BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 080006-WS

In the Matter of:

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

PROCEEDINGS: HEARING

BEFORE: CHAIRMAN MATTHEW M. CARTER, II
COMMISSIONER LISA POLAK EDGAR
COMMISSIONER KATRINA J. McMURRIAN
COMMISSIONER NANCY ARGENZIANO
COMMISSIONER NATHAN A. SKOP

DATE: Thursday, October 23, 2008

TIME: Commenced at 9:30 a.m.
Concluded at 1:35 p.m.

DATE: Thursday, October 23, 2008

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

REPORTED BY: MARY ALLEN NEEL, RPR, FPR

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APPEARANCES:

CHARLIE BECK, ESQUIRE and J. R. KELLY, ESQUIRE, Office of Public Counsel, c/o The Florida Legislature, 111 W. Madison St., Room 812, Tallahassee, Florida 32399-1400, appearing on behalf of the Citizens of Florida.

MARTIN S. FRIEDMAN, ESQUIRE, Rose, Sundstrom & Bentley, 2180 West State Road 434, Suite 2118, Longwood, Florida 32779, appearing on behalf of Utilities, Inc.

JEAN HARTMAN, ESQUIRE, MARY ANN HELTON, and JENNIFER BRUBAKER, General Counsel's Office, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, appearing on behalf of the Commission Staff.

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P R O C E E D I N G S

CHAIRMAN CARTER: Good morning. I would like to call this hearing to order. Commissioner Argenziano, are you there?

COMMISSIONER ARGENZIANO: I'm here, Mr. Chairman.

CHAIRMAN CARTER: Good morning to you.

COMMISSIONER ARGENZIANO: Good morning.

CHAIRMAN CARTER: Okay. We'll begin our proceedings. Staff, would you read the notice, please.

MS. HARTMAN: Pursuant to notice, this time and place has been scheduled for the purpose of conducting a hearing in Docket 080006-WS. The purpose of the hearing is set forth more fully in the notice.

CHAIRMAN CARTER: Okay. Let's take appearances.

MR. FRIEDMAN: Martin Friedman with the law firm of Rose, Sundstrom & Bentley, representing Utilities, Inc.

MR. BECK: Good morning, Commissioners. J. R. Kelly and Charlie Beck, Office of the Public Counsel, representing the citizens of Florida.

MS. HARTMAN: Jean Hartman for Commission staff.

MS. HELTON: Mary Ann Helton, advisor to the

Commission.

CHAIRMAN CARTER: Thank you. Thank you. Now, staff, are there any preliminary matters?

MS. HARTMAN: Yes, Chairman. Staff would request identification of the exhibit list marked as Exhibit 1, staff's composite list marked as Exhibit 2. The other --

CHAIRMAN CARTER: Hang on. Any objections?

MR. FRIEDMAN: No objections.

CHAIRMAN CARTER: No objection. Show it done, 1 and 2.

(Exhibit Numbers 1 and 2 were marked for identification.)

MS. HARTMAN: The other items marked as Exhibit -- on the list marked as Exhibit 3 through 45.

CHAIRMAN CARTER: It has been marked for identification purposes. With the numbering sequence?

MS. HARTMAN: Yes.

CHAIRMAN CARTER: Show it done. Okay.

(Exhibit Numbers 3 through 45 were marked for identification.)

MS. HARTMAN: And also, we would also like marked for identification a compilation of annual report information from Florida water and wastewater utilities. We would like that marked as Exhibit 46.

CHAIRMAN CARTER: Okay. Hang on a sec. This will be a new exhibit, Commissioners, Exhibit 46. And what's the description of this, now?

MS. HARTMAN: The description of this, it is a compilation of annual report information from Florida water and wastewater utilities.

CHAIRMAN CARTER: This is -- is this a staff exhibit, or is it --

MS. HARTMAN: Staff has prepared this. It's information culled from annual reports.

(Exhibit Number 46 was marked for identification.)

CHAIRMAN CARTER: Okay. So we'll show it marked for identification purposes as Exhibit Number 46. Do the parties have a copy of it?

MR. FRIEDMAN: Yes, we do, and I have no objection.

CHAIRMAN CARTER: Mr. Beck?

MR. BECK: Yes, I have a copy. Commissioner, I do have a comment. I received this yesterday. And I won't have an objection, but I do have an observation I would like to make.

CHAIRMAN CARTER: You're recognized.

MR. BECK: The compilation, if you go to the last page, you'll see that Aqua Utilities is listed

separately by county, which is I assume how they actually file their annual reports. But in compiling the number of smaller and larger companies, it would seem to me that Aqua, they're in here for one rate case for all of these at once. To separate them out and look as small companies is inconsistent with what we see in a rate case, where all of them are combined. But I have no objection to the exhibit itself. I think it displays the information the Commission has.

CHAIRMAN CARTER: Okay. And also, Mr. Beck, just FYI, when we do get it to the posture of admitting these exhibits into evidence, if you want to be heard further, we'll obviously recognize you at that point in time.

MR. BECK: Thank you.

CHAIRMAN CARTER: Okay. Staff?

MS. HARTMAN: We would ask at this time that Exhibits 1, 2, and 46 be moved into the record.

MR. FRIEDMAN: No objection.

MR. BECK: No objection.

CHAIRMAN CARTER: I'll withhold ruling on 46 for now, because I just told Mr. Beck I would give him an opportunity to be heard on it.

MR. BECK: I've had it.

CHAIRMAN CARTER: You're okay with that?

MR. BECK: Yes, thank you.

CHAIRMAN CARTER: All right, then. Okay. Show it done.

(Exhibit Numbers 1, 2, and 46 were admitted into the record.)

MS. BRUBAKER: Commissioners, Jennifer Brubaker on behalf of the Commission. I believe there's one additional preliminary matter to be discussed.

CHAIRMAN CARTER: You're recognized.

MS. BRUBAKER: We have been informed by the parties that they are interested and willing in stipulating to utility witness Ahern's direct testimony. The bulk of the substance of her testimony is addressed in the rebuttal, and I think that will help us move along in an expeditious and efficient manner if approved.

CHAIRMAN CARTER: Commissioners, any objection? Any objection of the parties?

MR. FRIEDMAN: Also, I would point out that she does have an exhibit with her testimony.

CHAIRMAN CARTER: We'll just -- the exhibit is with the direct testimony?

MR. FRIEDMAN: That's correct.

CHAIRMAN CARTER: For identification purposes?

MR. FRIEDMAN: That's Exhibit Number 3,

Commissioner Carter.

CHAIRMAN CARTER: Number 3. Any objections?

MR. BECK: No, sir.

CHAIRMAN CARTER: Okay. Without objection, show it done.

(Exhibit Number 3 was admitted into the record.)

CHAIRMAN CARTER: Okay. Anything further, staff, on preliminary matters?

MS. HARTMAN: No.

CHAIRMAN CARTER: Hearing none, the parties will be allowed to do their opening statements, and you have up to five minutes each. Mr. Friedman, you're recognized.

MR. FRIEDMAN: Thank you. Mine is going to be very brief.

As you know, we're here to establish the leverage formula to be used for the average water and wastewater utility in Florida for the next 12 months or until another leverage formula is established.

You're going to hear testimony today from Ms. Ahern and Mr. Rothschild. And after the smoke clears from those opinions regarding CAPMs and DFCs, I think you're going to reach the conclusion that the staff's proposal in their recommendation is a reasonable

one to use for the average water and wastewater utility in Florida.

Thanks.

CHAIRMAN CARTER: Mr. Beck.

MR. BECK: Thank you, Mr. Chairman, and good morning, Commissioners.

As Mr. Friedman mentioned, you're going to hear a lot about DFCs or DCF models and CAPM models, and you'll hear terms such as one-stage DCF models and two-stage DCF models, the use of long-term earnings growth versus short-term earnings growth, and the CAPM manual and others.

But despite the intricacies of finance that are discussed in the testimony you'll hear today, there are a number of things that are fairly straightforward. One is whether the cost of debt and the cost of equity generally move in the same direction.

When you look at the results of the current leverage graph formula over time, you'll see that the formula computes that the cost of equity at a 40 percent equity ratio increased by 133 basis points at a time when long-term Treasury rates dropped by 95 basis points. This makes no sense. Equity and debt both compete for investment funds, so if the rate paid by one, such as debt, drops, so does the rate for the

other.

Jim Rothschild will not only explain this relationship, he will also identify the cause of the inconsistency in the existing leverage graph and provide a solution. The cause is the use of a short-term growth rate in the CAPM model. The use of a sustainable long-term growth rate, as proposed by Jim Rothschild, fixes that problem.

Another issue you're going to hear about today with the current formula is that it is computing a much wider swing in the cost of equity for different equity ratios than it did back in 2001. According to the formula that was proposed by staff, the swing in the cost of equity for different equity ratios would be almost two-and-a-half times today what it was in 2001. The cause of this anomaly is that the existing leverage graph calculation doesn't recognize the change in the cost of debt as you change different levels of common equity in the capital structure. Again, our witness Jim Rothschild provides a solution to this by taking into account the change in the cost of debt at different equity ratios.

The current formula simply doesn't work properly, and it's time to correct it. Look at the results of the two models as implemented to date by the

staff's proposal. The CAPM model used by staff showed a cost of equity of 9.08 percent in 2001, increasing to a cost of equity of 11.4 percent in 2008. And that's before the adders are added to it that are proposed by staff. And it did this over a time period with interest rates declining. But the staff's DCF model shows the cost of equity declining from a 10.81 percent in 2001 to 9.68 percent in 2008. Both of these models are supposed to be measuring the same thing, but the results are drastically different and moving in opposite directions. This can't be right.

The proposal advanced by Jim Rothschild for the DCF and CAPM models fixes these problems. If you adopt his recommendation, the results of the DCF and CAPM models will be in harmony, moving together as they ought to and coming to reasonably close and consistent results, which is as it should be, because they're both measuring the same thing, the cost of equity.

Finally, the testimony of Jim Rothschild will address the cost of equity adders included in the current leverage graph. The bond yield adder amounts to a double count, because what this adder measures is already measured in the leverage formula. He will tell you that there should be no adder for private placement compared to public placement, because borrowers

self-select their debt issuance choice to minimize financing costs. And he'll also tell you that financing theory and empirical evidence show that there is no additional small utility risk premium in addition to what is already measured by the models for risk.

