27 Value Line Survey for Windows 9/2001
 28
 29

1 As shown on the table below, adding these growth rates to the 4.6% current
 2 dividend yield of the group reported in Value Line produces equity costs of
 3 11.8% and 12.5%. Those raw DCF estimates, which do no include flotation
 4 costs, the expected dividend yield versus spot dividend yield adjustment, and
 5 the liquidity risk adjustment, far exceed Mr. Cicchetti's 9.7%
 6 recommendation.

7 **Mr. Cicchetti's Natural Gas Utilities**
 8 **Plain DCF Estimates**

9			
10	dividend yield	4.6	4.6
11	expected growth	7.2	7.9
12	cost of equity	11.8	12.5
13			

14 There is no reasonable justification to disregard the DCF results as
 15 Mr. Cicchetti has done for his sample of natural gas utilities.

16 **Q. CAN YOU SUMMARIZE YOUR COMMENTS ON MR.**
 17 **CICCHETTI'S DCF GROWTH RATES?**

18 **A.** In summary, Mr. Cicchetti's retention growth rate methodology, which
 19 assumes the ROE answer to begin with, contains serious conceptual,
 20 empirical, and methodological flaws, and should be disregarded. Given that
 21 his rate of return recommendation relies primarily on that one method, his
 22 recommendation must be viewed with extreme caution and skepticism.

23 **5. RISK PREMIUM ANALYSIS**

24 **Q. PLEASE DISCUSS MR. CICCHETTI'S RISK PREMIUM ANALYSIS.**

1 A. Mr. Cicchetti's risk premium analysis is merely a replication of his DCF
2 analysis over several years. His risk premium analysis consists of subtracting
3 the yield on long-term Treasury bonds from his DCF estimate for each and
4 every year over the period 1991-2000, and averaging the annual result. He
5 then adds the current yield on long-term Treasury bonds to the DCF-derived
6 average risk premium to arrive at his risk premium estimate. Mr. Cicchetti's
7 risk premium method is nothing more than his DCF estimate under a
8 different disguise and is therefore subject to the same above criticisms as
9 above, especially the inherent circularity of the technique.

10 **Q. WHAT DO YOU CONCLUDE FROM MR. CICCHETTI'S COST OF**
11 **CAPITAL TESTIMONY?**

12 A. There are very serious problems with Mr. Cicchetti's methods and concepts.
13 My general conclusions are that his DCF analysis hinges solely on the
14 "retention growth" method, only one of several methods traditionally used in
15 regulatory proceedings, and certainly the most fragile method. His
16 application of the method is questionable and contains a serious logical trap
17 because it requires that its user assume the answer to begin with. It is
18 difficult to accept Mr. Cicchetti's claim that investors are expecting 9.7%
19 when his own ROE data indicate that investors are expecting 12.25%.

1 **Q. PLEASE SUMMARIZE YOUR COMMENTS ON MR. LESTER'S**
2 **TESTIMONY.**

3 A. My comments are necessarily brief, given that some of my earlier criticisms
4 of Mr. Cicchetti are also applicable to Mr. Lester's testimony and given that
5 I agree with several of Mr. Lester's views and procedures. I agree with 1) his
6 two samples of utility companies, although I am somewhat concerned with
7 the statistical reliability of a four-company sample of water utilities; 2) his
8 stock price in the DCF analysis; 3) his inclusion of a flotation cost allowance;
9 3) his estimate of the risk-free rate in the CAPM analysis; 4) his beta
10 estimates in the CAPM analysis; 5) his risk adjustments, including a bond
11 yield differential, a private placement premium, and a size premium in the
12 calculation of the recommended leverage formula.

13 I respectfully disagree with Mr. Lester concerning: 1) the use of the
14 retention growth approach to estimate the growth component of the DCF
15 model because of its inherent circularity; 2) the exclusive use of Value Line
16 growth forecasts as opposed to the consensus analysts' growth forecast in the
17 DCF analysis; 3) the market risk premium component of the CAPM analysis;
18 4) the plain vanilla version of the CAPM; and 5) the capital structure
19 assumption inherent in the leverage formula. I shall treat each point in turn.
20 Since I have already discussed at length my sentiments on the capital
21 structure issue in my direct testimony, I shall not repeat those concerns here.
22 I also have some cautionary remarks with regards to capital market

1 conditions following the tragic events of September 11th, particularly with
2 respect to the bond yield differentials between investment grade and non-
3 investment grade utility bonds.

4 **1. GROWTH ESTIMATE**

5 **Q. CAN YOU COMMENT ON MR. LESTER'S GROWTH ESTIMATES**
6 **IN THE DCF MODEL?**

7 A. In his DCF analysis, Mr. Lester estimates the intermediate growth term
8 component of his two-stage DCF model using Value Line's forecast
9 dividends for the next four years. He estimates the second stage long-term
10 growth component using the retention growth method. Again, I point out that
11 the long-term retention growth estimate exerts a much stronger influence on
12 the final DCF result than the intermediate growth rate assumed for the first
13 four years since it captures the effects of growth from the fourth year into
14 perpetuity.

15 **Q. DO YOU HAVE ANY OBJECTIONS TO THE RETENTION**
16 **GROWTH METHOD?**

17 A. I voiced my objections to the retention growth method in my earlier critique
18 of Mr. Cicchetti's testimony, and I reiterate those concerns here. The
19 retention growth method contains a logical trap: the method requires an
20 estimate of ROE to be implemented. But if the ROE input required by the
21 model differs from the recommended return on equity, a fundamental
22 contradiction in logic follows. Mr. Lester's recommended return on equity

1 is lower than the ROEs he uses in the retention growth method. Column 7
2 of his Exhibit PL-17 pages 1 and 2 show Value Line's expected ROE's used
3 in the retention growth computation for the water and natural gas utilities.
4 The average expected ROE is 12.4% and 12.6% for the water and gas group,
5 respectively, which is in excess of his recommended return. The only way
6 that these companies can earn ROEs of 12.4% - 12.6% is that rates are set by
7 the Commission so as to produce these ROEs.

8 **Q. WHAT GROWTH RATES ARE INVESTORS EXPECTING FOR GAS**
9 **DISTRIBUTION UTILITIES?**

10 A. The evidence shows that investors are expecting growth rates above both Mr.
11 Lester's intermediate-term growth estimate of about 2.83% for the next four
12 years and his long-term growth estimate of 6.3% (see his Exhibit PL-17
13 columns 8 and 9). As shown on the table below, the average consensus long-
14 term growth rate for the 11 gas companies in Mr. Lester's comparable group
15 is 7.1%, which exceeds Mr. Lester's long-term growth estimate of 6.3%.
16 Thus, the evidence indicates that investors expect growth rates which are at
17 least 80 basis points higher than Mr. Lester's estimate. The table also shows
18 Value Line's long-term earnings growth estimate which is 9.6%, again
19 considerably above Mr. Lester's 6.3%

**ANALYSTS' GROWTH FORECASTS
NATURAL GAS DISTRIBUTION UTILITIES**

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	COMPANY	Zacks	Value Line
1	AGL Resources	6.9	7.5
2	Atmos Energy	6.3	13.5
3	Cascade Natural Gas	6.0	8.5
4	Energen	12.2	19.0
5	Laclede Gas	7.5	6.5
6	Northwest Nat. Gas	6.3	8.5
7	Peoples Energy	6.8	8.5
8	Piedmont Natural Gas	7.3	7.5
9	SEMCO Energy	8.3	13.5
10	Southwest Gas	4.3	4.0
11	WGL Holdings	5.9	8.5
	AVERAGE	7.1	9.6

Source: Zacks Investment Research
Value Line Survey for Windows 9/2001

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2. VALUE LINE FORECASTS

Q. DO YOU SEE ANY DANGERS IN RELYING ON VALUE LINE AS AN EXCLUSIVE SOURCE OF FORECASTS IN APPLYING THE DCF MODEL?

A. Yes. Consistent with my earlier comments regarding Mr. Cicchetti's testimony, I believe that Mr. Lester's exclusive reliance on Value Line as a source of analysts' growth forecasts in his DCF analysis runs the risk of being unrepresentative of investors' consensus forecast. One would expect that averages of analysts' growth forecasts such as those contained in IBES or Zacks are more reliable estimates of the investors' consensus expectations likely to be impounded in stock prices.

1 **3. MARKET RISK PREMIUM**

2 **Q. DO YOU AGREE WITH MR. LESTER'S ESTIMATE OF THE**
3 **MARKET RISK PREMIUM?**

4 A. Mr. Lester's estimate of the market risk premium of approximately 5.2%
5 (Exhibit PL-18) rather than the more conventional 8% estimate reported by
6 Ibbotson Associates in their 2001 Yearbook is too low. According to the
7 widely-used Ibbotson compilation of historical returns, over the past 75 years
8 the observed historical market risk premium over long time periods is
9 between 7% and 8%, and closer to the latter.

10 Incorporating a more realistic market risk premium of 7% rather than
11 5.2% increases Mr. Lester's CAPM estimate of the FWUs' cost of equity by
12 about 50 basis points (beta of 0.61 times 7.0% rather than beta times 5.2%).

13 **4. CAPM VS EMPIRICAL CAPM**

14 **Q. DOES MR. LESTER'S VERSION OF THE CAPM UNDERESTIMATE**
15 **THE APPROPRIATE COST OF CAPITAL?**

16 A. Yes, it does. I do not agree with Mr. Lester's use of the raw form of the
17 CAPM. I believe that the CAPM estimate should be supplemented with an
18 estimate from the empirical version of the CAPM. There have been countless
19 empirical tests of the plain vanilla CAPM to determine to what extent
20 security returns and betas are related in the manner predicted by the CAPM.
21 The results of the tests support the idea that beta is related to security returns,
22 that the risk-return tradeoff is positive, and that the relationship is linear. The

1 contradictory finding is that the risk-return tradeoff is not as steeply sloped
2 as the predicted CAPM. In other words, low-beta securities earn returns
3 somewhat higher than the CAPM would predict, and high-beta securities earn
4 less than predicted. This is one of the most well-known results in the
5 academic finance literature. Based on the empirical evidence, a CAPM-based
6 estimate of the cost of capital underestimates the return required from low-
7 beta securities and overstates the return from high-beta securities. The plain
8 vanilla version of the CAPM underestimates water utilities' equity costs by
9 about 50-60 basis points from this bias alone as shown by a comparison of
10 my CAPM and ECAPM results in my prefiled direct testimony.

11 **Q. WHAT CHANGES SHOULD MR. LESTER IMPLEMENT IN**
12 **DEVELOPING AN AMENDED LEVERAGE FORMULA?**

13 A. Over and above the changes that I recommended in my direct testimony with
14 regards to capital structure and the cost of debt, I recommend that the
15 following changes be implemented in developing the cost of common equity
16 component of the leverage formula: 1) that the constant growth DCF model
17 rather than the two-stage DCF model be applied to the water and gas groups
18 employed by Mr. Lester; 2) that the growth component of the DCF analysis
19 be proxied by the consensus analysts' long-term earnings growth forecast
20 contained in Zacks rather than the circular retention growth method; 3) that
21 the market risk premium of the CAPM analysis be measured as the average
22 between the historical arithmetic risk premium reported in Ibbotson

1 Associates Annual Valuation Yearbook and the prospective market risk
2 premium; 4) that the latter be measured as Mr. Lester has proposed except
3 that only the Value Line earnings growth forecast be employed rather than
4 the average of the dividend and earnings growth forecast in measuring the
5 growth component of the DCF market return; and 5) that the CAPM analysis
6 be supplemented by the empirical version of the CAPM as described in my
7 direct testimony.

8 **Q. HOW HAVE THE RECENT EVENTS OF SEPTEMBER 11TH**
9 **INFLUENCED CAPITAL MARKET CONDITIONS?**

10 A. In the weeks following the tragic events of September 11th, 2001, short-term
11 interest rates have declined markedly to the 2%-3% level in response to an
12 expansive monetary policy by the Federal Reserve, while long-term Treasury
13 yields have only declined modestly. The cost of long-term money for
14 corporate issuers, however, has remained unchanged and has even escalated
15 slightly. Capital markets have become extremely quality conscious. Any
16 corporate issuer rated less than single A has experienced difficulty in raising
17 capital at any cost in that period. Below investment grade companies have
18 experienced extreme difficulty in raising debt funds in a quality-conscious
19 market. Yield spreads over long-term Treasury bonds have reached the very
20 high level of 320 basis points and 360 basis points for A-rated and BAA-
21 rated utility bonds, respectively. This is a significant consideration for the

1 Commission given that the marginal cost of debt to a FWU is assumed to
2 equal the yield on Moody's bonds rated Baa3 plus 50 basis points.

3 **Q. DOES THIS COMPLETE YOUR REBUTTAL TESTIMONY?**

4 **A. Yes, it does.**

1 CHAIRMAN JACOBS: There were exhibits; correct?

2 MR. JAEGER: Chairman Jacobs, one thing about the
3 depositions, Steve Burgess had initially objected in his
4 November 1st deposition, but Steve has advised me that he has
5 withdrawn those objections at this time.

6 MR. BURGESS: That's correct. In the transcript of
7 the deposition will show the objections and the grounds
8 therefor, and we subsequently withdrew those objections and
9 notified Mr. Jaeger and Mr. Menton.

10 CHAIRMAN JACOBS: Very well. So be it then. So then
11 are you going to mark the depositions as an exhibit?

12 MR. JAEGER: Yes, Commissioner. I'll have
13 Mr. Harris -- I can give you the copies --

14 CHAIRMAN JACOBS: While he's passing those out, let's
15 go ahead and mark the testimony exhibits here.

16 MR. JAEGER: Yes. This will be Exhibit Number 1, and
17 it will be the depositions and late-filed of Dr. Morin. One
18 thing I need to note, there is one late-filed that is still to
19 be filed. He has not filed his Late-Filed Exhibit Number 2.
20 So that's still to come, but the depositions are there, and the
21 other late-filed is there.

22 We thought we were going to have them in time this
23 morning, but it didn't work out. I think Steve could
24 probably -- if there's something objectionable in that
25 late-filed exhibit, then he could make the objection at that

1 time.

2 CHAIRMAN JACOBS: So one exhibit is pending. You
3 want to --

4 MR. JAEGER: It's Late-Filed Exhibit 2 to Dr. Morin's
5 October 23rd exhibit (sic) --

6 CHAIRMAN JACOBS: Now, would you like to make that a
7 part of the Composite Exhibit 1 or make it a separate exhibit?

8 MR. JAEGER: I think whatever is easier. I'd like to
9 make it a part of 1 and just come in later, so we'll have it
10 moved except for the one exhibit to the late-filed. Whatever
11 is simpler to you, Chairman.

12 CHAIRMAN JACOBS: If that works with everybody, we'll
13 keep it as a part of Composite Exhibit 1, and note that
14 Late-Filed Exhibit 2 is pending; correct?

15 MR. JAEGER: That's correct.

16 CHAIRMAN JACOBS: So show that marked as Composite
17 Exhibit 1.

18 (Exhibit 1 marked for identification.)

19 CHAIRMAN JACOBS: And you moved that? Did I
20 understand you that you moved that exhibit?

21 MR. JAEGER: Yes, I would move it pending the filing
22 of the Late-Filed 2.

23 CHAIRMAN JACOBS: Very well. Without objection, show
24 then Composite Exhibit 1 is admitted.

25 (Exhibit 1 admitted into the record.)

1 CHAIRMAN JACOBS: Now, do we mark all of Dr. Morin's
2 testimony exhibits as one as well -- as one composite exhibit
3 as well, Mr. Menton?

4 MR. JAEGER: No, I think you just insert his -- his
5 testimony would be just inserted into the record as though
6 read, and I believe you can just -- you can do that -- both of
7 them right here. I don't think it will confuse anybody having
8 both the direct and rebuttal testimony inserted into the record
9 as though read at this time. I think that's what we -- was the
10 stipulation that you approved.

11 CHAIRMAN JACOBS: Right. But what I'm suggesting is,
12 do we need to separately mark the attached exhibits?

13 MR. JAEGER: Okay. Yes. There are seven exhibits
14 attached to his primary -- his direct testimony. And that's
15 RAM-1 through 7. That would be a Composite Exhibit 2.

16 CHAIRMAN JACOBS: Show those marked as Composite
17 Exhibit 2.

18 (Exhibit 2 marked for identification.)

19 MR. MENTON: And just to clarify, Commissioner, if I
20 might, there is also an Appendix. There are --

21 CHAIRMAN JACOBS: Is that the flotation cost
22 allowance?

23 MR. MENTON: There are seven exhibits that are
24 numbered and then an Appendix A that's also attached to the
25 testimony, and we would ask that that be moved into the record

1 as well.

2 CHAIRMAN JACOBS: Okay. Show that as a part of
3 Composite Exhibit 2 is the Appendix A; correct?

4 MR. MENTON: Yes, sir.

5 MR. JAEGER: That's correct, Chairman.

6 CHAIRMAN JACOBS: And without objection, show
7 Composite Exhibit 2 is admitted.

8 (Exhibit 2 admitted into the record.)

9 CHAIRMAN JACOBS: Okay. And if there's nothing else
10 then for Dr. Morin, he is excused.

11 MR. MENTON: Just to make sure that I'm correct, when
12 we marked Exhibit 1, we had the deposition of Dr. Morin of
13 October -- do we have both of them together as one exhibit?

14 MR. JAEGER: That's correct, October 23rd and
15 November 1st depositions and all late-filed exhibits to those
16 depositions.

17 MR. MENTON: Okay, sorry.

18 CHAIRMAN JACOBS: Very well. So that appears to take
19 care of Stipulation 2 and Stipulation 3 and 4; correct?

20 MR. JAEGER: Yes, Chairman.

21 CHAIRMAN JACOBS: And so then we're back to
22 Stipulation 1 which you began with before.

23 MR. JAEGER: And that's just keeping the docket open.
24 I don't believe there's any controversy there.

25 CHAIRMAN JACOBS: Do we need to vote on that one?

1 MR. JAEGER: I believe you should approve that, yes.
2 CHAIRMAN JACOBS: Should we do a bench vote?
3 COMMISSIONER JABER: I move the stipulation.
4 CHAIRMAN JACOBS: Okay. I have a motion.
5 COMMISSIONER DEASON: Seconded.
6 CHAIRMAN JACOBS: Moved and seconded. All in favor?
7 COMMISSIONER DEASON: Aye.
8 COMMISSIONER JABER: Aye.
9 COMMISSIONER BAEZ: Aye.
10 COMMISSIONER PALECKI: Aye.
11 CHAIRMAN JACOBS: Aye. Show it approved.
12 Any other preliminary matters?
13 MR. JAEGER: None that I know of, sir.
14 MR. MENTON: No, sir.
15 MR. BURGESS: No, sir.
16 CHAIRMAN JACOBS: Very well. So then I show then we
17 now then have Mr. Lester as a witness?
18 MR. JAEGER: No, I think it is OPC's Witness Mark A.
19 Cicchetti.
20 CHAIRMAN JACOBS: I'm sorry, I'm sorry.
21 MR. MENTON: Commissioner --
22 CHAIRMAN JACOBS: I have it reversed. And with that
23 we can --
24 MR. JAEGER: I think Mr. Burgess has a --
25 MR. MENTON: Commissioner, the prehearing order had

1 allowed for opening statements, and I did not know if we were
2 going to have an opportunity to make those.

3 CHAIRMAN JACOBS: Yes. Why don't we do that? We'll
4 swear the witnesses after the opening statements. And you will
5 begin.

6 MR. MENTON: Thank you, sir.

7 CHAIRMAN JACOBS: Is there a time limitation? I
8 think it's, what, ten minutes?

9 MR. MENTON: Ten minutes is what it said in the
10 prehearing order, sir.

11 CHAIRMAN JACOBS: Very well. You may proceed.

12 MR. MENTON: I think I will be briefer than that.
13 Good morning, Commissioners. The Florida Waterworks
14 Association has requested this hearing to address the
15 assumptions and conclusions set forth in your proposed agency
16 action order issued June 1st, 2001. That PAA order would
17 continue with only a minor correction and a minor modification,
18 the existing leverage formula methodology used for calculating
19 the reasonable range of returns on equity for water and
20 wastewater utilities.

21 The current methodology has essentially been followed
22 by the Commission for several years without any significant
23 modifications. The Florida Waterworks Association is greatly
24 concerned that Florida water and wastewater utilities are
25 becoming less and less attractive investments. The returns on

1 equity authorized for water and wastewater utilities in Florida
2 are significantly lower than the returns for other
3 Commission-regulated industries.

4 In addition, the returns that would be established
5 under the PAA order for Florida water and wastewater utilities
6 will be at the very low end of the range that have been
7 established for water and wastewater utilities in other states.
8 This comes at a time when Florida water and wastewater
9 utilities are facing greater and greater risks. We believe
10 that simply continuing the current formula will jeopardize the
11 financial viability of the utilities and potentially compromise
12 their ability to attract financing and to assure their ability
13 to provide adequate, safe, and reliable service.

14 You may recall that at the agenda conference on
15 May 15th, 2001, you were presented with two alternative Staff
16 recommendations. The first recommendation would have resulted
17 in an increase in the allowed range of returns to 9.98 percent
18 at 100 percent equity to 12.33 percent at 40 percent equity.
19 Part of the justification for this recommendation was the
20 11.5 percent return on equity that the Commission had approved
21 in certain recent dockets involving gas distribution companies.

22 The alternative recommendation on May 15th, which was
23 the one that was approved by the Commission in the PAA order,
24 included only a minor correction and a modification and as well
25 as a continuation of the existing leverage formula methodology.

1 That existing formula would result in a range of returns of
2 9.14 percent at 100 percent equity to 10.24 at 40 percent
3 equity.

4 Through this docket, we request that you revisit and
5 reexamine the results and the basis for your decision on
6 May 15th. To support our request, we have presented the
7 detailed analysis of Dr. Roger Morin, one of the leading
8 experts in the field. Dr. Roger Morin literally wrote the book
9 on returns on equity for regulated utilities. His book
10 entitled "Regulatory Finance, Utilities' Cost Of Capital" is
11 widely utilized in establishing returns on equity throughout
12 the country.

13 As Dr. Morin explains, there is no single method for
14 determining the appropriate return on equity. No single model
15 should be used to conclusively determine the expected returns
16 for an individual firm, let alone for an industry, which is
17 effectively what the leverage formula does. Essentially, what
18 you're trying to do with the leverage formula is to establish a
19 return on equity that measures investor expectations. The
20 basic premise is that the allowable return on equity should be
21 commensurate with returns on investments in other enterprises
22 with corresponding risks.

23 Again, there are several different ways to address
24 this goal. Each methodology possesses its own way of examining
25 investor behavior, its own premises, and its own set

1 of simplifications of reality. Each method proceeds from a
2 different fundamental premises which cannot be validated
3 definitively. Investors simply do not subscribe to just one
4 approach in making their investment decisions.

5 In order to minimize judgmental error, measurement
6 error, and conceptual infirmities, Dr. Morin strongly suggests
7 the Commission should look at the results of a variety of
8 methods applied to a variety of comparable groups. Dr. Morin's
9 testimony provides you with that ability. Dr. Morin has
10 utilized several different approaches which are described in
11 detail in his testimony. Dr. Morin performed two capital asset
12 pricing model analyses. He also performed four risk premium
13 analyses, two of which were historical risk premium studies and
14 two were risk premium studies performed on allowed returns in
15 the industry.

16 Dr. Morin also performed what's known as a discounted
17 cash flow analysis on three surrogates for the Florida water
18 and wastewater industry. Those surrogates included a group of
19 large water utilities which you will hear more about through
20 the testimony today. Dr. Morin's comprehensive and diversified
21 approach is the most thorough and reliable methodology and is
22 strongly supported in the financial literature.

23 Combining the best of several different conceptual
24 approaches, Dr. Morin has arrived at a recommendation that a
25 reasonable range of return on common equity to be as part of

1 the leverage formula methodology for ratemaking purposes for
2 Florida water and wastewater utilities is between 10 to
3 13.4 percent with the midpoint of 11.7 percent for a typical
4 water utility with an average capital structure. This is not
5 too far off from the primary recommendation presented to you on
6 May 15th. Dr. Morin has provided a sound empirical backup for
7 the higher range that was proposed in that primary
8 recommendation.

9 Dr. Morin's testimony provides strong support that
10 the range of returns must be higher than would be established
11 by the PAA order if you want Florida utilities to be able to
12 attract capital under reasonable terms and if you want to
13 protect the financial integrity of the utilities. Unless you
14 allow investors the return commensurate to those offered on
15 comparable risk investments, your fundamental goals will not be
16 met.