Commissioners, it's important to get this right. If you adopt a leverage formula that produces a return on equity which is too high, water and wastewater customers will be supporting excessive profits for the utility companies out of their pockets at a time when the prices for everything else is just going through the roof. So we will ask you to adopt the proposals we've presented in our testimony here today.

Thank you.

CHAIRMAN CARTER: Thank you, Mr. Beck. Now, I understand we only have two witnesses; is that correct?

MR. BECK: Yes.

CHAIRMAN CARTER: And they're here?

MR. BECK: Yes.

CHAIRMAN CARTER: Let's ask the witnesses if they would stand, and we can get them sworn in, and then we can proceed further. Would you please stand and raise your right hand.

(Witnesses collectively sworn.)

CHAIRMAN CARTER: Please be seated.

Mr. Friedman, you're recognized.

MR. FRIEDMAN: Mr. Chairman, the direct testimony of Ms. Ahern has already been stipulated into the record, but as part of our case, I would also like to address another matter, and that is the deposition that was taken of Mr. Rothschild by the staff. It's listed under additional items, and the staff I think is proposing to introduce that at their part of the case. But what I want to do is to introduce that as part of our case, because to do so will limit the amount of cross-examination that we will have, because a lot of the questions that we intend to ask Mr. Rothschild were asked him in his deposition, and so it would be time saving, and it will avoid duplication of questions by just stipulating his deposition into the record.

And in support of that, I've got a case called Robison vs. Faine, and this is a case where the defendant in its part of the case introduced into evidence the deposition of the plaintiff. And the court said, "We find no error in the trial court's ruling permitting the deposition testimony of the Registry's expert witness" -- that's the defendants -- "during Robinson's case in chief." Robinson is the plaintiff.

"Florida Rule of Civil Procedure 1.330(a)(3)(F) permits the deposition of a witness,

whether or not a party, to be used by any party for any purpose," quote, "if the court finds the witnesses is an expert or skilled witness," end quote. I think it's undisputed that Mr. Rothschild is an expert or skilled witness in this proceeding.

"Rule 1.330(c). No special form of notice is necessary," and it cites Rule 1.390(b). "We conclude that the trial court did not err in allowing Robison to read into evidence the deposition of the Registry's expert witness."

And so that's what I'm asking y'all to do in order to avoid a duplication of us having to reask those questions, and the staff possibly also, would be to introduce his deposition at this time in order to avoid that duplication. Thank you.

CHAIRMAN CARTER: Thank you. Mr. Beck.

MR. BECK: Commissioners, this is interesting, because counsel for Utilities, Inc. didn't ask any questions at the deposition. It was solely a staff deposition.

I think I have to back up and tell you why I don't think it's appropriate to enter the deposition in this case, and then I'll go to the technical reasons.

Back when the Order Establishing Procedure was issued, the schedule had all parties filing direct

testimony together, so our office and the utilities were supposed to file together. Staff then had an opportunity about a month later to file testimony if they desired, and then 15 or 16 days after that, there was rebuttal testimony by the utility and our office. What happened is, we filed detailed direct testimony, you know, putting forth all our issues concerning the proposed staff recommendation. The utility, Utilities, Inc., filed what I call placeholder testimony, and that's what we stipulated to earlier today. It's testimony that says we're going to file testimony in rebuttal.

Staff filed no testimony whatsoever, which came quite as a surprise to us. You know, the issue is the staff recommendation, but the staff didn't file testimony when they could have. So then we had Utilities, Inc. filing rebuttal to our witness. We filed surrebuttal and asked for permission, and the Prehearing Officer gave us surrebuttal testimony. So what you have is our direct case, the company's rebuttal to that, and then we respond to it.

Now, the staff again has no witness, yet the utility's witness is the person we have here today supporting the staff's recommendation. You know, it supports the result of that. So essentially, we have a

deposition that I feel was taken by an adversarial party, which I have no problem with, but the staff is adversarial in this case to us. We're taking on their recommendation. I mean, I'm not shocked or surprised or anything else bad about it, but it's a fact that we have taken issue with the staff recommendation and put on our case. For the staff to just enter the deposition of our witness when they've not taken a deposition of the Utilities, Inc. witness -- again, it's very one-sided in this case. We had an adversarial deposition by staff, none of theirs.

And my concern is that if the deposition is put into record, there won't be questions asked here today when the Commission has a chance to ask questions. You can't judge the credibility of a witness by simply reading deposition questions. So we would much prefer that the questions be asked here today and have no problem with them asking every question they wanted to ask in the deposition today. But if they ask it today, the Commission will be able to ask questions and will be able to judge the credibility of the witness.

What we don't want is the deposition going into the record, then the staff having the chance to ask the questions of the Utilities, Inc. witness, which is the witness supporting their case, and that being the

end of it.

I haven't read, nor have I even heard of the case that Mr. Friedman noted here today. This is the first I've heard of it. But the general practice is, depositions are used to find out the opinions of a witness, to tie them down. If during the case here today they were to answer differently than they did in the deposition, then that can be used to show a prior inconsistent statement. But nowhere I know, and I would be shocked anywhere that generally you can just put depositions in of a witness who's here, because he's here to answer the questions. It's not like he's unavailable. He's sitting on the witness stand. So we're opposed to putting the deposition in.

CHAIRMAN CARTER: Let me do this before I ask Ms. Helton. I want to hear staff's position on this, and then I'll come to you, Ms. Helton.

MS. HARTMAN: Okay. First I would just like to clarify that the additional item referenced in the exhibit list is actually staff's recommendation, not the deposition. We certainly have no objection to the deposition being entered into the record, and I believe it's within your discretion. And we do have copies of the deposition available today.

MR. FRIEDMAN: Might I respond?

CHAIRMAN CARTER: Yes, sir. You're recognized.

MR. FRIEDMAN: I would point out that while counsel may not think this is the way that it's done, in fact, with an expert witness, it's clear if you read the rule that it permits the deposition of an expert witness to be used for any purpose. Whether the expert is there or not, it doesn't matter. And that's exactly what happened in this case that I have pointed out to you and that I quoted from extensively, and we think it's appropriate in fact to do that.

And I do have questions of Mr. Rothschild that are not included in this deposition, so it's not like we're not going to ask any questions at all. I don't know about the staff. But it's appropriate to do so. It will streamline the proceeding. And it certainly is within your discretion, and I think judicial economy would suggest that it's the right thing to do.

CHAIRMAN CARTER: Thank you. Ms. Helton.

MS. HELTON: First off, I would like to clarify what I think staff's role is in the proceeding. I don't see staff as taking a side per se. Staff filed a recommendation suggesting to you what should be the appropriate leverage formula for the upcoming year. You agreed -- actually, I don't even think you agreed with

staff. I think Mr. Beck came to the agenda conference and suggested his disagreement, and you set it automatically for hearing.

Staff has a choice to file or not file testimony based on whether it believes or we believe that there's some hole in the record that needs to be filled. Unless we're in some kind of an adversarial role such as in a show cause proceeding, that is, in my mind, staff's job in hearing cases, to make sure there are no holes in the record that need to be filled.

Now that I've said that, let me move on to the deposition. I do believe that you have the discretion to allow the deposition to be admitted into the evidence or the record here of this hearing.

I agree that Mr. Friedman's reading of the civil procedure rule gives guidance to you here. It does say in Rule 1.330(a)(3) that the deposition of a witness, whether or not a party, may be used by any party for any purpose if the court finds, and then in part (F), the witness is an expert or skilled witness. I don't think I've heard anybody say here that they don't believe that Mr. Rothschild is an expert or skilled witness. That's why he's here presenting testimony today.

And I would also add that the Commission has

historically allowed deposition transcripts into the record, because it is a way of streamlining and making the hearing shorter. If there are questions that any of the parties or staff believes you should hear live instead of reading it in a deposition transcript, then I think that it is appropriate for them to ask those questions.

CHAIRMAN CARTER: Thank you. Commissioners, based upon the information presented by the parties and the review from Ms. Helton, I'm going to allow the deposition in.

Okay. Let's move further.

MR. FRIEDMAN: That's all of that, along with introducing -- introduction of Ms. Ahern's testimony as the direct case for Utilities, Inc. Thank you.

DIRECT TESTIMONY OF PAULINE M. AHERN, CRRA

Q. Please state your name, occupation and business address.

A. My name is Pauline M. Ahern and I am a Principal of AUS Consultants. My business address is 155 Gaither Drive, Suite A, Mt. Laurel, New Jersey 08054.

Q. Please summarize your educational background and professional experience.

A. I am a graduate of Clark University, Worcester, MA, where I received a Bachelor of Arts degree with honors in Economics in 1973. In 1991, I received a Master of Business Administration with high honors from Rutgers University.

In June 1988, I joined AUS Consultants as a Financial Analyst and am now a Principal. I am responsible for the preparation of all fair rate of return and capital structure exhibits for AUS Consultants. I have offered expert testimony on behalf of investor-owned utilities before twenty-four state regulatory commissions. The details of these appearances, as well as details of my educational background, are shown in Appendix A supplementing this testimony.

I also calculate and maintain the A.G.A. Index under contract with the American Gas Association (A.G.A.). The A.G.A. Index is a market capitalization weighted index of the common stocks of about 70 corporate members of the A.G.A.

I have co-authored an article with Frank J. Hanley, a Principal & Director of AUS Consultants entitled "Comparable Earnings: New Life for an Old Precept" which was published in the American Gas Association's Financial Quarterly Review, Summer 1994. I also assisted in the preparation of an article authored by Frank J. Hanley and A. Gerald Harris entitled "Does Diversification Increase the Cost of Equity Capital?" published in the July 15, 1991 issue of Public Utilities Fortnightly.

I am a member of the Society of Utility and Regulatory Financial Analysts (formerly the National Society of Rate of Return Analysts) serving as President for 2006-2008 and Secretary/Treasurer for 2004-2006. In 1992, I was awarded the professional designation "Certified Rate of Return Analyst" (CRRA) by the National Society of Rate of Return Analysts. This designation is based upon education, experience and the successful completion of a comprehensive written examination.

I am an associate member of the National Association of Water Companies, serving on its Finance Committee, a member of the Energy Association of Pennsylvania, formerly the Pennsylvania Gas Association, and a member of the American Finance and Financial Management Associations.

The details of my educational background and professional experience are shown in Exhibit (PMA-1) __ supplementing this testimony.