17 In addition to being the correct result empirically,
18 the higher range of returns recommended by Dr. Morin is an
19 appropriate move toward a level of uniformity among authorized
20 rates of return among industries that are subject to rate
21 base/rate of return regulation. As explained in his testimony,
22 Dr. Morin's recommendation closely correlates to the
23 methodology and authorized returns on equity for gas
24 distribution companies in this State. It also correlates
25 closely to the range of returns authorized for water and

1 wastewater utilities outside of Florida. By contrast, the PAA
2 order would result in returns that are at the very low end of
3 the spectrum of returns on equity authorized for water
4 utilities around the country, even though Florida water
5 utilities on average are significantly smaller and face greater
6 business risks.

7 If the investor-owned water industry in this State is
8 to survive, it must be able to attract capital. Over the last
9 few years, the Commission has heard some of the many obstacles
10 facing this industry. There are increasing costs of
11 environmental compliance, increasing costs and uncertainty
12 dealing with alternative water supplies and the State's
13 expressed intent to expand the use of reclaimed water.

14 There are also regulatory risks unique to this
15 industry such as the Commission's used and useful policies.
16 Many of these risks are often discounted because of the belief
17 that water utilities do not face competition. However, the
18 Commission has seen examples of the expanding battles
19 investor-owned utilities are facing with municipalities for the
20 right to serve growth areas in the State. The ability of
21 investor-owned utilities to compete in this market is simply
22 another example that the current leverage graph does not
23 accurately reflect the risks that are facing the industry.
24 Merely continuing the existing approach will not allow Florida
25 utilities to face up to the changing nature of the industry.

1 In sum, if the Commission wants to encourage
2 consolidation and ensure the ability of investor-owned
3 utilities to survive, it is essential that the range of returns
4 on equity not be at such a low level that there is a
5 disincentive to investment in Florida water and wastewater
6 utilities. The PAA order will result in disincentives to
7 investment and should be modified. Thank you.

8 CHAIRMAN JACOBS: Thank you. Mr. Burgess.

9 MR. BURGESS: Thank you, Mr. Chairman. I'd start by
10 urging the Commission to consider what is required to be done
11 here. The statutory requirements that surround this particular
12 hearing that we are setting about today calls for the
13 Commission to establish the cost of equity, the return on
14 equity for the average water and wastewater case -- average
15 water and wastewater company in the State.

16 It's impossible to establish one return or one
17 formula that applies to every company. There will be outliers
18 no matter what you do. The Commission is to establish what is
19 best -- what is the best return for the average, and recognize,
20 too, that in any individual case, if there is any reason either
21 up or down for any of the parties to think that the formula
22 method does not result in an appropriate amount for that
23 particular company, there is -- the parties have the
24 opportunity to present evidence to the Commission to reflect
25 that.

1 The statute speaks specifically to the water and
2 wastewater industry. It does not speak to trying to apply any
3 kind of policy to try to make this industry equate to any other
4 industry. In fact, the testimony bears out that all witnesses
5 in the case, and including Dr. Morin, agree that this should be
6 applied, that each industry's return on equity should be
7 established commensurate with the risks associated with that
8 particular industry, and that if there are differences between
9 one industry and other, that the returns on equity should
10 reflect those differences. This is something that's agreed to
11 by the parties. So comparing stipulated returns agreed to
12 perhaps years ago in another industry with returns that are
13 going to be established in the future year in water and
14 wastewater has no application and has no bearing on what the
15 decision that you're about to make today should be.

16 There are a number of regulatory risk factors that
17 have been discussed in the testimony by the various parties.
18 In fact, one of the things that the testimony will bear out is
19 that Dr. Morin was not completely familiar with a number of the
20 specific statutory provisions that have been passed applying to
21 the water and wastewater industry in the state of Florida for
22 the specific purpose of reducing risks. The testimony will
23 show that he was not aware of some of the statutory differences
24 in the regulatory principles or statutory principles that apply
25 to one industry different from another in the state of Florida.

1 And without those differences, you simply cannot properly
2 evaluate what the risk associated with this particular industry
3 is.

4 Since that is the purpose for what we are here today
5 to examine the water and wastewater industry, the risks
6 associated with it, the proper return to apply on average,
7 recognizing that parties have the opportunity to offer specific
8 differences in individual cases, I ask you to keep that in
9 mind. And with that in mind, we assert that the testimony
10 presented by Mr. Mark Cicchetti in this case will provide you
11 with the proper return to be applied, which in fact is the
12 return that this Commission decided in the PAA. We support the
13 proposed agency action in this case. The testimony by
14 Mr. Cicchetti will demonstrate the wisdom of that decision.
15 Thank you, Commissioners.

16 CHAIRMAN JACOBS: Very well. Do you have an opening
17 statement?

18 MR. JAEGER: No opening statement, Chairman.

19 CHAIRMAN JACOBS: Okay. Will the witnesses stand and
20 raise their right hand.

21 (Witness collectively sworn.)

22 CHAIRMAN JACOBS: Thank you. You may be seated.
23 Mr. Burgess, you may call your first witness.

24 MR. BURGESS: Okay. We call Mr. Cicchetti.

25 Commissioners, might I inquire of the Chair and of

1 the parties that it's my understanding that we would present
2 the prepared direct testimony of Mr. Cicchetti now, and his
3 rebuttal would come following the testimony of Mr. Lester; is
4 that correct?

5 MR. JAEGER: That was the original agreement before
6 we had stipulated Dr. Morin in, that we would go in normal
7 order.

8 CHAIRMAN JACOBS: Do we still need to have him
9 reappear?

10 MR. BURGESS: Yes, that was my intention.

11 CHAIRMAN JACOBS: You would prefer that?

12 MR. BURGESS: I would.

13 CHAIRMAN JACOBS: Okay.

14 MR. BURGESS: Thank you, Commissioner.

15 MARK A. CICCHETTI

16 was called as a witness on behalf of the Citizens of the State
17 of Florida and, having been duly sworn, testified as follows:

18 DIRECT EXAMINATION

19 BY MR. BURGESS:

20 Q Would you state your name and business address,
21 please.

22 A My name is Mark Anthony Cicchetti, and my business --

23 CHAIRMAN JACOBS: I think you turned your mic off.

24 THE WITNESS: It's on.

25 MR. BURGESS: The green light's on?

1 THE WITNESS: The green light is on.

2 MR. BURGESS: Is the red light off?

3 THE WITNESS: The red light's off.

4 CHAIRMAN JACOBS: All right.

5 THE WITNESS: Hello, hello. Do I need to get closer?

6 My name is Mark Anthony Cicchetti, and my business
7 address is 2931 --

8 CHAIRMAN JACOBS: Mr. Cicchetti, that mic probably is
9 not functioning. Would you do us a favor and use the next one
10 over? That may make for a bit of neck tension on this side,
11 but it will help us.

12 THE WITNESS: Can you hear me?

13 CHAIRMAN JACOBS: That one is on also?

14 THE WITNESS: How about now?

15 CHAIRMAN JACOBS: All right.

16 MR. BURGESS: Good.

17 THE WITNESS: My name is Mark Anthony Cicchetti. My
18 business address is 2931 Kerry Forest Parkway, Suite 202,
19 Tallahassee, Florida 32309.

20 BY MR. BURGESS:

21 Q Mr. Cicchetti, by whom are you employed?

22 A I'm employed by C.H. Guernsey & Company.

23 Q Mr. Cicchetti, did you prefile testimony in Docket
24 Number 010006-WS?

25 A Yes.

1 Q If you were asked the questions, and I'm speaking now
2 of the -- what is -- did you file testimony entitled both
3 prepared direct testimony and also rebuttal testimony?

4 A Yes.

5 Q I'm speaking now of the prepared direct testimony.
6 If you were asked the questions contained in your direct
7 testimony today, would your answers be the same?

8 A Yes.

9 MR. BURGESS: Commissioners, I'm not recalling the
10 proper convention at this point. I believe I would ask that
11 the prefiled direct testimony of Mr. Cicchetti be entered in
12 the record as though read.

13 CHAIRMAN JACOBS: Without objection, show the direct
14 testimony of Mr. Cicchetti entered into the record as though
15 read.

16 MR. BURGESS: Thank you.

17 BY MR. BURGESS:

18 Q Mr. Cicchetti, as well as the prefiled testimony, did
19 you also attach a number of exhibits to that testimony?

20 A Yes.

21 Q And do those exhibits consist of those identified as
22 MAC-1 through MAC-6?

23 A Yes.

24 Q Mr. Cicchetti, do you have a summary to provide the
25 Commission of your testimony?

1 A Yes, I have a brief summary.

2 CHAIRMAN JACOBS: Do you want to go ahead and mark
3 those exhibits?

4 MR. BURGESS: I'm sorry. Yes. I would ask to mark
5 those, and they can be marked -- we have agreed that they can
6 be marked as Composite Exhibit --

7 MR. JAEGER: 3.

8 CHAIRMAN JACOBS: Make those 3.

9 (Exhibit 3 marked for identification.)

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1 BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
2 PREPARED DIRECT TESTIMONY AND EXHIBITS
3 OF MARK A. CICHETTI
4 ON BEHALF OF
5 THE OFFICE OF PUBLIC COUNSEL
6 DOCKET NO. 010006-WS
7

8 Q. Please state your name and address and on whose behalf you are testifying in this
9 proceeding.

10
11 A. My name is Mark Anthony Cicchetti and my business address is 2931 Kerry Forest Parkway,
12 Suite 202, Tallahassee, Florida 32309. I am testifying on behalf of the Office of Public
13 Counsel.

14
15 Q. By whom are you employed and in what capacity?

16
17 A. I am a Senior Financial Consultant and Manager of the Tallahassee Office for C.H.
18 Guernsey & Co. Guernsey & Co. is an engineering, architectural and consulting firm that
19 has been in business for over 70 years. The services Guernsey provides include: cost of
20 service and rate studies; regulatory and litigation support; economic and financial studies;
21 valuation studies; power supply planning, solicitation, and procurement; fuel purchasing;
22 transmission and distribution planning and facilities design; strategic planning;
23 telecommunications and e-business applications; architectural design for headquarters and
24 warehouse facilities; environmental assessments; security systems, and; web site
25 development and internet applications.

1 For ten years prior to joining C.H. Guernsey & Co., I was President of Cicchetti & Co., a
2 financial research and consulting firm specializing in public utility finance, economics, and
3 regulation. I also have been employed by the Florida State Board of Administration as
4 Manager of Arbitrage Compliance and the Florida Public Service Commission as Chief of
5 Finance. A detailed narrative description of my experience and qualifications is contained
6 in Exhibit No. ____ (MAC - 1).

7
8 Q. Have you previously testified before this Commission?

9
10 A. Yes, I have testified before this Commission numerous times.

11
12 Q. What is the purpose of your testimony?

13
14 A. The purpose of my testimony is to address the appropriateness of the leverage formula and
15 the allowed return on common equity incorporated by the Commission in Proposed Agency
16 Action (PAA) Order No. PSC-01-1226-PAA-WS, issued June 1, 2001, pursuant to Section
17 367.081(4)(f), Florida Statutes.

18
19 Q. Please summarize your testimony.

20
21 A. The assumptions and conclusions contained in Commission Order No. PSC-01-1226-PAA-
22 WS are reasonable and appropriate for determining allowed returns on common equity for
23 water and wastewater ("WAW") utilities in Florida.

24
25 Q. What is the leverage formula?

1 A. The leverage formula is a linear equation that, using a given set of assumptions, estimates
2 changes in equity cost for given changes in financial leverage (i.e. the use of debt). The
3 leverage formula has been in use in Florida since the late 1970's.

4
5 The theories underlying the leverage formula, as used in Florida, are based on the works
6 of Modigliani and Miller (1958) and Miller (1977). According to Modigliani and Miller, the
7 overall cost of capital remains constant despite changes in financial leverage. Therefore,
8 the major premise underlying the leverage formula is that firms with different equity ratios
9 will have different costs of equity even though they have the same business risk and the
10 same overall cost of capital. This means that the increase in the required return on equity
11 resulting from the use of leverage completely offsets the advantage of the increased use of
12 lower cost debt. (See Modigliani and Miller, "The Cost of Capital, Corporation Finance and
13 the Theory of Investment," *American Economic Review*, June 1958, pp. 261-297 and Miller,
14 "Debt and Taxes," *Journal of Finance*, May 1977, pp. 261-275.)

15
16 Q. Why is the leverage formula used to determine the allowed return on common equity for
17 WAW utilities in Florida?