Q. What is the purpose of your testimony?

A. The purpose is to provide testimony on behalf of Utilities, Inc. (UI or the Company) regarding the Commission's reestablishment of authorized rate of return on common equity for water and wastewater utilities.

Q. Do you have any general comments regarding the proposed leverage formula?

A. Yes, based upon my experience as an expert witness on rate of return in numerous rate proceedings (see Exhibit (PMA-1)__) and current capital market conditions, it is my opinion that the results of leverage formula are reasonable for establishing a return on equity for water and wastewater utilities in Florida. This is the same formula that this Commission approved to establish the return on equity for Utilities, Inc. of Florida, in Order No. PSC-03-1440-FOF-WS, issued December 22, 2003. In that proceeding, in

which I testified on behalf of Utilities, Inc. of Florida, the Public Counsel had challenged the application of the leverage formula to Utilities, Inc. of Florida. After considering the testimony of myself and a witness of Public Counsel, this Commission concluded that the formula was applicable to establish the rate of return for Utilities, Inc. of Florida.

Q. Do you have any further comments at this time?

A. Yes, I understand that the Public Counsel has made a challenge to the proposed leverage formula, but as of now I am unaware of the exact basis for challenge. Thus, I will address the basis of Public Counsel challenge in further testimony rather than to try to anticipate its positions at this time.

Q. Does this conclude your direct testimony?

A. Yes, it does.

CHAIRMAN CARTER: Okay. Mr. Beck.

MR. BECK: Citizens call James Rothschild.

Thereupon,

JAMES A. ROTHSCHILD

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

DIRECT EXAMINATION

BY MR. BECK:

Q. Mr. Rothschild, would you please state your name for the record.

A. James A. Rothschild.

Q. By whom are you employed?

A. Rothschild Financial Consulting.

Q. Okay. And are you the same James A. Rothschild whose direct testimony was filed in this case?

A. Yes.

Q. You've distributed previously some changes and corrections to your testimony, have you not?

A. Yes, I have.

MR. BECK: Commissioners, I understand, and I need to confirm that that was distributed. I think it was by staff.

MS. HARTMAN: Yes, those corrections were.

BY MR. BECK:

Q. And do you have any other changes or corrections other than those that were distributed?

A. Yes. I have four words that need to be changed on page 22 of my direct testimony.

CHAIRMAN CARTER: Page 22. You may proceed.

THE WITNESS: Thank you. On line 8, the word "increase" should be "decrease." On line 9, the word "increases" should be "decreases," and the word "higher" should be "lower." And then on line 10, "reduced" should read "increased."

MR. FRIEDMAN: Could I ask that he do that again for me?

MR. BECK: Yes. On what page was that?

THE WITNESS: Yes. Would you like -- maybe I'll read the whole thing if that would help everybody.

MR. BECK: Could you identify the page?

MR. FRIEDMAN: You can do it like you did then, but just do it a little slower. You can talk faster than I can write.

THE WITNESS: Sure. Absolutely, yes. On line 8, the word "increase" should be "decrease." On line 9, the word "increases" should be "decreases," and on the same line, the word "higher" should be "lower." And on line 10, the word "reduced" should be "increased."

BY MR. BECK:

Q. Mr. Rothschild, with those corrections, if I were to ask you the same questions here today, would your answers be the same?

A. Yes.

MR. BECK: I would like to move Mr's. Rothschild prefiled direct testimony into evidence.

CHAIRMAN CARTER: The prefiled testimony of the witness will be entered into the record as though read.

BY MR. BECK:

Q. Mr. Rothschild, you also have 11 exhibits that you've labeled JAR-1 through 11 and have been identified by the staff as Exhibits 4 through 14 for identification; is that correct?

A. Yes.

DIRECT TESTIMONY

OF

James A. Rothschild

I. STATEMENT OF QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive, Wilton, Connecticut 06897.

Q. WHAT IS YOUR OCCUPATION?

A. I am a financial consultant specializing in utility regulation. I have experience in the regulation of electric, gas, telephone, sewer, and gas utilities throughout the United States.

Q. PLEASE SUMMARIZE YOUR UTILITY REGULATORY EXPERIENCE.

A. I am the founder of Rothschild Financial Consulting and have been a consultant since 1972. From 1979 through January 1985, I was President of Georgetown Consulting Group, Inc. From 1976 to 1979, I was the President of J. Rothschild Associates. Both of these firms specialized in utility regulation. From 1972 through 1976, Touche Ross & Co., a major international accounting firm, employed me as a management consultant. Touche Ross & Co. later merged to form Deloitte Touche. Much of my consulting at Touche Ross was in the area of

utility regulation. While associated with the above firms, I have worked for various state utility commissions, attorneys general, utility customers and public advocates on regulatory matters relating to regulatory and financial issues. These have included rate of return, financial issues, and accounting issues. (See Exhibit JAR1 for Resume of James A. Rothschild)

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I received an MBA in Banking and Finance from Case Western University (1971) and a BS in Chemical Engineering from the University of Pittsburgh (1967).

II. BACKGROUND AND SUMMARY OF CONCLUSIONS.

Q. PLEASE EXPLAIN THE BACKGROUND AND OVERVIEW OBSERVATIONS FOR THIS CASE.

A. The Florida Public Service Commission is authorized by statute "... to establish not less than once each year, a leverage formula to calculate a reasonable range of return on equity (ROE) for water and wastewater (WAW) utilities." While the FPSC has provided the required annual updates to the leverage formula every year, an order establishing the procedures to be used for this update was last established by Order No. PSC-01-2514-FOF-WS in Docket No. 010006-WS, issued on December 24, 2001 ("2001 Order").

Q. PLEASE SUMMARIZE THE FINDINGS OF THE COMMISSION IN THE 2001 ORDER TO BE USED TO CALCULATE THE RATE OF RETURN ON EQUITY FOR WATER AND WASTEWATER UTILITIES.

A. The Commission addressed 5 points in its conclusion starting on page 20 of the 2001 Order that reflected the methodology it used to calculate the annual leverage formula. Those findings are as follows:

1. A two-stage annual DCF (Discounted Cash Flow) model shall be applied to an index of natural gas distribution utilities, using forecasted expected dividend growth rates for the first stage and the retention earnings method for the second stage.
2. The CAPM (Capital Asset Pricing Model) shall be used and applied to an index of natural gas distribution utilities, using an average utility beta derived from Value Line, and a market risk premium calculated by a simple DCF model using an average forecasted dividends and earnings growth rate.
3. A 20-basis point adjustment shall be made to each model to adjust for flotation cost allowance. In addition, a 10-basis point adjustment shall be made to the CAPM to adjust for quarterly compounded results.
4. The following adjustments shall be made to the average of the two models: a bond yield differential adjustment; a private placement

premium of 50 basis points; and a small-utility risk premium of 50 basis points.

5. The applied range of ROE for a WAW utility shall be from 40% equity to 100% equity. In addition, an adjustment to reflect the required equity return at a 40% equity ratio shall be included.

Q. WHAT WAS THE LEVERAGE FORMULA CALCULATED IN THE 2001 ORDER?

A. The Commission calculated leverage formula in 2001 was as follows:

Return on Common Equity = 9.10% + 0.896 / Equity Ratio (ER)

Range 10.00% @ 100% Equity to 11.34% @ 40% Equity

Q. HAS THE COMMISSION UPDATED THE FORMULA BETWEEN 2001 AND 2008?

A. Yes. The Commission has used the same methodology to update the leverage formula for the years 2002 through 2007. In the current docket, 080006-WS, the staff filed a recommendation on May 8, 2008, to update the leverage formula for 2008, which was addressed by the Commission at the May 20, 2008 Agenda Conference. Based on comments made by the Office of Public Counsel and other parties to the docket, the Commission denied staff's recommendation to establish a new leverage formula and set the matter for hearing.

Q. WHAT WAS THE LEVERAGE FORMULA RECOMMENDED BY STAFF IN ITS MAY 20, 2008 RECOMMENDATION?

A. The Staff recommended leverage formula for 2008 was as follows:

Return on Common Equity = 7.36% + 2.123 / Equity Ratio

Range: 9.48% @ 100% Equity to 12.67% @ 40% Equity

Q. ARE THERE ANY OVERVIEW OBSERVATIONS YOU BELIEVE NEED THE COMMISSION'S CAREFUL ATTENTION IN THIS CASE?

A. Yes. There are two critical observations that prove that Florida's leverage formula needs revision:

1. Staff's cost of equity recommendation increased between 2001 and 2008 even though interest rates declined over the same time period.

On May 8, 2008, Staff issued a recommendation that provides what it believes to be the current leverage formula results that are obtained from implementing the methodologies approved by the Commission in the 2001 Order. In this Order, the Commission determined that the cost of equity for a water and wastewater company with a common equity ratio of 40% would be 11.34% and 10.00% for a company with a common equity ratio of 100%. Staff's recommendation in this current docket reflected that the cost of equity applicable to a water or wastewater

company with a common equity ratio of 40% would be 12.67%, or 1.33% higher than the 11.34% cost of equity found appropriate by the Commission in 2001. Long-Term interest rates have decreased from 2001 to 2008 and the cost of equity tends to follow these rates so this very large increase the cost of equity range in the leverage formula goes against market trends. Long-term interest rates as measured by long-term treasury bonds averaged 5.46% in 2001, and varied between 5.22% and 5.45% during March 2001[1]. During the March 2008 month used by Staff for stock prices in its current recommendation, the interest rate on U.S. treasuries varied between 4.16% and 4.61%. Between the 2001 leverage formula finding made by this Commission and Staff's updated determination of the findings in that prior decision, long-term U.S. treasury interest rates dropped by about 0.95%. As stated earlier, with such a large drop in long-term interest rates, one should be highly confident that the cost of equity has also dropped. An increase in the computed cost of equity in the face of such a large drop in interest rates should be carefully analyzed. It is a strong indication that something must be wrong with the underlying computations that develop the leverage formula. Later in this testimony I will show that this improper result from the updated leverage formula is primarily due to severe deficiencies in the approach to the CAPM that has been used to develop the leverage formula.

2. There is too great a change in the cost of equity for a given change in the common equity ratio.

[1] Obtained from Yahoo Finance by retrieving historical prices for the long-term U.S. treasury index that is obtainable by entering the symbol ^tyx.

In its May 8, 2008 recommendation, Staff has recommended that the leverage formula now become 7.36% + 2.123/Equity Ratio (ER). This is very different from the formula of 9.10% + 0.896/ER that was approved by the Commission in its 2001 Order. The 2008 proposed formula puts a much greater emphasis on the ER impact than did the original. As such, the change in the common equity ratio from company to company has a much larger impact on the cost of equity calculated in the 2008 version than it did in the 2001 version. For both the 2001 ordered and the 2008 staff recommended formulas to be correct (calculated pursuant to the method approved per the 2001 Order), the financial markets would have to have changed dramatically. The cost of equity would now be much more sensitive to changes in the equity ratio of a company.

Below is a comparison of the 2001 and 2008 recommended differential included in the leverage formulas between 40% and 100% common equity ratios:

Cost of Equity Spread	2001	2008
a) At 40%	2.24	5.308
b) At 100%	0.896	2.123
c) Spread between 40% and 100% ER	1.34%	3.185%

In the 2001 Order, a 1.34% reduction in the cost of equity as a company increased its common equity ratio from 40% to 100% resulted in an average decrease in the

cost of equity of 0.022% for each 1% increase in the percentage of common equity in the capital structure. Using the leverage formula that Staff recommended for 2008, would result in an average reduction in the cost of equity of 0.053% for each 1% increase in the common equity ratio. If approved, this would make the new adjustment rate 140% larger than it was when the current procedures were originally established.

Q. DOES THE CURRENT LEVERAGE FORMULA METHODOLOGY TAKE INTO ACCOUNT THE CHANGE TO THE COST OF DEBT IN RESPONSE TO CHANGES IN THE LEVEL OF COMMON EQUITY IN THE CAPITAL STRUCTURE?

No it does not. Later in this testimony, I will show that the huge difference in the computed rate of change in the cost of equity in response to capital structure changes when computed in 2008 versus when it was computed in 2001 is NOT due to a real change in the relationship between capital structure and the cost of equity. Instead, the problem is caused by the failure of the leverage graph computation to change the cost of debt in response to changes in the level of common equity in the capital structure.

Q. DOES THE COST OF EQUITY AND THE COST OF LONG-TERM DEBT CHANGE IN THE SAME DIRECTION AND IN APPROXIMATLY THE SAME MAGNITUDE OVER TIME?

A. Yes it does. Equity and debt both compete for investment funds at different risk levels. When interest rates decrease investors have to buy stocks if they want to maintain their retirement plans or other financial goals. This flow of money into equities drives up stock prices and thus reduces the cost of equity to companies.

Q. IN ADDITION TO PROBLEMS THAT SHOW UP FROM THE OBSERVATONS OVER TIME THAT YOU HAVE DISCUSSED ABOVE, ARE THERE ANY OTHER ASPECTS OF THE LEVERAGE GRAPH DETERMINATION THAT SHOULD BE RECONSIDERED BY THE COMMISSION?

A. Yes. I will explain later in this testimony why the 2 stage DCF model to calculate the cost of equity should be modified and why the market risk premium calculated by a simple DCF model for the CAPM is inappropriate. Further, the use of cost of capital "adders" for the "Bond Yield Differential", "Private Placement Premium", "Small-Utility Risk Premium and "Financing Costs" are all improper and should be eliminated from the leverage graph procedure. In addition, the current formula does not consider the impact in the second stage of the DCF model for the increment to growth caused by sales of new common stock above book value.

Q. PLEASE DESCRIBE HOW THE CURRENT LEVERAGE FORMULA IS CALCULATED.

3A. First, the Commission calculates cost of equity for an average Florida water and wastewater company using a proxy of natural gas distribution companies. To do this, the Commission determines the DCF and the CAPM cost of equity for the gas companies and averages those two percentages. It then adds a bond yield differential, a small-utility risk premium, a private placement premium, and then adjusts these percentages to reflect a 40% equity ratio. To allow the cost of equity to be adjusted based on the amount of equity in a given company, a formula is created using the equity ratios of the gas companies and a debt cost rate for the Baa3 bond rate plus a 50 basis point private placement premium, a 50 basis point small-utility risk premium and 39 basis points for a bond yield differential. The formula is D + SF/ ER, where both D (debt cost rate) and SF (equity spread factor) are held constant. Thus, the only variable in the equation is the equity ratio for the individual company to which the formula is applied.

Q. DO YOU AGREE WITH USING THE FIRST COMPONENT IN THE CURRENT ROE FORMULA OF USING A TWO STAGE DCF MODEL FOR GAS COMPANIES?

A. Yes, for the most part, this component of the formula is sound. The core of the DCF method applied to the gas companies is a two-stage approach and separately discounts the forecasted dividends and the future expected stock price based upon anticipated retention (or b x r). As I will elaborate on later in my testimony, while the method is basically sound, several modifications could improve the accuracy of the method Staff has applied to gas companies.

Q. DO YOU BELIEVE THAT USING A SIMPLE DCF MODEL TO CALCULATE THE RISK PREMIUM IN THE CAPM IS INAPPROPRIATE?

A. Yes. The DCF calculation used to determine the risk premium in the CAPM model is substantially different than the two-stage DCF approach discussed above. The result of using the simplified DCF model for calculating the CAPM is seriously flawed. This flaw causes the CAPM result to change significantly for reasons other than real changes in the cost of equity. This entirely different approach to the DCF method used as a key component to implementation of the CAPM method produces unreliable, inconsistent results because it uses unsustainable growth rates in a form of the DCF model that only makes sense if a long-term sustainable constant growth rate is used.

Q. **PLEASE SUMMARIZE YOUR RECOMMENDED CHANGE TO THE LEVERAGE FORMULA.**

A. I believe that the current equity leverage formula as it exists today is flawed in several areas and should be updated. The leverage formula should take a somewhat different form than was used in the past. The change is required because the cost of debt as well as the cost of equity changes as the level of common equity in the capital structure changes.

The cost of equity that should be allowed to a water or wastewater company with the same 49.12% common equity ratio being used by the average of the gas utility

companies is 9.40%. This is based upon a DCF indicated cost of equity of 9.42% to 9.43% (See Exhibit JAR-2) applicable to the comparative group of gas utilities obtained from averaging the DCF result of 9.43% with the CAPM result of 9.37% (Exhibit JAR-3, page 1) applied to the gas utilities, which averages 9.40%.

Q. WHAT IS YOUR NEW RECOMMENDED LEVERAGE FORMULA?

A. The newly approved leverage formula should be:

$$k = (OCC - D\,(1-ER))/ER$$

where

k = cost of equity

D = cost of debt, determined as a function of the percentage of equity in the capital structure

OCC = overall cost of capital

ER = Equity ratio

I recommend the impact of both Florida and federal income taxes should be included and that the value for the OCC term should be 10.610562% and the resultant solution for k should be multiplied by 1 minus the tax rate. See Exhibit JAR-4, Page 1. The combined Florida and federal tax rate is 38.575% as also shown on Exhibit JAR-4, Page 1. The value for "D", or the cost of debt, should be equal to the 6.08% cost of debt applicable to a capital structure with 49.12% as determined by Staff (A2 bond rate from Staff Recommendation), minus 0.0197%

for each 1% decrease in the level of debt in the capital structure, or plus 0.0197% for each 1% increase in the level of debt in the capital structure.

Q. WHAT WOULD BE THE STEPS REQUIRED TO UTILIZE THE NEW LEVERAGE FORMULA YOU ARE PROPOSING?

A. The following would be done annually:

1. Calculate the cost of equity for a comparative group just as done today (As explained in my testimony I am proposing revising the DCF and CAPM methods being used).

2. Calculate the cost of debt for the comparative group. This should be calculated as the leverage graph is currently calculated by estimating the bond rating of the comparative group and looking up the corresponding bond yield for this rating.

3. Use the average capital structure ratios of the comparative group to calculate the Overall Cost of Capital (OCC). This is done by multiplying the cost of equity and the cost of debt by their prospective percentages in the capital structure just as it is done currently.

Q. HOW WOULD YOU APPLY YOUR FORMULA TO A SPECIFIC COMPANY?

A. The following would be done to calculate the cost of equity for individual water companies asking for rate increases during the year:

1. Calculate the cost of debt for the company by adding or subtracting 0.0197% for every 1% difference in the percentage of debt in the company's capital from the comparative group's capital structure.

2. Just as done today keep the OCC the same as the comparative group.

3. At this point all the variables required to utilize my proposed leverage formula are known: OCC, Equity Ratio (ER) and Cost of Debt.

4. Plug these values into the following formula: k = (OCC- D (1-ER))/ER.

   a. OCC is Overall Cost of Capital (same as the comparative group)

   b. D is the cost of debt that is calculated for each individual company

   c. ER is the equity ratio that is provided by each individual company

   d. k = the computed cost of equity for individual company

Q. PLEASE PROVIDE AN EXAMPLE OF HOW YOUR PROPOSED FORMULA WOULD BE USED?

A. As explained above my proposed procedure starts by calculating the OCC of a comparative group annually.

Annual portion:

1. Calculate the cost of equity of the 10 gas companies in the proxy group to be 9.40%. (See my DCF and CAPM sections of my testimony)

2. Based on average bond rating of comparative group calculate this cost of debt to be 7.36%. (Same as done by staff in Docket No. 080006-WS)

3. Using the average capital structure of comparative group calculate the OCC. In this case it is 8.45% as shown below:

Marginal Cost of Investor Capital

Average Water and Wastewater Utility

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	46.37%	9.40%	4.36%
Total Debt	53.63%	7.63%	4.09%
Total	100.00%		8.45%

To calculate the cost of equity for the individual water company, you would use the following methodology:

1. Assume that the water company's common equity ratio (ER) is 65%.

2. We would then be able to calculate their cost of debt to be 7.41%.

a. This is calculated by taking the difference between this company's ER of 65% and the comparative group's ER of 53.63% and multiplying this difference by 0.0197%. This calculation equals 0.22%. Since this company's ER (65%) is higher than the comparative group's (53.63%) we subtract this 0.22% from the comparative group's cost of debt to get the 7.41%.