18
19 A. There are 300 WAW utilities under the jurisdiction of the Florida Public Service Commission
20 ("FPSC") -- many with multiple certificates of service. Without a workable methodology such
21 as the leverage formula, the costs and administrative burdens associated with cost of equity
22 testimony, in potentially hundreds of rate cases, could become quite onerous. Additionally,
23 many WAW utilities are small operations that find it beneficial to avoid the costs associated
24 with presenting cost of equity testimony. Consequently, applying a workable methodology
25 such as the leverage formula lowers costs to all parties and serves the public interest.

1 Q. What are the assumptions underlying the leverage formula?

2

3 A. As stated in Order No. PSC-01-1226-PAA-WS, the four basic assumptions are: 1.) Business
4 risk is similar for all WAW utilities; 2) The cost of equity is a function of the equity ratio; 3)
5 The marginal weighted average cost of investor capital is constant over the equity range of
6 40% to 100%; and 4) The cost rate at an assumed Moody's bond rating of baa3 plus 50
7 basis points represents the average marginal cost of debt to a Florida WAW utility over an
8 equity ratio range of 40% to 100%.

9

10 Q. Are these assumptions reasonable?

11

12 A. Under the circumstances, yes. Any model that is going to be applied to a group of
13 companies for the purpose of determining the cost of equity is, by necessity, going to have
14 a number of limiting assumptions. An examination of the assumptions listed above indicates
15 they are appropriate and necessary for practical application of the leverage formula.

16

17 Q. Please give a brief overview of the assumptions.

18

19 A. Business risk is defined as the uncertainty inherent in projections of a firm's operating
20 income. The most important factors affecting business risk include the stability of demand
21 for a firm's products, sales price variability, the variability of input prices, the ability to adjust
22 output prices for changes in input prices, and the extent to which costs are fixed. As
23 regulated WAW utilities, the factors that affect business risk are similar for Florida WAW
24 utilities as well as regulated WAW utilities nationwide. For example, WAW utilities
25 nationwide are experiencing increased costs due to environmental regulations.

1 Furthermore, many of the practices of the FPSC, such as pass-throughs for certain
2 increases in costs, staff assisted rate cases, recognizing reuse facilities as 100% used and
3 useful, allowances for funds prudently invested, and the use of the leverage formula tend
4 to lower the business risk of Florida WAW utilities relative to those nationwide.

5
6 The assumptions that the cost of equity is a function of the equity ratio and that the weighted
7 average cost of capital is constant over an equity ratio range of 40% to 100% are reasonable
8 based on the works of Modigliani and Miller. Limiting the low end of the equity ratio to 40%
9 provides an incentive to the companies to avoid imprudent amounts of debt.

10
11 Finally, it is reasonable to assume the average marginal cost of debt to a Florida WAW utility
12 over an equity ratio range of 40% to 100% is equal to Moody's bond rating of baa3 plus 50
13 basis points. A bond rating below baa3 is not investment grade. Certain financial
14 institutions, pension funds, and others with fiduciary responsibility only can invest in
15 investment grade securities. Bonds below investment grade are characterized, at best, as
16 "uncertain as to position" by Moody's.

17
18 In defining its baa rating, Moody's states, "Such bonds lack outstanding investment
19 characteristics and in fact have speculative characteristics as well." It would be
20 unreasonable to assume that the debt of Florida-regulated WAW utilities is below that
21 described by Moody's baa rating and therefore below investment grade. Furthermore, it
22 would be unreasonable to assume that the ability of prudently operated Florida WAW utilities
23 to pay their debts is "uncertain."
24

1 The 50 basis point private placement premium recognizes that small firms, on average, incur
2 a higher cost of debt due to their inability to tap the major financial markets.

3
4 Q. What methods did you use to determine the appropriateness of the of allowed return on
5 common equity incorporated by the Commission in Order No. PSC-01-1226-PAA-WS?

6
7 A. To determine the required return on common equity, I used a two-stage, annually
8 compounded discounted cash flow (DCF) model and a risk-premium analysis.

9
10 It is important to note that estimating the cost of common equity is a subjective procedure.
11 It is impossible to measure it precisely and it is generally estimated within a range. The cost
12 of common equity is a function of investor expectations and it is impossible to know all
13 investors' expectations at any point in time. Consequently, professional judgment must be
14 exercised when determining proxies for investor expectations. When analyzing cost of
15 equity estimates, it is important to understand the rationale underlying the subjective inputs
16 and how well the models relied upon reflect reality.

17
18 Q. How did you apply the DCF and risk premium models to obtain the cost of common equity?

19
20 A. I conducted a DCF analysis on an index of publicly traded water companies and a risk
21 premium analysis on Moody's Gas Distribution index and adjusted the results for the
22 difference in risk between the indices and an average WAW utility in Florida. The
23 investment risk characteristics for both indices are shown on Exhibit No. ____ (MAC - 2).

1 Relying on an index of companies, rather than a single company, helps minimize forecasting
2 errors and should provide more reliable information for use in measuring the cost of common
3 equity.

4 Q. Please briefly describe the models you used.

5
6 A. The discounted cash flow model is the most commonly used market-based approach for
7 estimating a utility investor's required return on common equity capital. In a DCF analysis,
8 the cost of equity is the discount rate which equates the present value of the expected cash
9 flows associated with a share of stock to the present price of the stock.

10
11 A risk premium analysis recognizes that equity is riskier than debt. Equity investors thus
12 require a "risk premium" over the cost of debt as compensation for assuming additional risk.

13
14 Q. Please describe the discounted cash flow model used in your analysis.

15
16 A. I used a two-stage variable growth rate DCF model in order to use the specific dividend
17 forecasts for the next five years provided by *Value Line*. *Value Line* is an independent,
18 respected, widely circulated source of investment information.

19
20 Exhibit No. ____ (MAC - 3) shows a two-stage DCF model. In the two-stage model,
21 dividend growth is estimated on an individual basis for an initial growth period. After the
22 initial period, dividends are assumed to grow into perpetuity at the expected long-term
23 growth rate.

24
25 Q. How did you use this model to determine the cost of common equity capital for the indices?

1 A. The current stock price (P_0) was determined by averaging the high and the low stock price
2 for each company. I assumed an initial growth period based upon *Value Line's* explicit
3 dividend forecasts (n) for the next five years. I used *Value Line's* forecast of dividends, and
4 assumed a constant rate of growth in between to estimate the expected dividends (D_t)
5 during the initial growth period. The long-term constant rate of growth expected (g_n) was
6 calculated using the earnings retention method ($b \times r$ approach) and *Value Line's* expected
7 return on equity (r) and expected retention rate (b) for 2005.

8

9 Q. Did you incorporate an allowance for flotation costs in applying your DCF model?

10

11 A. Yes. The DCF calculations I performed include an adjustment of 3% to recognize the
12 expenses associated with issuing stock. An allowance for issuance costs enables the utility
13 to recover the costs incurred when issuing common stock. Issuance expenses include
14 registration, legal, and underwriter fees, and printing and mailing expenses. Investors would
15 never be able to earn the required return on their investment without an issuance cost
16 adjustment because the sales price will always exceed the net proceeds to the company as
17 a result of incurring issuance costs. These costs will be incurred whether the stock is
18 publicly traded or privately held.

19

20 Conceptually, the situation with common stock is similar to that of bonds and preferred
21 stock. With bonds for example, the issuance expenses are reflected in the cost charged to
22 ratepayers and are recovered over the life of the bond. The cost to the company for a
23 specific bond issue is the interest expense plus the amortization of issuance costs divided
24 by the principal value less the unamortized issuance costs. The result is that the cost to the
25 utility is greater than the return to the creditor.

1 Unlike the case of bonds, however, common stock does not have a finite life. Therefore,
2 issuance costs cannot be amortized and must be recovered by an upward adjustment to the
3 allowed return on equity. This adjustment reflects the fact that, due to the issuance costs,
4 the utility earns a return on an equity balance that is less than the actual amount paid by
5 investors. (See Brigham, E.F., Aberwald, D., and Gapenski, L.D., "Common Equity Flotation
6 Costs and Rate Making," Public Utilities Fortnightly, May 2, 1985, pp. 28-36). Historically,
7 utility underwriting expenses associated with issuing common stock have averaged 3 to 4
8 percent of gross proceeds. (See Petteway, R.H., "A Note on the Flotation Costs of New
9 Equity Capital Issues of Electric Companies," Public Utilities Fortnightly, March 18, 1982, pp.
10 68-69).

11
12 Q. What is the required return on common equity for the index of water companies based upon
13 your two-stage annually-compounded DCF model?

14
15 A. Solving the equation shown on Exhibit No. ____ (MAC - 3) for the cost of equity (K)
16 produces a required return on common equity for the index of 9.00% (rounded). Exhibit No.
17 ____ (MAC - 3) shows the inputs and results of my analysis.

18
19 Q. Please describe the risk premium approach of determining the cost of common equity.

20
21 A. The return to equity owners is a residual return and is less certain than the yield on bonds.
22 Therefore, equity owners must be compensated for this additional risk. The risk premium
23 approach estimates the cost of common equity by adding a premium to the cost rate of debt
24 to compensate the investor for the greater risk inherent in an equity investment. The basic

1 risk premium model takes the form: $K_e = B_y + R_p$ where: K_e = the cost of common equity;
2 B_y = the yield on debt; R_p = the risk premium on common stock.

3
4 In order to apply the methodology, a risk premium for common stock over some measure
5 of debt cost must be estimated. The debt security used in a risk premium analysis should
6 be risk free to isolate the spread component of the return and avoid default risk and
7 circularity concerns that are associated with debt securities issued by companies.

8
9 Q. How did you estimate the equity - debt risk premium?

10
11 A. I began my analysis by estimating the required market returns for Moody's Natural Gas
12 Distribution Index for each month of the January 1991 to December 2000 ten-year period
13 using the same DCF methodology previously described. This was accomplished by using
14 the *Value Line* data that was available to investors each month of the January 1991 to
15 December 2000 period, and the then current stock prices.

16
17 Q. How was the equity-debt risk premium determined?

18
19 A. For each month, the required returns on common equity derived from my DCF analyses
20 were compared to the then current yield on long-term government bonds, as reported by
21 Federal Reserve Board, to determine the risk premium for common equity over the yield on
22 long-term government bonds.

23
24 Q. What is your estimate of the equity - debt risk premium for the index?

- 1 A. As shown on Exhibit No. ____ (Mac - 4) the equity - debt risk premium for the index averaged
2 3.10% (rounded) over the period January 1991 to December, 2000.
3
- 4 Q. What gauge of debt cost did you add to the risk premium to determine the cost of equity?
5
- 6 A. I used the July, 2001 *Blue Chip Financial Forecasts'* (Blue Chip) consensus forecast for
7 long-term government bond yields for the coming year of 5.5%. *Blue Chip* is a publication
8 that provides interest rate forecasts from leading economists and financial analysts.
9
- 10 Q. What is the risk premium cost of common equity for the index?
11
- 12 A. Combining the next four quarters expected yield on long-term government bonds of 5.5%
13 with the equity-debt risk premium of 3.10% results in a risk premium cost of equity of 8.60%
14 for the index. Exhibit No. ____ (MAC - 5) shows the results of my risk premium analysis.
15
- 16 Q. Did you make an adjustment to the required return on equity to recognize the difference in
17 risk between the indices and an average WAW utility in Florida?
18
- 19 A. Yes. I used a bond yield differential to estimate the additional return required by an average
20 WAW utility in Florida over the indices. I believe the average differential between the yields
21 of A1 and Baa3 bonds of .41% over the last 10 years (which is still the same as shown on
22 Attachment 1 of Order No. PSC-01-1226-PAA-WS), is a reasonable estimate of the
23 additional return required.
24
- 25 Q. What is the risk adjusted cost of equity based on your DCF and risk premium analyses?

1 A. As shown on Exhibit No. ____ (MAC - 6) the risk adjusted cost of equity is 9.71%.

2

3 Q. What is your conclusion as to the required rate of return on common equity for use in the
4 leverage formula?

5

6 A. Based on my analyses, I conclude the investor required rate of return on common equity
7 adopted by the Commission in Order No. PSC-01-1226-PAA-WS for use in the leverage
8 formula (10.09% prior to the adjustment to reflect a 40% equity ratio and 10.24% after the
9 adjustment) is reasonable and appropriate. In my opinion, such a return should allow the
10 average WAW to attract capital at a reasonable cost.

11

12 Q. Does this conclude your testimony?

13

14 A. Yes.

15

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1 CHAIRMAN JACOBS: You may proceed with your summary.