3. At this point we have all the variable needed to calculate this company's cost of equity (k).

a. OCC = 8.45% (same as comparative group)

b. ER = 65.00% (provided by company)

c. Cost of debt = 7.41% (calculated above)

4. Enter all this variable into the formula k = (OCC-D (1-ER))/ER

a. k = (.0845 - .0741% (1- .65))/.65

b. k = 9.01%

III. IMPROPER COST OF EQUITY CHANGE

Q. EARLIER IN THIS TESTIMONY, YOU STATED THAT THE COST OF EQUITY SPREAD HAS INCREASED BY 133 BASIS POINTS FROM 2001 TO 2008 (11.34% TO 12.67%). YOU ALSO EXPLAINED THAT THIS INCREASE OCCURRED OVER A TIME WHEN INTEREST RATES HAD FALLEN BY 95 BASIS POINTS OVER THE SAME TIME PERIOD. WHAT DEFICIENCIES IN THE LEVERAGE FORMULA METHODOLOGY LEADS TO THIS IMPROBABLE RESULT?

A. As previously explained, the problem is caused by the use of a simple average DCF model to calculate the market risk premium used in the CAPM method. The stand alone DCF method, as applied it to the gas utilities, is not the source of the problem. Attachment 1 to Staff's May 8, 2008, recommendation shows that the "DCF ROE for Natural Gas Index" was found to be indicating a cost of equity of 9.68%. In the 2001 Order, the DCF model reflected a cost of equity of 10.81%. A drop in the cost of equity of 1.33% (from 10.81% in 2001 to 9.68% in May 2008) is reasonable considering that over the same time period long-term interest rates dropped by 0.95%. The correlation between the DCF indicated cost of equity and long-term interest rates is even more precise when the common equity ratio of

the Natural Gas Index is considered. In 2001, the average common equity ratio of the gas utilities was 42.79% (Page 29 of the 2001 Order), but has increased to 46.37% as of May 2008. This increase in the common equity ratio of the index indicates that the cost of equity should have decreased more than the drop measured by the lowering of long-term interest rates.

The DCF result obtained by Staff when applying it to the comparative gas companies shows an ability of that version of Staff's DCF to reflect changes in capital markets because, as expected, the cost of equity indicated by that version of the DCF method decreased along with interest rates between 2001 and 2008.

However, the cost of equity calculated with the CAPM approach, which included the DCF model used to measure market risk premium, failed this consistency test. Not only was the predicted magnitude of the change way off, but the results were so bad that it even was wrong about the direction of the change. Back in 2001, the CAPM approach that relied on the erroneous form of the DCF model yielded an indicated cost of equity of 9.08%[2], while the result of applying the same approach in 2008 produced a result of 11.40%[3]. In other words, over the same time period that the interest rate on long-term treasuries declined by 0.95% the CAPM approach erroneously measured that the cost of equity has actually increased by 2.38%. By any measure, this CAPM result is contrary to financial theory.

[2] Page 24 of the 2001 Order in Docket No. 010006-WS
[3] Attachment 1, Page 1 of May 8, 2008 Staff Recommendation

Q. **WHAT CAUSES THE CAPM APPROACH TO PRODUCE RESULTS CONTRARY TO FINANCIAL THEORY?**

A. The CAPM approach incorporates a DCF calculation to estimate the market risk premium component, but this DCF calculation used by staff in the CAPM approach is different from the DCF calculation used to independently estimate the cost of equity for the comparative gas companies. The DCF method applied to the comparative gas companies uses a two-stage approach whereby growth in the second stage is quantified using the retention growth (b x r) method. While the CAPM method is also dependent upon a DCF result to compute the risk premium, growth in the CAPM implementation of the DCF method is not based on the two-stage approach, but is instead computed by Staff by averaging the five year growth rate in dividends and earnings forecast by Value Line (based on over 600 companies) to occur between the average of the three most recent historical years and a three year period a few years into the future.

As I have argued for decades, these historical to short-term future five-year growth rates are NOT the kind of growth rate applicable for use in the DCF formula because they are not long-term sustainable growth rates. Growth rates from any base period are subject to distortion depending upon how atypical the three-year average base period is compared to what is expected for the future. Value Line itself apparently knows better than to use these growth rates in a DCF method, because when it advises investors what total return to expect for the future, it does NOT add these growth rates to the dividend yield as it would do if

it believed those growth rates to be credible in a DCF approach. Therefore, I am not surprised that the results of such an inherently flawed approach to the DCF would result in vastly inconsistent results when comparing the computational results from 2001 with those for 2008.

Q. **DO YOU HAVE ANY EMPIRICAL SUPPORT WHICH SHOWS THE INAPPLICABILITY OF THE DCF APPROACH USED IN THE DEVELOPMENT OF THE CAPM METHOD?**

A. Yes. When the results from Staff's recommendation of the DCF that it used in its CAPM method are graphed against the beta for 650 of the 657 companies used by staff in its analysis, it looks like a "shotgun shot," indicating that there is at best a very loose correlation between risk and return. See Exhibit JAR-5

Q. **WHAT IS BETA?**

A. Beta is a measurement of the correlation between a given stock and the market as a whole. A portfolio made up of companies with a beta that averages 1.0 tends to have price swings that match the market in magnitude. A portfolio with an average beta of 1.5 tends to move 1.5% for every 1% the market moves. A portfolio with average beta of 0.8 tends to move 0.8% for every 1% the market moves.

Q. DID YOU ADD A TRENDLINE TO THE DCF INDICATED RESULTS COMPARED TO A BETA GRAPH?

A. Yes. The straight line shown on the graph is a least-squares trendline. This trendline is upward sloping, which means that the approach is at least good enough to be able to observe that the cost of equity does increase as the beta increases. However, the slope of the line is way too gradual. In fact, if the line is projected to the point where a riskless security, such as U.S. treasuries, would be expected to appear (with a beta of zero), the graph as defined by these simple DCF model results would conclude that a riskless security should be expected to yield a return of approximately 11%. Since all U.S. treasuries, regardless of term, are currently yielding far less than 11% the DCF method using short-term earnings and dividends to compute growth is currently materially overstating the cost of equity

Q. **WHY DID YOU GRAPH ONLY 650 OF THE 657 COMPANIES?**

A. It was necessary to exclude seven companies because there was no beta available for those companies. All other companies were included.

Q. **GIVEN THE FINANCIAL CHAOS THAT RESULTS FROM IMPLEMENTATION OF THE CAPM MODEL, DO YOU RECOMMEND AN APPROACH TO THE CAPM THAT COULD BE HELPFUL TO THE COMMISSION?**

A. Yes. Recognizing that 2001 Order approach to the CAPM is so flawed it must be rejected, I recommend using the approach to the CAPM that I present later in this testimony. As shown on Exhibit JAR-3, Page 1, and discussed later in this

testimony, the results of this supportable approach to the CAPM is currently producing an indicated cost of equity to the gas utility group of 9.37%. This 9.37% CAPM result is consistent with both my DCF result of 9.42% to 9.43% and Staff's DCF result of 9.68%. While Staff's DCF result is reasonably close to the results I obtained from both the DCF and CAPM approaches, a large part of the difference is attributable to Staff's allowance for financing costs.

IV. COMMON EQUITY RATIO AND COST OF EQUITY.

Q. **HOW DOES THE CURRENTLY APPROVED LEVERAGE FORMULA CONSIDER THE IMPACT CAPITAL STRUCTURE HAS ON THE COST OF CAPITAL FROM COMPANY TO COMPANY?**

A. The currently approved leverage formula correctly recognizes that the cost of equity experienced by a water or wastewater company is influenced by the capital structure management has implemented. Financial risk, which is part of the non-diversifiable risk experienced by a company, goes up as the percentage of common equity in the capital structure goes down. However, it improperly fails to recognize that the cost of debt also increases as the common equity ratio decreases.

Q. **ABSENT TAXES AND THE COST OF BANKRUPCY RISK, DOES CAPITAL STRUCTURE AFFECT THE OVERALL COST OF CAPITAL OF A COMPANY?**

A. No. The work done by Professors Modigliani and Miller, both of Carnegie Mellon University is generally regarded as the breakthrough work on the relationship between capital structure and the cost of both debt and equity. An excellent write-up on Modigliani and Miller's work I obtained from Wikipedia can be found in Exhibit JAR-6[4]. Modigliani and Miller showed that if it were not for income taxes and bankruptcy risk, the capital structure selected by a company would have no impact on the overall cost of capital. As the common equity ratio increases both the cost of debt and equity ~~increase~~ decrease. However, at the same time the cost of equity and the cost of debt ~~increases~~ decreases, the impact of the ~~higher~~ lower component cost is fully offset by the ~~reduced~~ increased use of the more expensive equity component. If a utility commission were to properly establish the cost of capital using a capital structure with 40% equity and 60% debt, the proper cost of capital would not change even if the company subsequently issued new equity to pay off all of its debt and become a company with 100% equity.

Q. SHOULD THE COMMISSION BE CONCERNED ABOUT WHAT CAPITAL STRUCTURE MANAGEMENT IMPLEMENTS?

A. Yes. This responsibility to protect ratepayers from excessive income tax expense changes everything. The way corporate income taxes are computed, the interest expense paid to bondholders is deductible while the income earned on the common stock is not deductible. Therefore, if a company's cost of capital

[4] While Wikipedia often provides information that is quite accurate, because it is not subject to an independent check by experts, Wikipedia should always be used with care. In this case, I have presented the Wikipedia information because I found it be a particularly good write-up of exactly what I was planning to say in my testimony.

consists of $1,000 to pay its interest expense and another $1,200 to provide a return to its equity investors, the total amount of revenues the company has to collect from ratepayers to pay bondholders the $1,000 of interest is $1,000. But, a corporation paying the standard 35% federal income tax rate has to collect $1,846 and use $646 of this $1,846 to pay income taxes, which leaves $1,200 as earnings on its equity capital. It is because investor owned water and wastewater companies do have to pay income taxes that the overall cost of capital becomes too high if a company uses an excessive percentage of common equity in the capital structure. The Commission should be concerned that a company prudently do what it can to lower its income tax expenses. Investors might not care if these taxes are paid for by ratepayers, but the Commission should care that ratepayers not be charged income taxes that a company could reasonably have avoided.

Q. WHEN DETERMINING HOW THE COMMISSION SHOULD ALLOW THE COST OF EQUITY TO CHANGE IN RESPONSE TO CHANGES IN THE PERCENTAGE OF COMMON EQUITY IN THE CAPITAL STRUCTURE, WHICH OVERALL COST OF CAPITAL SHOULD THE COMMISSION HOLD CONSTANT: THE COST OF CAPITAL BEFORE CONSIDERATION OF INCOME TAXES OR THE ONE AFTER CONSIDERATION OF INCOME TAXES?