2 MR. BURGESS: Thank you, Mr. Chairman.

3 A Good morning, Mr. Chairman, Commissioners. The
4 purpose of my direct testimony is to address the
5 appropriateness of the leverage formula and the allowed rate of
6 return incorporated by the Commission in the PAA order issued
7 in this docket. It is my opinion that the assumptions and
8 conclusions contained in the PAA are reasonable and appropriate
9 for determining allowed returns on common equity for water and
10 wastewater utilities under the Commission's jurisdiction.

11 The leverage formula has been in use in Florida since
12 the late 1970s. Without a workable methodology such as the
13 leverage formula, the costs and administrative burdens
14 associated with cost of equity testimony in potentially
15 hundreds of cases could be quite burdensome. The leverage
16 formula necessarily has some limiting assumptions, but a
17 company can file cost of equity testimony and not use the
18 leverage formula if the company believes the cost of equity
19 determined by the leverage formula is insufficient.

20 To determine the cost of equity, I relied on two
21 generally accepted market-based methodologies. I performed a
22 discounted cash flow analysis on publicly traded water
23 companies that have readily available investment information,
24 and I performed the risk premium analyses on Moody's Gas
25 Distribution Index. The results of my analyses were adjusted

1 to recognize the difference in risk between the comparison
2 companies and the typical Florida water and wastewater utility.
3 The results of my analyses indicate the assumptions and
4 conclusions contained in the PAA are reasonable and
5 appropriate. And this concludes the summary of my direct
6 testimony.

7 MR. BURGESS: Commissioners, we would tender
8 Mr. Cicchetti for cross-examination.

9 CHAIRMAN JACOBS: Very well. Mr. Menton.

10 MR. MENTON: Thank you, Commissioner.

11 CROSS EXAMINATION

12 BY MR. MENTON:

13 Q Good morning, Mr. Cicchetti.

14 A Good morning, Mr. Menton.

15 Q You would agree that there is no one approach that
16 can pinpoint with 100 percent accuracy the true cost of equity
17 for a utility; correct?

18 A Yes.

19 Q And you would agree that the determination of the
20 cost of equity is a subjective procedure?

21 A Yes.

22 Q And each methodology requires considerable
23 professional judgment on the reasonableness of the assumptions
24 and the reasonableness of the proxies used to validate the
25 theory; correct?

1 A Yes.

2 Q Do you believe that more than one methodology should
3 be employed in arriving at a judgment on the cost of equity?

4 A Generally, yes.

5 Q Okay. And do you agree that these methodologies
6 should be applied across a series of comparable risk companies?

7 A I believe that's the best way to proceed, usually.

8 Q And in determining the cost of equity, the Commission
9 should avail itself of as much information as possible to
10 arrive at the results that are correct or accurate?

11 A I believe the Commission should rely on all the good
12 information that's available in arriving at their conclusions.

13 Q In your summary, you describe the two analyses that
14 you have performed for purposes of your direct testimony in
15 this case; correct?

16 A Yes.

17 Q And those two analyses, the first was a discounted
18 cash flow analysis, or DCF analysis, that you apply to an index
19 of large water utilities; is that right?

20 A Yes.

21 Q And the second analyses was a risk premium analysis;
22 is that right?

23 A Yes.

24 Q And the risk premium analysis was applied to an index
25 of gas companies?

1 A Yes.

2 Q Okay. So you did not do a DCF analysis in your
3 direct testimony of the gas companies; correct?

4 A I did not present a simple -- or a discounted cash
5 flow analysis just for gas companies --

6 Q Just for gas companies.

7 A -- that's correct.

8 Q But in your risk premium analysis for the gas
9 companies, there was a DCF analysis included; correct?

10 A That was part of the analysis, yes.

11 Q Okay. Just to clarify then, there was a DCF analysis
12 done solely on water companies, and then there was a risk
13 premium analysis done solely on gas distribution companies;
14 correct?

15 A Yes.

16 Q And the risk premium analysis as part of that
17 methodology, you have to utilize a DCF, or discounted cash
18 flow, for those companies; correct?

19 A Yes.

20 Q Okay. So the risk premium analysis that you have
21 utilized has built into it all the benefits and all the flaws
22 of the DCF model that you've utilized for your main analysis of
23 the water companies; correct?

24 A As part of that risk premium analysis, the DCF
25 analysis is included, yes.

1 Q Okay. You have not used any capital asset pricing
2 model, or CAPM model as they're sometimes called, to evaluate
3 the appropriate range of equity for Florida water and
4 wastewater utilities, have you?

5 A No, I have not.

6 Q Now, I'd like to ask you a few questions about the
7 DCF analysis that you conducted with respect to water
8 companies, which is the first analysis set forth in your
9 testimony. That analysis you apply to an index of four
10 companies; is that correct?

11 A Yes.

12 Q And isn't it true that the smallest of the four water
13 companies to which you applied your DCF analysis had revenues
14 in excess of \$183 million?

15 A Yes, that's correct.

16 Q Do you know if there are any Florida water utilities
17 that have revenues in excess of \$183 million?

18 A I don't believe there are.

19 Q And one of the other companies that you utilize as
20 part of your DCF analysis actually had revenues in excess of a
21 billion dollars; isn't that correct?

22 A Yes, that's correct, but the absolute size in terms
23 of determining the required return for this particular industry
24 is not going to have an affect such that it wouldn't be
25 relevant without an appropriate -- with an appropriate

1 adjustment to recognize for the smaller size. What I'm trying
2 to say is, just because the companies in the DCF analysis are
3 large, that doesn't mean they would apply and the risks that
4 are associated with them wouldn't be relevant to the water
5 companies in Florida.

6 Q Okay. And each of the four companies that you
7 utilize in your DCF analysis are located outside the state of
8 Florida; correct?

9 A That's true, but when we're presenting testimony and
10 most of the testimony I have ever seen presented in Florida
11 with regard to whether it's electric or natural gas will have
12 companies included in comparison groups that are outside of the
13 state of Florida. I don't think that would make it irrelevant
14 to the Florida companies at all. It's still a very valid
15 analysis and will determine the required return for companies
16 similar to those in the state of Florida.

17 Q And you talked a minute ago about the application of
18 the DCF analysis to the four large out-of-state water companies
19 that you utilized, and you said that you made some adjustments
20 to the analysis based upon the size of the Florida water
21 companies. Is that accurate?

22 A Yes.

23 Q And your determination as to what adjustments to make
24 would be subjective, correct, on your part?

25 A Yes.

1 Q Okay. There is no established methodology for making
2 an adjustment given the size difference between the index that
3 you utilized and the Florida -- average Florida water utility,
4 is there?

5 A No. That's one of those things that would be subject
6 to professional judgment. There is nothing in the finance
7 literature or any textbook that would say here is the one way
8 that you can definitively determine the difference for -- an
9 extra return for companies that have some differences in risk
10 maybe because of the way they are financed or because of their
11 size.

12 Q Now, the discounted cash flow analysis that you
13 performed, you used a single variation of the DCF model; is
14 that right?

15 A Well, I'm not sure what you mean by "a single
16 variation."

17 Q Well, there are an infinite number of ways to apply a
18 DCF model; correct?

19 A Yes.

20 Q And you used one approach which is known as a
21 two-stage retention growth variation; correct?

22 A That's part of it. I refer to it as a two-stage
23 annually compounded discounted cash flow analysis.

24 Q And there are many other ways to apply a discounted
25 cash flow analysis to the same index that you have; correct?

1 A There are many ways you can do it, but when you're
2 conducting an analysis of this type, you want your model to
3 reflect the circumstances that you're dealing with. So if
4 companies are paying dividends on a quarterly basis or a
5 monthly basis or an annual basis, you would try to incorporate
6 that as much as possible. The point being that you can derive
7 the model to reflect the circumstances that you think are
8 appropriate.

9 Q Okay. But there are a number of different ways of
10 applying a DCF analysis; correct?

11 A Yes.

12 Q And the one that you applied was a two-stage two
13 growth rate approach; correct?

14 A Yes.

15 Q And another way to apply the model would be a single
16 stage constant growth rate; isn't that right?

17 A That's another variation of a discounted cash flow
18 model, yes.

19 Q And the variations of the model are dependent upon
20 what assumptions and judgments are made by you as the modeler;
21 correct?

22 A Yes.

23 Q You would agree that Dr. Morin is a well-recognized
24 expert in the area of cost of capital?

25 A Yes, but I don't agree with everything that he says.

1 Q In fact, the approach that you have applied here,
2 which is a DCF analysis followed by a risk premium analysis, is
3 one that you developed after reading Dr. Morin's book; correct?

4 A Well, years ago while I was analyzing different types
5 of models, I found Dr. Morin's book to be very useful. And I'm
6 very surprised to find that in many instances he doesn't
7 practice what he has in his own book.

8 Q In your interpretation of his book, he doesn't
9 practice it. Do you know whether he believes he's practicing
10 what he's got in his book?

11 A I believe after the depositions that we had, he
12 recognizes that there's inconsistencies between what he's
13 saying and what's in -- what he's performing and what he says
14 in his book.

15 Q Now, Dr. Morin has characterized the use of a
16 two-stage two growth rate model such as you utilized as
17 unreliable. Is that simply an area where you disagree with his
18 professional assessment?

19 A I certainly disagree with his professional assessment
20 in that case because what he's pointing to as being unreliable
21 is the b times r approach, which is the earnings retention
22 times earnings methodology. It is a generally accepted
23 methodology. It's pointed out and described in his book. And
24 for reasons that I completely disagree with that I think are
25 erroneous, he claims that there is something wrong with that

1 approach. And frankly, I'm very confused by his accusations in
2 that regard, particularly given that it's a generally accepted
3 methodology and documented in his book.

4 Q Okay. In fact, your use -- and we'll come back and
5 talk a little bit more specifically, but the b times r approach
6 is essentially the second stage of your two-stage DCF approach;
7 correct?

8 A That's the second stage, yes.

9 Q And it's the retention growth stage; is that right?

10 A Yes.

11 Q And what you have done is, you've used a retention
12 growth approach that's sometimes called the b times r approach;
13 correct?

14 A Yes.

15 Q And that's an approach that you learned about by
16 reading Dr. Morin's book; correct?

17 A No. That approach I learned in college, and it's
18 taught in every university as far as I know, every respected
19 university. It's in every textbook that I'm familiar with.

20 Q And it's in Dr. Morin's textbook; correct?

21 A Yes, it is. Yes, it is. And yet he chooses to
22 criticize it for some reason. I'm not sure exactly why.

23 Q Okay. And we're going to come back and talk a little
24 bit more about the b times r approach in a minute. But just to
25 clarify, you had indicated earlier that the risk premium

1 analysis, which is the second analysis that you conducted,
2 incorporates a DCF analysis of the gas companies that you
3 utilized in that approach; correct?

4 A Yes.

5 Q And the DCF approach that you utilized in your risk
6 premium analysis is also the same variation that you used in
7 your primary DCF analysis of the water companies; correct?

8 A Yes.

9 Q And that's a two-stage two growth rate variant that
10 has this retention growth component that's based upon b times
11 r ?

12 A Yes. And let me explain. The reason that it's done
13 that way is, Value Line is one of the few sources of investment
14 information that provides expected dividends over the coming
15 five years. If you didn't have forecasts of expected
16 dividends, you would rely on the b times r approach, the
17 retention growth approach, to determine your expected dividends
18 into the future.

19 So since Value Line provides those expectations,
20 those forecasts for the coming five years, those are
21 incorporated in the model. And then for the period after that,
22 in essence, into infinity, I have used a b times r approach
23 using the earnings, return on equity, and retentions expected
24 by Value Line for the furthest period out. And that's the
25 basis of having the two. One when there are forecasts

1 available, and then where there's not, you have to make a
2 determination of expected dividends into the future. And to
3 the greatest extent possible, I've relied on analysts'
4 forecasts because Value Line is a very well-respected, widely
5 circulated source of investment information. I believe it's in
6 virtually every library of a reasonable size. I believe it's
7 extensively used on campuses by finance professors and just
8 about every witness that I have come across, including
9 Dr. Morin, at least most, if not all, that I have come across
10 have in one form or another relied on Value Line information.

11 The fact that it's an independent source is also very
12 good because a lot of the information you get from Wall Street
13 analysts is tainted by their need to bring in brokerage and
14 underwriting business. And I think the recent situation that
15 we had with the run-up in the NASDAQ and the tech stocks and
16 all of the crazy analyses that were being provided by certain
17 Wall Street firms during the period of time when the stock
18 prices were very high I think points out the need to have a
19 good independent source of investment information.

20 Q You would agree that according to the theory behind
21 the DCF model, the growth rate for dividends and earnings will
22 be the same over a long time period; isn't that correct?

23 A Over the entire course, they necessarily have to be
24 because the money that's earned has got to equal the money
25 that's eventually paid out on a dollar basis when the firm

1 liquidates at some time in the future. And if it doesn't
2 liquidate, the fact that the farther you go out in number of
3 years, the present value of those amounts become smaller. And
4 that's, in essence, the theory behind the discounted cash flow
5 model, and why it can be derived into a relatively easy formula
6 to follow is because 30, 40, 100 years out, amounts of
7 dividends or earnings that are \$5, \$2 a share become very small
8 and almost meaningless on a present value basis.

9 Q So that was a, yes, that in the long term dividends
10 and growth rates -- I mean, dividends and earnings are going to
11 grow at the same rate?

12 A Right. And I guess the point that I was trying to
13 make was, if you're using earnings growth as a forecast, the
14 fact that earnings are not all paid out as dividends in the
15 near term can mean quite a bit. If you have \$7 in an earnings
16 next year but are only paying out \$2 in dividends, if you're
17 relying on earnings versus dividends, you're not getting the
18 cash flows right. In a cash flow analysis, you can come up
19 with an incorrect result.

20 The fact that years and years out those things will
21 all iron out doesn't invalidate the fact that the closer in
22 years are the years that are going to have a bigger impact, and
23 therefore, it's necessary to get your cash flows right when
24 you're doing a cash flow analysis.

25 Q Okay. Now, the approach that you've utilized for the

1 DCF has limited you to using only Value Line as your source for
2 growth projections; isn't that right?

3 A Well, it hasn't limited me. I just prefer to do it
4 that way.

5 Q Okay. But the approach that you utilize does not
6 allow for the use of growth projections by other analysts
7 because they don't project dividends the way that Value Line
8 does; isn't that right?

9 A Right. They don't project dividends, so I'm not
10 going to throw in there what they do project just so I can say
11 I used some other sources. I'm trying to get to what I believe
12 is the appropriate number. And if Value Line wasn't projecting
13 dividends, we would be using the b times r approach. And then
14 what I would be saying to the Commissioners is, let's look at
15 the reasonableness of, what are these earnings expectations,
16 what are the retention expectations, what are the return on
17 equity expectations and so forth in order to come up with an
18 analysis. But since Value Line is widely circulated,
19 well-respected, I believe it's reasonable to rely on their
20 forecasts.

21 Q If you utilized another DCF variant that focussed on
22 long-term growth where earnings and dividends would be equal,
23 you would be able to use projections from other analysts,
24 wouldn't you?

25 A I'm not sure I understand your question.

1 Q If you did not use the two-step two growth rate DCF
2 version but instead used a constant growth rate version of the
3 DCF, then you could utilize earnings projections as well as
4 dividends projections in order to make your analysis; correct?

5 A No. In order -- to get to the point that I think
6 you're trying to get to. You're saying that the earnings -- I
7 think in order to get there, the earnings would have to equal
8 the dividends in terms of forecasts. If they were equal, then
9 it wouldn't matter. But to the extent that the assumption in a
10 single stage model is that they're going to be equal in the
11 long run is something that's not generally reflected on a time
12 value of money perspective for companies who don't pay out all
13 their earnings as dividends.

14 Q Well, didn't you just testify a minute ago that in
15 the long run earnings growth and dividend growth are going to
16 equal out?

17 A Yes, in an infinite period of time, but I also
18 pointed out that if -- on a time value of money basis, if you
19 don't get them correct, you're going to produce an incorrect
20 result. The fact that mathematically all the money that's
21 taken in is going to be assumed to be paid back out at some
22 point in time doesn't invalidate the fact that you need to have
23 your cash flows properly forecast in a cash flow analysis to
24 get an accurate result.

25 Q Now, you heard Dr. Morin in his deposition where he

1 testified that in his most recent book he has done an analysis
2 that demonstrates that the price of a stock is actually
3 composed of approximately 20 percent based upon the short-term
4 dividend projections and 75 percent -- or it was 25 percent and
5 75 percent, I believe, for the long-term projections of
6 earnings and dividends; is that correct?

7 A Yes. And in looking at the analysis I provided of
8 the stock price of \$25, approximately \$20 is going to be
9 associated with the long-term second stage of the model, and
10 that's approximately, if not exactly, about what Dr. Morin had
11 said.

12 Q Okay. Let's talk about the two stages of the model
13 that you utilized. The first stage of your two-stage analysis
14 for the DCF, which was based upon the Value Line dividends
15 forecast, includes an annual growth rate of approximately
16 2.83 percent; correct?

17 A Yes.

18 Q And the second stage, the retention growth stage of
19 your analysis, which is the part that goes off into the future,
20 has an annual expected growth rate of over 5 percent; isn't
21 that correct?

22 A Yes.

23 Q So there is a large difference between what the
24 expected growth rate is during the upcoming five years and what
25 your long-term annual growth rate projections are in your

1 model; correct?

2 A Well, there's a difference between the amounts, and
3 again, it's a function of Value Line's forecasts. I believe
4 they have a much better handle on what the dividends are going
5 to be over the next coming five years. And when you look at
6 the retention rate and the expected earnings over the longer
7 term, based on what's currently going on, that's the result
8 that you get. It's just a piece of arithmetic.

9 Personally, I think that you're going to see some of
10 those allowed returns for some of those companies come down in
11 the future. And I think what will actually happen is, you'll
12 get a long-term growth rate closer to the short-term growth
13 rate. In fact, that's what the market is expecting right now
14 based on the forecasts, and that's reflected in the price of
15 the stocks. And those are the data used to determine the
16 required return in a discounted cash flow analysis.

17 Q If you utilized an annual growth rate for the initial
18 five-year period that was equal to the annual growth rate that
19 you used in the latter part of your analysis, the retention
20 growth stage, you would agree that your results would produce a
21 higher cost of equity; correct?

22 A As a piece of arithmetic, that's true, but it's
23 totally irrelevant.

24 Q Okay. Now, Dr. Morin in his testimony says that the
25 drastic shift in retention policy or dividend policy reflected

1 by the two differences in the growth rates that you have is
2 unrealistic and unjustified by the economics of the water
3 utility industry. Do you disagree with this statement?

4 A I don't necessarily disagree with the statement. My
5 point is that that's Dr. Morin's interpretation of what is
6 going on versus what the market is telling us. And as an
7 analyst in using a market-based analysis, I have to go with the
8 information that the market is telling us. And that's what I'm
9 doing.

10 As I said, I think in the long term, the allowed
11 returns for some of those companies will come down. And if you
12 did this same analysis maybe three or five years from now, you
13 would see a closer growth rate out in those later years closer
14 to what the current rate is. But that doesn't mean that we
15 shouldn't still use the market data that's driving the current
16 price of the stock.

17 Q You would agree that if you utilized a DCF variant
18 that allowed you to use earnings growth such as Dr. Morin has
19 utilized, that you end up with a cost of equity that is higher
20 than what you come up with your approach; correct?

21 A I agree that if you want to make some incorrect
22 assumptions, that you will get a number that's higher than the
23 number I have. I am not aware of any textbook, including
24 Dr. Morin's, that when they describe and explain the discounted
25 cash flow analysis it says that you should use earnings growth.

1 Most of the witnesses, including Dr. Morin, in this docket say
2 that, well, there's only Value Line that's providing dividends,
3 so I'm going to use some other forecasts.

4 Q Well, one of the reasons you'd want to use --

5 MR. BURGESS: Excuse me.

6 MR. MENTON: I'm sorry.

7 MR. BURGESS: I would ask counsel to allow the
8 witness to finish answering the question that he's asked.

9 MR. MENTON: I'm sorry, I thought he was finished.

10 CHAIRMAN JACOBS: Are you done?

11 THE WITNESS: I've lost my train of thought, so we
12 can continue.

13 CHAIRMAN JACOBS: I guess that he's done.

14 MR. MENTON: I lost my question.

15 CHAIRMAN JACOBS: Effective objection, Mr. Burgess.

16 BY MR. MENTON:

17 Q You would agree that there are variations of the DCF
18 model such as the single stage constant growth rate model that
19 are projected out over the long term where earnings growth and
20 dividend growth are going to be equal that you could use
21 earning growth; correct?

22 A If earnings growth and dividend growth were projected
23 to be the same, you could then rely on either one --

24 Q And one of the reasons --

25 A -- but that's a matter of coincidence. It's not a

1 justification to use earnings growth. I think you should
2 always use dividend -- expected dividend growth. That's the
3 theory underlying the model. That's what's in every textbook,
4 including Dr. Morin's. My point is, if earnings growth
5 happened to be the same as dividend growth, it wouldn't change
6 your result, but you should still be looking at expected
7 dividend growth. Those are the cash flows that an investor
8 receives.

9 Q But one of the problems is, is that there are no
10 accurate ways to project dividends into the future; isn't that
11 right? So you use earnings as a surrogate.

12 A Absolutely not. You have just as much problem
13 forecasting earnings as you do dividends. It's just that
14 there's very few companies that forecast dividend growth. I
15 mean, it's not like earnings growth is magically always
16 100 percent accurate and expected dividend growth isn't. As a
17 matter of fact, I would expect that dividends can be more
18 accurately forecast in the short term than earnings.

19 Q Well, the only company that really does dividend
20 forecasts is Value Line; correct?

21 A I believe so. I know Merrill Lynch was doing it for
22 a while, but I think Value Line is by far relied upon by more
23 folks and is the most widely circulated.

24 Q Okay. And Merrill Lynch did it on a limited basis
25 for short time frames; correct?

1 A I believe that's correct, yes.

2 Q Okay. And Value Line is the only one that does
3 projections out for a couple of years, but even then they only
4 go out about five years; is that right?

5 A Yes.

6 Q So there's one company that projects dividends out
7 for five years, and that's the sole source of dividend
8 information that you can utilize in the DCF approach that you
9 have taken; correct?

10 A Yes, that's what I utilized for the reasons that I've
11 stated.

12 COMMISSIONER DEASON: Let me ask a question at this
13 point. What would an investor look to if he or she is
14 concerned about dividends on a stock that they are exploring
15 purchasing? What do they look to to get an understanding of
16 what the anticipated dividends of that stock would be?

17 THE WITNESS: Generally, the current dividend is
18 widely provided just about on any Web site or any financial
19 publication that you could find. In terms of looking at it for
20 forecasted dividends, you would look to Value Line. If you
21 look -- watch CNBC on TV or any of those shows when they're
22 talking about dividends, a lot of times it's expected
23 dividends; they will rely on Value Line. But you would have to
24 do that kind of analysis, or you would have to implement a b
25 times r approach yourself to estimate what the expected cash

1 flows are.

2 COMMISSIONER DEASON: So is it your belief then that
3 the current market price of a stock is heavily influenced by
4 the projected dividends that's found in Value Line?

5 THE WITNESS: Yes. Because a lot of the large
6 brokerage houses are going to do that kind of analysis. They
7 are going to trade and arbitrage the price of the stocks when
8 they see things get out of line based on their forecasts. And
9 so, generally speaking, the efficiency of the market will
10 dictate that the investor at the margin will bid the price of
11 the stock up to the point that his expected return equals his
12 required return -- his or her required return.

13 MR. MENTON: Thank you, Commissioner.

14 BY MR. MENTON:

15 Q And just to follow up on that question that
16 Commissioner Deason asked you, we talked a minute ago about
17 what comprises the stock price. And the short-term or
18 five-year dividend projections comprise somewhere between 20
19 and 25 percent of the stock price. Isn't that what Dr. Morin's
20 analysis has demonstrated?

21 A Yes.

22 Q So the long-term component actually comprises about
23 75 percent, and there are no long-term projections of
24 dividends; correct?

25 A That's correct. And as you pointed out in my

1 analysis, the long-term growth rate is much higher.

2 Q Okay. And let's talk about your long-term growth
3 component, which is the b times r approach; correct? In
4 applying that approach, you make an assumption as to what the
5 expected return would be for the company that you're analyzing;
6 correct?

7 A I'm relying on Value Line's forecast, yes.

8 Q Okay. But the r -- the b times r is the expected --
9 the r and the b times r is the expected return that the
10 investor believes that he will obtain sometime in the future;
11 correct?

12 A Yes.

13 Q So the r that you utilized in your long-term
14 retention analysis in this particular case was 12.25 percent;
15 is that correct?