A. If the goal of the Commission is to compute the cost of equity as experienced by the equity investors, then the overall cost of capital that should be held constant is the one determined prior to consideration of income taxes. If the goal of the

Commission is to require water or wastewater companies to set a capital structure that reasonably approximates the most efficient capital structure, then the Commission should quantify a leverage formula based on a constant cost of capital AFTER considering the revenue requirements for income taxes. Since a company is only entitled to recover prudently incurred costs, absent a showing of why a particular company cannot finance its rate base with a reasonable amount of debt, a company is therefore only entitled to charge ratepayers for a leverage formula determined cost of capital that considers the real world impact of taxes. If there is a company with a special situation that when presented to the Commission could explain why it is appropriate for it to use an excessively high level of common equity in the capital structure, it could ask the Commission to give it a return in excess of the amount determined by the leverage graph. Without such a showing, it would be inappropriate to charge ratepayers the higher cost of an inherently inefficient capital structure.

Q. HOW DID YOU DERIVE THE LEVERAGE FORMULA YOU ARE RECOMMENDING?

A. The derivation of the formula is straight-forward. The overall cost of capital (OCC) is known to be equal to the sum of the weighted cost of equity and the weighted cost of debt:

$$OCC = EQ \times k + (1\text{-}ER) \times D$$

Solving the above equation for k results in the recommended leverage formula.

k = (OCC – D (1-ER))/ER

where

k = cost of equity

D = cost of debt, determined as a function of the percentage of equity in the capital structure

OCC = overall cost of capital

ER = Equity ratio

Since the cost of debt, D, is not a constant but is a function of the percentage of debt in the capital structure (see Exhibit JAR-4, Page 3), the value input for D when solving the equation must be computed. (To see how the cost of debt is calculated see the example of how my proposed formula would be used.)

Q. **DOES THE DATA SHOW THAT THE COST OF DEBT CHANGES AS THE PERCENTAGE OF DEBT IN THE CAPITAL STRUCTURE CHANGES?**

A. Yes. This is not only consistent with the same Modigliani & Miller principle that is the basis for the leverage formula, but the relationship between capital structure and cost of debt is confirmed by the actual data associated with the gas company comparative group. The actual relationship between bond ratings and capital structure is shown in the graph on Exhibit JAR-8, page 2.

Q. **WHAT VALUE IS USED FOR THE OVERALL COST OF CAPITAL (OCC)?**

A. With consideration of income taxes, the formula being applied for the value of OCC should be 10.610562%, shown on Exhibit JAR-4, Page 2. This value for OCC represents the overall cost of capital with the equity component grossed up to account for income taxes. Since the regulatory process charges ratepayers for income taxes, it is this value of OCC that reflects the actual charges that would be experienced by ratepayers.

Q. **COULD YOU PRESENT A TABLE THAT COMPARES THE RESULTS OBTAINED BASED ON THE FORMULA THAT INCLUDES INCOME TAXES?**

A. Yes:

Percent Common Equity	Return on Equity Considering Income Taxes
40%	10.53%
49.12%	9.40%
60%	8.46%
100%	6.52%

In the above table, the 49.12% is the actual average common equity ratio being used by the comparative gas companies. See Exhibit JAR-8, Page 1.

Q. IS THE 6.52% RESULT YOU OBTAINED BASED ON THE LEVERAGE FORMULA THAT INCLUDES THE IMPACT OF TAXES FOR A COMPANY WITH 100% COMMON EQUITY EQUAL TO THE COST OF EQUITY FOR THAT COMPANY?

A. No. A water or wastewater company that is financed with 100% common equity is using an overly expensive common equity ratio. It is overly expensive because such a company would be receiving no benefit whatsoever from the deductibility of interest expense. As a result, its income tax expense charged to ratepayers would be especially large. The 6.52% return on equity represents the allowed return that would be reduced to offset what otherwise would be an especially high effect of the cost of capital because of the missing interest deduction. The version of the formula that fails to include the effect of income taxes would NOT make the capital structure selected indifferent to ratepayers. If this formula that fails to consider income taxes were to be used to set rates, then revenue requirements borne by ratepayers would go up even if the return on equity was set in such a way that this net of tax value of OCC were held constant. This is because the greater the percentage of common equity in the capital structure, the greater the equity component's weighted cost of capital and the greater the equity components weighted cost of capital, the higher the income tax burden that is charged to ratepayers.

Q. **DID YOU PRODUCE A SCHEDULE SHOWING HOW THE COMPUTATION OF THE COST OF DEBT CHANGES AS THE PERCENTAGE OF DEBT IN THE CAPTIAL STRUCTURE CHANGES?**

A. Yes. Exhibit JAR-4, Page 3, shows how the cost of debt is computed to change as the percentage of debt in the capital structure declines from 60% of total capital down to 45% of total capital. Over this range, the cost of debt is computed to gradually drop from 6.26% at 60% debt down to 5.96% at 45% debt. It also shows that, based on this formula, the cost of debt would be estimated to decline to 5.08% for a company with 100% equity.

III COST OF EQUITY ADDERS

Q. **THE 2001 ORDER INCLUDES SEVERAL ADDERS TO THE COST OF EQUITY WHEN DETERMINING THE LEVERAGE FORMULA. WHAT IS YOUR REACTION TO THESE ADDERS?**

A. The 2001 Order allows for additions to the cost of equity computed from the comparative gas companies for:

Bond Yield Differential
Private Placement Premium
Small-Utility Risk Premium
Financing Costs

I believe that all the above adders are inappropriate. However, one adder which is actually larger than any of the other ones and was omitted but should have been included in the second stage of the DCF model is the increment to growth caused by sales of new common stock above book value. After excluding the four above-listed improper additions to the cost of equity and adding the impact of sales of new common stock above book value, the results of the DCF method as applied to the comparative gas companies changes from the 9.68% obtained by Staff [5] to the 9.42% to 9.43% shown on my Exhibit JAR-2.

Q. **WHY IS THE BOND YIELD DIFFERENTIAL ADJUSTMENT IMPROPER?**

A. When a company issues a bond, the bond yield or interest expense a company has to pay on its bond is related to the risk bond investors perceive that is associated with the bond. The bond ratings issued by the major bond rating agencies are generally consistent with the risk of investing in a bond as perceived by bond investors. While numerous factors go into the determination of a bond rating, important factors such as the coverage ratio and internal cash generation are highly influenced by the capital structure, i.e. the degree of leverage used by a company. Coverage ratio is computed from the following formula:

Income available to equity + income taxes + Interest expense

[5] Staff Recommendation of May 8, 2008, Attachment 1, Page 1.

Interest Expense

When a company increases the percentage of total financing done by debt, the interest expense goes up. Also, because of the higher interest expense and the fewer dollars of equity, both the income available to equity and the associated income taxes goes down. As can be seen from the above formula, higher interest expense, lower income available to common and lower income taxes all result in a lower coverage ratio. This is why the cost of debt incurs upward pressure when a company uses a higher proportion of debt in the capital structure. This higher interest expense is exactly the same factor that causes an increase in the risk experienced by the equity holders. This increase in the risk experienced by the equity holders is precisely the risk that the leverage formula is measuring. Therefore, adding a factor for the anticipated higher cost of debt is a double-count.

Q. **DO YOU HAVE DATA TO SHOW THAT THE BOND RATING GOES DOWN AS THE PERCENTAGE OF DEBT IN THE CAPITAL STRUCTURE GOES UP?**

A. Yes. Earlier in this testimony I presented a graph that shows the relationship between the bond rating and the percentage of equity in the capital structure. Since the percentage of debt goes down as the percentage of equity goes up, that same graph also shows that the bond rating goes down as the percentage of debt goes up.

Q. WHY HAVE YOU NOT PROPOSED AN ADDITION FOR A PRIVATE PLACEMENT PREMIUM?

A. There are a sufficient number of investors such as retirement funds and life insurance companies that plan to hold an investment to maturity that there is no reason to expect a private placement premium. Even if such a premium should somehow exist for a bond issuance, it does not necessarily follow that such a premium would apply to a common equity investment.

I attempted to find studies that evaluated the cost difference between private placement and public placement debt. The only one I was able to find is a Working Paper entitled "Financial Contracting and the Choice between Private Placement and Publicly Offered Bonds" dated November, 2004 and done by Simon H. Kwan of the Economic Research Department of the Federal Reserve Bank of San Francisco and Willard T. Carleton of the Department of Finance at the University of Arizona. [6] This one study I could find concluded that "Finally, we find evidence that borrowers self-select their debt issuance choice to minimize financing costs. However, switchers that issue debt in both markets do not realize significant cost savings by issuing bonds in the private market."

I find it both noteworthy and consistent with my own experience in the area that

[6] The paper states on page one that "The views in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Federal Reserve of San Francisco or Board of Governors off the Federal Reserve System.

the private placement alternative is selected not as a mechanism for higher cost, but is used when the borrower perceives an opportunity to experience a lower cost of debt.

Q. PLEASE COMMENT ON THE SMALL UTILITY RISK PREMIUM.

A. First, building in a small utility risk premium to the leverage formula is wrong because not all companies to which the leverage formula could be applied are small. Second, financial theory explains why there shouldn't be a small company premium and empirical review of financial data shows that financial theory is correct: there is no small company premium.

Q. PLEASE EXPLAIN THE FINANCIAL THEORY REFERRED TO ABOVE?

A. The theory is that investors demand compensation only for the risk a company has in relation to the overall market. As can be seen on Exhibit JAR-3, small companies have provided higher returns since 1926 but the can be explained by higher betas (correlations to the market). The graph shows 10 groups of companies, with the size of the companies going from largest to smallest from left to right. Therefore the data indicates that if a small company has a lower beta it would also have a lower expected return and thus there is no reason for a small company to require a higher return just because of its size.

Q. PLEASE COMMENT ON THE ADDITION FOR FINANCING COSTS.

A. In the 2001 Order, the Commission provided an allowance for financing costs by using a stock price that was 4% lower than the actual stock price. While it might be true that the net proceeds from the sale of new common equity, after paying underwriters fees, is somewhere in the range of 4% less than the market price, this adjustment is improper because much of the actual common stock raised by a company is raised via retained earnings. Equity raised via retained earnings has no financing cost. Additionally, when the stock price is materially above book value, financing costs are more than offset by the accretion that results when stock is sold above book value. As shown on Exhibit JAR-9, Page 1, the average and median market-to-book ratio for this natural gas comparative group is 2.45 and 2.00, respectively. At such a high market to book ratio, selling stock above book value provides a substantial net benefit to investors. This benefit has already been quantified on Exhibit JAR-2 as a factor which already is expected to contribute over 2% per year of earnings per share growth. That adjustment fully accounts for the impact of financing costs and should not be added back into the leverage formula.