16 A Yes.

17 Q Okay. And so for purposes of conducting your
18 retention growth analysis, you utilized an expected return of
19 12.25 percent; correct?

20 A Yes.

21 Q And that is projected out into perpetuity?

22 A Yes.

23 Q So based -- inherent in your model for determining
24 the required return is an assumption that the investor
25 expectation for that exact company is 12.25 percent; correct?

1 A Yes.

2 Q And that expected return is in excess of what you
3 ultimately calculate to be the required return; correct?

4 A That's correct, but in determining the required
5 return, the discounted cash flow model is taking the current
6 stock price and comparing that to the expectations, and the
7 result is the required return. There's absolutely no
8 inconsistency there. And the way that it works, for example,
9 is, let's just assume that we have a company that we know that
10 their required return, their cost of equity is 10 percent. If
11 the Commission, for whatever reason, allowed them 20 percent,
12 what would happen is, their expected earnings would increase,
13 the expected dividends that they would have in the future would
14 increase, and investors would bid the price of that stock up to
15 the point that the investor at the margin, their required
16 return would be the 10 percent. So we can look at what the
17 expectations are and what the market tells us the stock price
18 is to determine the required returns.

19 So in that particular example, the allowed return
20 might be 20 percent, but the required return is still 10
21 percent, and that works the same whether it's up and down. So
22 there's no inconsistency just because the expectations are
23 different than what might be allowed. It's just that whoever
24 happens to hold the stock will have a large gain or a large
25 loss depending on if the Commission allowed above or below the

1 required return.

2 Q But inherent in the b times r approach is that you're
3 projecting those returns out into perpetuity; correct?

4 A That's true.

5 Q And so you're projecting out a 12.25 percent return
6 in order to calculate what you believe to be the required
7 return; correct?

8 A Absolutely.

9 Q And if you use this approach to establish the
10 approved return, you would have an approved return that is
11 based upon an expected return that is significantly greater
12 than your approved return; correct?

13 A Yes. And there's absolutely no inconsistency there.
14 For example, if those companies that are currently allowed
15 12.25 percent and that's what's incorporated in the current
16 stock price, if their commissions decide that they're going to
17 lower their rates, what will happen is that lower allowed
18 return will then be reflected in the forecast. Their expected
19 earnings will come down. Their expected dividends will come
20 down. The stock price will come down to reflect that, and
21 given no change in the basic risk of the company, you will
22 still calculate a required return of 10 percent. That's simply
23 the way the model works.

24 I think you need to look at it from the reverse angle
25 to see if all we had to do was look at what was allowed and say

1 that was the cost of equity, there would be -- never be any
2 reason to have to do any type of analysis. But then how do you
3 ever determine what the required return is? You need to look
4 at what the expectations are, put in the context of the current
5 stock price, and that discounted cash flow analysis will
6 produce the required return.

7 Expected returns and required returns can vary, and
8 usually a good judge of that, and Commissioners, what you might
9 have heard about in the past, is the market to book ratio.
10 When you see a market to book ratio significantly above one,
11 generally what that's telling you is the allowed return is
12 greater than the required return.

13 I can remember the days of the early '80s when
14 inflation was high and interest rates were high, and market to
15 book ratios were below one, and the electric utilities were
16 screaming, and rightfully so, that they were having a
17 confiscation because anytime they had to issue stock, it was
18 below the market to book ratio. If the allowed returns equaled
19 the required returns, then the market to book ratio is above
20 one, and they argued strong to make that connection and
21 rightfully so.

22 The market to book ratio actually should be a little
23 bit above one to reflect flotation costs. But generally
24 speaking, in a theoretically perfect world, you'd like your
25 market to book ratio to be a little bit above one. But the

1 fact that the expected return on a group of stocks is not
2 equaling what the required return is by no way invalidates the
3 concept. And again, I'd point out that that's something that's
4 also pointed out in Dr. Morin's book.

5 COMMISSIONER JABER: Mr. Cicchetti, just setting
6 aside the specific model for just a brief moment. We have
7 heard in a lot of the water items and some presentations from
8 DEP and the Water Management District in the last year and a
9 half that Florida's infrastructure is aging, and in the next
10 year or two, there will be a lot of improvements as it relates
11 to replacement of infrastructure and making some necessary
12 repairs. And of course, Florida perhaps is unique in the
13 number of smaller water and wastewater utilities that it has,
14 and I'm talking about utilities that have \$100,000 in revenues
15 or less.

16 Those companies have to make those improvements by
17 using sources from the bank, I would assume, and then obviously
18 come back after the fact and seek recovery, if appropriate.
19 But initially they have to go and get funding from banks. What
20 is it banks look at in deciding whether or not a company is
21 appropriate for lending?

22 THE WITNESS: Generally, they are going to look at
23 the financial statements currently, what they think the company
24 is going to be able to earn, some projections into the future.
25 They're going to look at the amount of equity and consequently

1 the amount of debt that the company is carrying, and whether or
2 not this is going to make sense, that they're going to be --
3 this company is going to be able to pay this loan back and on a
4 timely basis.

5 COMMISSIONER JABER: Now, and in looking at whether
6 or not this company can pay the loan back, might the company be
7 able to show the return on equity as a -- as proof to the bank
8 that they are able to pay the loan back?

9 THE WITNESS: That's certainly going to be part of
10 it. I think in that context, the bank is going to look at the
11 Commission and say, what is the reputation of this Commission
12 in terms of providing good regulation and things of that
13 nature. And in situations like that, if I was running the
14 company, I'd be looking at -- I'd be keeping my financial
15 statements, looking at projected test years. This Commission
16 does on awful lot of things that should allow these companies
17 to maintain their financial integrity and earn a fair rate of
18 return.

19 I think a lot of the smaller systems that are
20 developer-rated or undercapitalized, they might not have the
21 managements that are needed to put together those kind of
22 forecasts. It might be where a developer built this small
23 system and now he's moved on, and now maybe the homeowner's
24 association or whatever is looking at making those
25 improvements. And that's where I think good management is

1 vitally important because the Commission has those tools
2 available.

3 COMMISSIONER JABER: Okay. And those tools would be
4 tools of punishment; right? Those would be sort of those
5 enforcement tools where we could certainly show cause them for
6 poor management, and we can penalize them and do those sorts of
7 things to enforce our rules and statutes and orders and make
8 sure that these companies comply with all of that; right?

9 THE WITNESS: Those weren't the tools I was thinking
10 of.

11 COMMISSIONER JABER: Well, what tools are you
12 referring to?

13 THE WITNESS: I was thinking in terms of
14 Staff-assisted rate cases, in terms of projected test years, in
15 terms of allowing construction work in progress in the rate
16 base, in terms of inflation adjusting many O&M costs, limited
17 proceedings to deal with one issue for just a particular
18 purpose, allowance for funds prudently invested, allowing reuse
19 facilities to be 100 percent used and useful, the leverage
20 formula. All of those things I think are available to these
21 companies, and if they're well-managed, there's no reason why
22 they couldn't function efficiently and properly and maintain
23 financial integrity.

24 And I think the smaller companies that are running
25 into this problem are severely undercapitalized. These owners

1 don't have a vested interest in this. It's more of a
2 developer-related situation. And those are the kind of
3 companies I don't think the Commission should use as the basis
4 for saying, here's what we ought do with the leverage formula.

5 COMMISSIONER JABER: Did you look at the -- do you
6 know what percentage of Florida companies are
7 developer-related?

8 THE WITNESS: I don't know exactly the number. I
9 think a lot of the smaller ones might be.

10 COMMISSIONER JABER: Are you speculating now?

11 THE WITNESS: I'm speculating on the exact number,
12 yes.

13 COMMISSIONER JABER: Okay. So you have not done an
14 analysis of Florida companies to determine whether their
15 complaints, for lack of a better word, is a result of their
16 mismanagement. You are -- at least your last response to me is
17 purely speculation as it relates to the Florida water market;
18 correct?

19 THE WITNESS: Yes, it's speculation to a certain
20 extent. My experience on the Staff for years having analyzed
21 these type of things, I don't know exactly how many are
22 developer-related, but a lot of times when I saw small
23 companies that had no equity and their rates weren't
24 compensatory, a lot of times they were developer-related. And
25 I just couldn't imagine, and it's hard for me to understand,

1 how if a company was interested in having their water utility
2 run efficiently and appropriately why they wouldn't avail
3 themselves of the rate relief that's available at the
4 Commission to have compensatory rates and financial integrity.

5 COMMISSIONER JABER: When did you leave the PSC?

6 THE WITNESS: In 1990.

7 COMMISSIONER JABER: Okay. You said one of the tools
8 we had certainly to -- that the companies could avail
9 themselves of is a review of the leverage formula; correct?

10 THE WITNESS: Yes.

11 COMMISSIONER JABER: So you would -- would you agree
12 that if this Commission thought that these smaller companies in
13 an effort to meet the demands of replacing aging infrastructure
14 or making future investment in the State could do that more
15 efficiently through reviewing the leverage formula and
16 establishing perhaps a higher range, that it would be
17 appropriate for us to do that?

18 THE WITNESS: I believe it would be appropriate,
19 Commissioner, but the problems with those smaller companies I
20 do not believe are going to be solved by whether you give them
21 11 percent or 10 percent in the leverage formula.

22 COMMISSIONER JABER: How many smaller companies does
23 Florida have?

24 THE WITNESS: Mr. Lester has a very good exhibit. I
25 believe it's at least several hundred companies.

1 COMMISSIONER JABER: Okay. Thank you, Mr. Cicchetti.

2 THE WITNESS: Thank you.

3 CHAIRMAN JACOBS: I'd like to ask a quick question.

4 Is it possible to build into this incentives such that
5 annually, biannually you could come and look at a company, and
6 I'm thinking particularly the smaller companies, and try and
7 build into this incentives for them to measure out to some
8 level of standards for best practices of management?

9 The concept being, you would make this a tool, which
10 I think as we all thought -- think it should be, a tool to
11 bring those smaller systems, and particularly the developer
12 systems, up to par on an ongoing basis rather than waiting
13 until there's a period of disrepair, and we come in and try and
14 fix that with an earnings or a response. Is that a reasonable
15 approach to take with the leverage formula?

16 THE WITNESS: Commissioner, I'm sure you could build
17 incentives to attempt to accomplish those types of things. I'm
18 not exactly sure how you would do it with the leverage formula
19 or if it wouldn't be done better in some other type of forum.

20 One thing I have recommended to the Commission in the
21 past is having a minimum equity requirement so these companies
22 would have a vested interest and wouldn't let them deteriorate.
23 But I know that's a tough standard to apply, but I'm sure that
24 incentives could be worked out. You know, additional equity
25 returns, for example, if they can show certain best management

1 practices and things of that nature. I think that's an
2 excellent idea. It's just a matter of putting that into
3 practice, developing a methodology and putting it into
4 practice.

5 CHAIRMAN JACOBS: Okay. Very well. Mr. Menton. Do
6 you have much more, Mr. Menton? I don't want to rush you, but
7 if you're going to be a while we can take a break.

8 MR. MENTON: I'll try to streamline. I've gotten a
9 little carried away with the modeling, so I'll try to
10 streamline some of that.

11 CHAIRMAN JACOBS: No. I was just wondering if it's a
12 good break point, or should we try and let you complete it.

13 MR. MENTON: If you want to take a break, that would
14 be fine.

15 CHAIRMAN JACOBS: Okay. Why don't we go ahead and
16 take a break for 15 minutes and we'll come back?

17 (Brief recess.)

18 CHAIRMAN JACOBS: We'll go back on the record. You
19 may continue, Mr. Menton.

20 MR. MENTON: Thank you, Commissioner.

21 BY MR. MENTON:

22 Q Mr. Cicchetti, just to follow up on one of your
23 answers that you just gave a minute ago. Did I understand you
24 to say that the Commission authorizes a water and wastewater
25 utility to include construction work in progress in rate base?

1 A Yes.

2 Q Okay. Is that in a statute or rule somewhere that
3 you're aware of?

4 A I'm not implying that they allow 100 percent, but the
5 Commission has, my understanding, the authority to allow as
6 much as they want up to 100 percent.

7 Q So is it a discretionary call then, or is it a
8 mandatory thing that construction work in progress is included
9 in rate base?

10 A It's my understanding it's discretionary. I know
11 there's some jurisdictions where it's not allowed.

12 Q Okay. I'll try to wrap up the modeling questions
13 pretty quickly here because I think I have beat them to death.
14 But you would agree that there are variants of the DCF approach
15 that do not include or require a b times r retention growth
16 component; correct?