VI. DISCOUNTED CASH FLOW METHOD (DCF)

Q. **WHAT IS THE DISCOUNTED CASH FLOW (DCF) METHOD?**

A. The DCF method is a mathematical formula that is used to value a stock and to calculate the cost of equity. It recognizes that investors who buy a stock do so to receive cash dividends and/or capital gains in the future, considering the time

value of money. If a company offers an investor $100 in ten years or $80 today, the DCF method helps answer the question of which amount the investor should take. If the only investment opportunity for the investor is to put the money in a bank earning 3% interest, it is known that $100 in ten years is equivalent to $74.40 today ($100/(1.03)^10). The DCF method guides the investor to the correct answer, which is to take the $80 because it is higher than the $74.40. In the above example the discounted cash flow (DCF) method discount rate was 3%.

Q. **IS THE DISCOUNT RATE HIGHER WHEN AN INVESTOR VALUES A STOCK THAN WHEN INVESTING IN AN FDIC INSURED BANK ACCOUNT?**

A. Yes. The FDIC insured bank account is virtually certain to pay the interest and not default on the investor's deposit. On the other hand investing in stocks involves risk because the quality of management, competitive surprises or overall economic conditions all impact a company's ability to generate cash flow in the future.

Q. **WHAT IS THE RELATIONSHIP BETWEEN THE DISCOUNT RATE AND THE COST OF EQUITY?**

A. The discount rate investors' use when calculating the value of a stock is equal to the cost of equity. Investors receive their return on equity through dividends paid and when the stock is sold. The profit investors receive from selling stock is generally referred to as capital gains.

Q. **IS IT ACCEPTABLE TO ARRIVE AT A COST OF EQUITY FROM THE DCF MODEL THAT COULD CAUSE THE STOCK PRICE OF A COMPANY TO CHANGE?**

A. Yes. This principle is a key point of the City of Cleveland vs. Hope Natural Gas U.S. Supreme Court decision. In this landmark case, the U.S Supreme Court said:

> The fixing of prices, like other applications of the police power, may reduce the value of property which is being regulated. But the fact that the value is reduced does not mean that the regulation is invalid. It does, however, indicate that "fair value" is the end product of the process of rate-making not the starting point.... The heart of the matter is upon "fair value" when the value of the going enterprise depends on earnings under whatever rates may be anticipated.

Q. **WHAT IS THE PRINCIPLE BEHIND THE DCF METHOD?**

A. An investor parts with his or her money to receive dividends and then sells the stock to someone else. The price the new owner is willing to pay for the stock is related to the future flow of dividends and future selling price he or she expects to receive. The value of a company is recognized to be the discounted value of all future dividends continuing until the stock is sold, plus the value of the stock sale proceeds when it is eventually sold.

For example, if the cost of equity is 9% and the dividend is $1 per share then that one-dollar dividend paid out next year is worth $1/(1+.09) or $0.92 today. This means that the $0.92 of the current stock price is accounted for by the dividend expected to be paid one year from today. In addition to receiving a dividend for next year an investor might also expect a dividend in the second year of owning the investment. If that dividend were also $1 then in terms of today's value of that dividend in the second year that $1 is now worth $1/ (1.09) ^2 = $0.84. If by the third year it is expected the dividend will jump to $1.50 then the contribution to today's stock price from this $1.50 is $1.50(1.09)^3 = $1.16. This analysis continues year by year for as many years as the investor expects to own the stock. This relationship can be generalized by the following mathematical equation:

The current stock price P is equal to:

$$D1/(1+k) + D2/(1+k)^2 + D3/(1+k)^3 + \ldots (Dn + Pn) \text{ X } (1+k)^n.$$

P = Current stock price

D1 = Dividend paid out in the first year

D2 = Dividend paid out in the second year

D3 = Dividend paid out in the third year

Dn = Dividend paid out in the nth year

k = the opportunity cost of capital or the required return.

Pn = the sale price of the stock

This complex version of the DCF equation can be used to solve for the cost of equity by estimating the dividend each year and what price the stock will be sold for and then having the computation solve for the cost of equity, k.

Q. **DOES THE POTENTIAL FOR A CHANGE IN THE FUTURE EXPECTED RETURN ON BOOK EQUITY MAKE THE DCF MODEL CIRCULAR?**

A. No. It is not circular because the DCF computations are all taken from a point in time before investor expectations change. Such an approach is therefore no more circular than a ship captain who, by looking at his compass, determines that his ship is sailing 10 degrees too far south, so he turns the ship to have the very same compass turn back to the true course.

Q. **IS IT ALWAYS NECESSARY TO USE THIS COMPLEX FORM OF THE DCF METHOD?**

A. No. If the best estimate for future growth in earnings, book value, dividends and stock price is the same estimate then and only then does the complex formula becomes mathematically identical to the answer obtained by the following equation:

$$k = D/P + g.$$

Q. **WHAT IS THE SIMPLIFIED VERSION OF THE DCF METHOD?**

A. In the simplified version the cost of equity k is equal to the dividend yield plus growth.

$$k = D/P + g$$

k = Cost of equity

D/P = Dividend Yield (D = dividend and P = stock price)

g = Growth in earnings, dividends, book value and stock price expected by investors.

In the mathematical derivation of this simplified DCF model growth, g = Future Expected Return on Book Equity (ROE) X Retention Rate + SV. SV is the growth caused by the sale of new common stock at a price different from book value.

The retention rate is the percentage of earnings not paid out as a dividend.

If a stock price is $20 per share and the investor receives a $1 dividend per year the dividend yield is 5% ($1/$20).

$$k = 5\% + g$$

If there was no growth then we could say that k = 5%.

$$k = 5\% + 0\%$$

When a company generates earnings, it chooses how much to pay out to stockholders and how much to re-invest in the company. In the above example the retention rate is zero and 100% of the earnings are paid out as a dividend. Companies usually do not pay 100% of earnings as a dividend. The percentage of earnings not paid out as a dividend benefits investors because this portion is re-invested in the company. Whatever percentage of earnings that are re-invested in the company is called the retention rate. For example, if half the earnings are re-invested the retention rate is 50%. The retained earnings are re-invested in the company because management presumably believes there are good investments they can make with that money. The investors' expectation of the returns on this re-invested money is the Return on Book Equity (ROE), not the cost of equity r.

As stated earlier, growth is equal to ROE X Retention Rate. For example if investors expect an ROE of 8% and a 50% retention rate the growth is equal to 4% (50% X 8%).

Q. **IS IT ALWAYS APPROPRIATE TO USE THE SIMPLIFIED VERSION OF THE DCF METHOD?**

A. No. In order to use the simplified version, our best estimate must be that the following factors will grow at the same rate:

Earnings

Book Value

Dividends

Stock Price

If these are all expected to grow at the same rate, then growth (g) will be equal to ROE X retention rate.

Q. **CAN YOU PROVIDE AN EXAMPLE WHERE IT IS NOT APPROPRIATE TO USE THE SIMPLIFIED VERSION OF THE DCF METHOD?**

A. Yes. If our best estimate is that earnings per share and stock price will grow at 6% per year while dividends per share will grow at 3% per year and book value per share will grow at 4% per year then the simplified version of the DCF method should not be used.

As shown in Exhibit JAR-10, Table 1, the dividend yield decreases from 5.30% in 2007 to 4.73% in 2011. In this case it is not proper to use either the 5.30% or the 4.73% in the simplified formula. Taking an average over any given time period is also improper because the dividend yield keeps decreasing in the future. In Table 1, return on book equity increases from 10.19% in 2007 to 11.00% by 2011. It is unrealistic to expect any company, let alone a regulated public utility, to have a return on book equity that increases indefinitely.

Q. **PLEASE PROVIDE AN EXAMPLE OF A CONDITION WHERE IT IS APPROPRIATE TO USE THE SIMPLIFIED VERSION OF THE DCF METHOD.**

A. In the Table 2 of Exhibit JAR-10, the growth rate is equal to 4% for earnings per share, book value per share, stock price and dividend per share. The 4% is calculated by multiplying ROE X Retention Rate. The starting point of the table shows earnings per share at $1, book value per share is $10, stock price is $11 and dividends per share is $0.60. The retention rate r is equal to 40%. It was calculated by taking $1 (earnings per share) minus $0.60 (dividends per share) and then dividing by $1 earnings per share. The ROE is equal to 10%, $1 (earnings per share) divided by $10 (book value per share). So, ROE X Retention Rate is equal to 4% (40% retention rate X 10% ROE).

The Table 2 shows that if earnings per share, book value per share, stock price and dividends per share all grow at 4% then book value per share grown at 4% is equal to earnings per share minus dividends per share plus the last year's book value for every year.

All of the components must grow at a rate equal to ROE X Retention Rate. If any of these components grow at a different rates, or anything other than ROE X Retention Rate then problems such as permanently increasing or decreasing dividend yield can occur, creating problems that ensure an inaccurate answer from the DCF model.

Q. **IS IT ALWAYS NECESSARY TO REJECT THE CONSTANT GROWTH FORM OF THE DCF METHOD FOR A COMPANY WITH ANY FORECASTED NON-CONSTANT GROWTH FACTORS?**

A. No. It can be possible to still arrive at a reasonable estimate for the cost of equity using the constant growth form of the DCF model so long as the inputs are treated in a manner consistent with constant growth. For example, if the dividend rate used to compute the dividend yield is used to determine the retention rate, then the computation is the same as if dividends were to grow at the same rate as earnings, dividends and book value.

Q. **IS THE APPROACH YOU HAVE DESCRIBED TO MAKE THE INPUTS INTO THE CONSTANT GROWTH DCF AN ABSOLUTELY PERFECT SOLUTION?**

A. No. However, it is the most accurate way to fit a non-constant growth situation into a constant growth DCF formula. It is considerably more accurate than haphazard approaches such as adding a five-year earnings per share growth rate to the current dividend yield. Being true to the mathematical demands of the constant growth DCF model is an essential step to using it properly and therefore maximizing its accuracy.