17 A It's inherent in the model, but the model can be
18 derived to the point where it's not explicit.

19 Q Okay. And we talked already about the retention
20 growth projection that you utilized of 12.25 percent?

21 A Yes.

22 Q Okay. And that was the r in your growth forecast,
23 and that is what you're using as the investor expected return
24 into perpetuity; correct?

25 A Yes.

1 Q And if your approach is utilized to establish the
2 allowed return, then the investor expectations which are an
3 integral component of your model will not be realized; correct?

4 A That's not necessarily a true statement. We're
5 relying on the expectations in the current stock price to
6 derive the required return. If the required return for those
7 companies in the index have a change to their allowed return,
8 then those expectations will change, but given no change in the
9 basic underlying risk, there won't be any change in the
10 required return.

11 Q But the question was, if you utilize your approach to
12 establish the allowed return, then you're establishing an
13 allowed return that is not equal to what the investor
14 expectations are, which are an important component of
15 establishing the allowed return.

16 A No. We're establishing the required return in this
17 docket for the companies in Florida. If there's nothing that
18 changes for those companies that are in the index, that will
19 remain the same.

20 COMMISSIONER DEASON: Mr. Cicchetti, is it fair to
21 say there is a difference between expected return and required
22 return?

23 THE WITNESS: Yes.

24 BY MR. MENTON:

25 Q Mr. Cicchetti, we talked earlier about the four water

1 companies that you used in your DCF analysis, and those are
2 reflected on Exhibit MAC-2?

3 A Yes.

4 Q And those four water companies are the entire sample
5 for your DCF analysis?

6 A Yes.

7 Q And all four of those water companies are publicly
8 traded water companies; correct?

9 A Yes.

10 Q And they are identical to the four water companies
11 that are identified on Exhibit PL-13 which is attached to
12 Mr. Lester's testimony?

13 A I believe so, yes.

14 Q Do you have Mr. Lester's testimony in front of you?

15 A Yes.

16 Q And Mr. Lester's testimony sets forth the annual
17 revenues for each of those four companies; correct?

18 A Yes.

19 Q And the average revenue for the four companies in the
20 index that you utilized, the average annual revenue is
21 \$513.7 million per year?

22 A Yes.

23 Q And Mr. Lester has also graciously included in his
24 testimony a breakdown of the size of the Florida water
25 utilities; is that correct?

1 A Yes.

2 Q And you have not done -- or you would agree with the
3 breakdown that Mr. Lester has in the exhibits to his testimony
4 as to the size of the Florida water utilities; correct?

5 A Yes.

6 Q One of the four companies that is included in your
7 DCF analysis has been the subject of takeover rumors; correct?

8 A Yes.

9 Q And takeover rumors can have an impact on stock
10 price?

11 A Yes. As a matter of fact, when I updated the
12 analysis for the deposition exhibit, there was a fairly large
13 change because in the month of September the merger or takeover
14 was announced, and there was not a meaningful change in the
15 underlying cost of equity for the index.

16 Q Do you believe that it is practical or cost-effective
17 for an average Florida water utility to present cost of equity
18 testimony in a rate proceeding?

19 A If it's necessary, then it certainly would be
20 practical and reasonable. The purpose of the leverage formula
21 is to avoid that. I think it's generally better for the
22 companies if they have this available to them so that they can
23 save money.

24 Q Okay. You would agree that it would be quite
25 expensive to present cost of equity testimony in a rate

1 proceeding?

2 A Well, I don't know exactly what you mean by "quite
3 expensive." I know where they can get a fairly good rate of
4 return witness at a decent price.

5 Q It would give you a lot of business, anyway; right?

6 A Yeah. The leverage formula is not good for business
7 for me.

8 Q You would agree that there are some additional
9 business risks associated with the average Florida water and
10 wastewater utility in comparison to the four water utilities
11 used in your index because of their size; correct?

12 A They are similar in business risk, but because
13 they're smaller, there are certain additional risks associated
14 with that.

15 Q Okay. Now, the second analyses that you performed
16 that we talked about earlier is the risk premium analysis?

17 A Yes.

18 Q Okay. And the risk premium analysis incorporates
19 into at the DCF -- a DCF analysis of the gas companies as we
20 talked about earlier; correct?

21 A Yes.

22 Q And in your direct testimony, you did not indicate
23 what the DCF analysis of the gas companies was; isn't that
24 right?

25 A Not a most recent. I think it's incorporated in the

1 study through the end of 2000.

2 Q I'm sorry, I'm having a hard time --

3 MR. BURGESS: Can you move that a little bit more?

4 Yeah, thanks, Mark.

5 A It's not a current DCF cost of equity. As of this
6 month, it was not included, but the DCF for the gas in the risk
7 premium study goes through the end of 2000.

8 Q Okay. So you did not do a separate risk premium
9 analysis for the water utilities; correct?

10 A Correct.

11 Q But in the risk premium analysis for the gas
12 companies, you included an average DCF result for the companies
13 included within the gas index; right?

14 A Yes.

15 Q And that DCF analysis was the same variation of the
16 DCF model that you utilized for purposes of your water company
17 analysis?

18 A Yes.

19 Q On Exhibit MAC-6, you have a summary of your results;
20 correct?

21 A Yes.

22 Q And on the second line you indicate that your risk
23 premium analysis for the cost of equity for the gas index was
24 8.6 percent; correct?

25 A Yes.

1 Q This was not based upon the DCF analysis of the gas
2 companies identified, was it?

3 A Well, the DCF was incorporated --

4 Q Incorporated into it --

5 A Yeah.

6 Q -- but you did not -- as a late-filed exhibit to your
7 deposition, you did a separate DCF analysis only on those gas
8 companies; correct?

9 A Yes.

10 Q And in that late-filed exhibit, you determined using
11 a DCF-only approach that the cost of equity for those gas
12 companies was 10.10 percent; correct?

13 A Yes.

14 Q Which is approximately 150 basis points higher than
15 the risk premium cost of equity referenced in Exhibit 6?

16 A Yes.

17 Q Do investor-owned water utilities in Florida face
18 competition for new service territories?

19 A To the extent that they're competing with municipals
20 for -- to serve a particular territory, to that extent, yes.

21 Q Okay. Do you know whether municipal water and
22 wastewater utilities have authority under Florida statutes to
23 designate exclusive areas which would preclude or inhibit
24 investor-owned utilities from growing into areas where
25 development is expected to occur?

1 A I'm not familiar with that statute.

2 Q Okay. So you're not familiar with Section 180.02,
3 Florida Statutes, regarding the designation of exclusive
4 service territories by municipal utilities?

5 A No.

6 Q And then I take it, you have not made an assessment
7 of whether Florida water companies are -- or whether Florida
8 water companies would be facing greater business risks as a
9 result of their competition with municipals for a new service
10 territory?

11 A I wouldn't think that was a factor in their business
12 risk for the industry of providing water service. That's a
13 different type of -- when you say "compete," you're talking
14 about who's going to get to serve a territory, not so much
15 competing for my particular customer.

16 Q Okay. But in order to grow into new areas, an
17 investor-owned utility would have to seek certification of
18 additional territory in many instances; isn't that right?

19 A That's my understanding.

20 Q And you have made no analysis as to what obstacles
21 investor-owned utilities in Florida may face in terms of being
22 able to grow into new service territories?

23 A I have not made an analysis of that, no. I don't
24 think it's relevant to their required return.

25 Q You have not made an assessment of whether Florida

1 water companies are facing greater capital costs as a result of
2 resource issues, have you?

3 A Well, I'm familiar with the industry in general. I
4 haven't performed the specific study, no.

5 MR. MENTON: Give me just a second, Mr. Chairman. I
6 think that just about wraps it up. No further questions.

7 CHAIRMAN JACOBS: Very well. Staff.

8 MR. JAEGER: Yes.

9 CROSS EXAMINATION

10 BY MR. JAEGER:

11 Q Mr. Cicchetti, he's asked quite a few questions, I
12 think, on your exhibit -- your Late-Filed Deposition
13 Exhibit Number 1. I'd like to have that ID'd as Exhibit Number
14 4. And that's the DCF calculation of ROE using gas utilities;
15 is that correct?

16 A Yes.

17 CHAIRMAN JACOBS: Do you have copies for the --

18 MR. JAEGER: I'll let Mr. Harris pass those out.

19 CHAIRMAN JACOBS: Thank you. Show that marked as
20 Exhibit 4.

21 (Exhibit 4 marked for identification.)

22 BY MR. JAEGER:

23 Q Mr. Cicchetti, you have before you what has been
24 marked as Exhibit Number 4. Did you prepare this exhibit in
25 response to Staff's request for a late-filed?

1 A Yes.

2 Q And I believe you already said that it upped the
3 equity return by 150 basis points over what you had calculated?

4 A Well, it's 150 basis points above the risk premium
5 analysis.

6 MR. JAEGER: Okay. Chairman, I'd also like to have
7 ID'd as Exhibit Number 5 Mr. Cicchetti's Late-Filed Deposition
8 Exhibit Number 2. And it's an update to Mr. Cicchetti's DCF
9 model and risk premium model.

10 CHAIRMAN JACOBS: Okay. Show that marked as
11 Exhibit 5.

12 (Exhibit 5 marked for identification.)

13 BY MR. JAEGER:

14 Q Mr. Cicchetti, what's been marked as Exhibit Number
15 1, did you prepare this exhibit in response to Staff's request
16 for a late-filed?

17 A Exhibit Number 1, you said?

18 Q This is Exhibit Number 2. It's marked as
19 Exhibit Number 5 today. It's your Late-Filed Exhibit Number 2.

20 A Yes.

21 Q And could you briefly describe what this exhibit is?

22 A It's an update of the DCF for the water companies and
23 the changes using September stock prices instead of August.

24 Q And also, is it an update of the risk premium?

25 A Yes.

1 Q And what did the updated DCF model show the cost of
2 equity to be for those?

3 A It went down slightly, and the risk premium went down
4 slightly.

5 Q So the average was 8.75 percent; is that correct?

6 A I believe that's correct, yes.

7 Q And then you added a .41 for bond differential; is
8 that correct?

9 A Yes.

10 Q And then a .50 for private placement?

11 A Yes.

12 Q And so that came out to be 9.66 percent; is that
13 correct?

14 A Yes.

15 Q And you say that was through September 1st of 2001?

16 A Using September stock prices, so through October 1st.

17 Q Okay. As proposed by Dr. Morin, do you believe that
18 it would be appropriate to allow the cost of debt to vary in
19 the application of the leverage formula?

20 A I don't think what Dr. Morin is proposing in that
21 part of his testimony is unreasonable.

22 Q So it would be reasonable to do some kind of
23 adjustment of that nature?

24 A It's reasonable. Whether or not it can be
25 accomplished practically without overcomplicating things is a

1 matter of opinion, I guess. But the general idea I think is
2 good.

3 Q Well, do you agree that the current leverage formula
4 already compensates utilities for any leverage risk?

5 A Yes.

6 Q And could you explain the basis for that answer?

7 A For my answer about why I think what he's proposing
8 is a good idea?

9 Q No, for the leverage -- that the leverage formula
10 does compensate utilities for any leverage risk.

11 A Well, it's a function of the equity ratio, so the
12 higher the amount of debt in the capital structure, they're
13 going to get a little higher return on equity.

14 MR. JAEGER: I have no further questions.

15 MR. BURGESS: No redirect.

16 CHAIRMAN JACOBS: Commissioners --

17 MR. BURGESS: Oh, excuse me.

18 CHAIRMAN JACOBS: -- any questions?

19 Redirect. No redirect.

20 Very well. Exhibits.

21 MR. JAEGER: Chairman, I would move 4 and 5.

22 MR. BURGESS: Mr. Chairman, we would move Exhibit 3.

23 CHAIRMAN JACOBS: Without objection, show Exhibits 3,
24 4, and 5 are admitted.

25 (Exhibits 3, 4, and 5 admitted into the record.)

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CHAIRMAN JACOBS: Thank you, Mr. Cicchetti.

THE WITNESS: Thank you.

(Witness excused.)

(Transcript continues in sequence with Volume 2.)

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1 STATE OF FLORIDA)
2 : CERTIFICATE OF REPORTER
3 COUNTY OF LEON)

4
5 I, TRICIA DeMARTE, Official Commission Reporter, do hereby
6 certify that the foregoing proceeding was heard at the time and
7 place herein stated.

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

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

18 DATED THIS 8th DAY OF NOVEMBER, 2001.

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22
23
24
25


TRICIA DeMARTE
FPSC Official Commission Reporter
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