Note the self-correcting nature of the approach to the constant growth DCF that I have described:

A) Suppose a company is expected to grow dividends less rapidly than earnings simply because management plans to invest a larger portion of earnings in the future. This change would lower the expected dividend yield and raise future growth. The least accurate way to handle this situation would be to use the higher expected growth without making a corresponding reduction to the dividend yield. The approach I have used does not make that mistake, while a simplistic approach of merely adding a five-year earnings per share growth rate to an historical dividend yield does make that mistake.

B) Suppose a company is expected to undergo a temporary rapid increase because the base period has a lower than sustainable earned return on book equity. By equating the retention rate based not only on the actual dividend but on the earnings rate that would have existed if the future expected earned return on equity had been earned, the higher and more sustainable growth rate is computed. However, unsustainable transitional growth derived from a time when return on equity is changing substantially, i.e. earnings on book is non-constant. The approach I have used remains correct, while a simplistic approach of merely adding a five-year earnings per share growth rate to an historical dividend yield would be invalid.

Q. **DOES THE CONSTANT FORM OF THE DCF MODEL ASSUME THAT THE STOCK PRICE WILL BE EQUAL TO BOOK VALUE?**

A. No. Stock price and book value are modeled to grow at the same rate. If book value and stock price grow at the same rate, the market-to-book ratio must be expected in the DCF model to remain constant rather than gravitate to some higher or lower value in the future.

Q. **IS THE ACCURACY OF THE ANSWER OBTAINED FROM THE DCF MODEL INFLUENCED BY THE MARKET –TO-BOOK RATIO PREVAILING AT THE TIME OF THE ANALYSIS?**

A. No. The accuracy of the DCF result is driven by the accuracy of future cash flow estimates. There is no reason to believe the accuracy of a future cash flow projection is inherently more or less difficult to make for a company with a market-to-book ratio of 0.80, 1.0 or 2.0.

Q. **IF THE COST OF EQUITY COMPUTED BY THE DCF MODEL IS DIFFERENT THAN THE RETURN ON EQUITY USED TO COMPUTE GROWTH, DOES THIS CAUSE ANY PROBLEMS?**

A. No. The cost of equity is the return investors expect to receive on their investment at market price, while the return on equity used to compute growth is equal to the return investors expect a company will be able to earn on its book value at the time the DCF computation was being made. Since market-to-book ratios are rarely exactly equal to 1.0, the return on market price expected by investors is rarely equal to the return on equity investors expect will be achieved on book value.

Q. **COULD A COMMISSION'S COST OF EQUITY DECISION CHANGE INVESTOR'S EXPECTATION FOR THE FUTURE RETURN ON BOOK VALUE?**

A. Yes. However, it is highly unlikely that any one commission's decision could have a material impact on the future expected return on equity for a comparative group of utility companies. Nevertheless, if a commission's decision were to change investors' expectation of future return on book equity, it could cause numerous inputs in the DCF model to change. The stock price would change in response to a higher or lower dividend rate and an increased or decreased expected growth could cause investors to change their future expected return on book equity.

Q. HOW DID YOU CALCULATE THE DIVIDEND YIELD, D/P?

A. I obtained the most recent quarterly dividend for each of the gas companies. For each company, I estimated the annual dividend payments by multiplying the most recent quarterly dividend by 4.

From Yahoo Finance I obtained the monthly closing prices for all of the comparative gas companies. For every company, I divided the annual dividend payments by their closing stock price for the year ending 5/31/08 to get the dividend yield per company. The dividend yields for these gas companies based on the year-end stock price averaged 3.60% (See Exhibit JAR-9, page 1).

I also calculated the average dividend yield for the year for the gas company group by dividing the same dividend payment by the average of the high and low monthly closing stock prices of the past 12 months to get dividend yields. The average dividend yield computed on this basis was 3.70% (See Exhibit JAR-9, page 1)

Q. **HOW DID YOU CALCULATE THE GROWTH (g) PORTION OF YOUR DCF ANALYSIS?**

A. For each company I calculated the growth component by solving for the Future Expected Return on Book Equity multiplied by the Retention Rate. I then added an allowance for growth caused by the sale of new common stock above book value.

Q. **HOW DID YOU ESTIMATE THE FUTURE RETURN ON BOOK EQUITY EXPECTED BY INVESTORS?**

A. I estimated the future expected return on book equity by reviewing the return on book equity published by Value Line, and considering that forecast in the context of historic actual returns on equity.

Q. **HOW DID YOU DETERMINE THE RETENTION RATE?**

A. I calculated the dividend yield on book by multiplying the dividend yield on market price by the market to book ratio. I multiplied this dividend yield on book

number by the future expected return on book equity to get the retention rate. (See Exhibit JAR-2)

Q. **HOW DID YOU DETERMINE THE SALE OF NEW COMMON STOCK?**

A. I used the most current issue of Value Line to obtain the amount of stock outstanding in 2007 and the number of shares forecasted to be outstanding in 2011-2013. I calculated the compound annual growth rate between 2007 and the 2011-2013 timeframe for the comparative gas group. (See Exhibit JAR-11)

Q. **PLEASE SUMMARIZE YOUR DCF RESULTS?**

A. The results of my DCF analysis can be seen on Exhibit JAR-2. The average dividend yield for the comparative gas companies is 3.60% to 3.70%. The average growth rate of these companies is between 5.62% and 5.73%. To account for dividend growth for next year, 0.10 is added. The DCF method is indicating a cost of equity of between 9.42% and 9.43%. (See Exhibit JAR-2)

VII. CAPTAL ASSET PRICING MODEL (CAPM)

Q. **WHAT IS THE CAPITAL ASSET PRICING MODEL (CAPM)?**

A. The capital asset pricing model is a method for calculating the cost of equity for a stock by adding a risk premium to a risk free rate. The risk premium appropriate for a group of companies is proportional to the "beta" of that group.

COE = Rf + B x (Rm – Rf)

COE = Cost of equity

Rf = Risk free rate

B = Beta

Rm = the expected return on the market

Q. **WHAT IS A RISK FREE RATE?**

A. The risk free rate is theoretically a rate that investors receive for investing in a security that has no chance of unexpected price fluctuations. Short-term U.S. government treasury bills are often used to estimate this risk free rate because their default risk is close to zero and because the time to maturity is so short that unexpected price fluctuations from changes in the interest rates are minimal.

Q. **CAN THE RATE OF A LONGER TERM BOND YIELD, LIKE A 20-YEAR TREASURY BILL, ALSO BE USED AS A RISK FREE RATE?**

A. While a longer-term Treasury bond could be used in a risk premium analysis, a 20-year Treasury bond is not truly risk free because it is subject to interest rate risk. For example, an investor buys a 20-year U.S. Treasury bond that is yielding 5% and then interest rates rise to 6% the price of a 20-year Treasury bond will decrease, substantially. Therefore, if a 20-year Treasury bond is used in a CAPM analysis, it should be used in a way that recognizes the non-risk-free nature of this 20-year U.S. Treasury bond.

Q. **WHAT IS A RISK PREMIUM?**

A. The risk premium is the return that investors demand to take on additional risk. The risk premium can be the difference between any financial instrument in different risk categories such as the difference between U.S. Treasury bonds, corporate bonds, preferred stock or common stock.

Q. **WHY DO INVESTORS DEMAND A RISK PREMIUM TO INVEST IN STOCKS?**

A. Investors prefer avoiding uncertainty. They will seek investments with uncertainty if an opportunity is perceived to receive adequate compensation for taking on the additional risk.

Q. **FOR WHAT TYPE OF RISK DO INVESTORS DEMAND COMPENSATION?**

A. The only type of risk that investors demand compensation for is the risk that cannot be eliminated through diversification. Investors buy stocks as part of a diversified portfolio. The portfolio effect causes the diversifiable risks of each company to cancel out – unexpected problems are offset by unexpected success. After all of the diversifiable risks of all the companies in an investor's portfolio cancel out, then only non-diversifiable risk remains. Even a well-diversified portfolio can be harmed by a worldwide recession or a sudden shortage of oil.

Q. **WHAT IS BETA?**

A. Beta, as explain on page 19 earlier in my testimony, is a measurement of the correlation between a given stock and the market as a whole.

Q. **DO ALL COMPANIES REQUIRE THE SAME RISK PREMIUM?**

A. No. There are companies that are more sensitive than others to non-diversifiable risks such as changes in the economy. A portfolio more heavily weighted with companies that are especially impacted by the market will generally require a higher risk premium than a low risk portfolio. For example, a portfolio heavily weighted with stocks that sell luxury items may be harmed dramatically if disposable income goes down because such products are the first to go in hard times. Conversely, a portfolio heavily investing in companies that make staple products like utilities, corn flakes or soap is likely to be less susceptible to changes in the economy, have more stable stock prices and therefore require a lower risk premium.

Q. **HOW DID YOU APPLY THE CAPM?**

A. I compared the actual compounded annual returns earned by each of 10 groups of companies from 1926-2007 with an average beta of each group. In this way, I effectively examined the returns on ten different portfolios, each with a different average beta. Graph 1 shown in Exhibit JAR-7 page 1 shows that on average from 1926-2007, companies with a beta of 1.0 earned a compounded annual return of 10.40% for its equity investors. The average beta for the comparative gas companies chosen by the used by Staff in Docket No. 080006-WS is 0.88,

indicating that the non-diversifiable risk for these gas companies is 88% of the average risk. The least squared equation indicates that the earned return to stockholders who invested in a portfolio with a beta of 0.88 earned a compounded annual return of 9.72% from 1926-2007.

The 10.40% compounded annual average historical actual return earned by companies with a beta of 1.0 and a 9.72% historical actual return earned by companies with 0.88 occurred over a time when the compound annual rate of inflation averaged 3.0%. However, the current inflation expectation demanded by investors is 2.65% or 0.35% lower than the inflation rate embedded in the historical actual return numbers. See Exhibit JAR-3, page 1. Therefore, to make the historical returns consistent with investors' current inflation expectations, the 9.72% should be reduced by 0.35%. This 9.72% return adjusted for the current inflation expectation results in a 9.37% CAPM indicated cost of equity for electric companies with a beta of 0.88.

Q. **ARE COMPOUNDED ANNUAL RETURNS THE SAME AS THE GEOMETRIC MEAN?**

A. Yes.

Q. **IS THE COMPOUND ANNUAL AVERAGE RETURN, OR GEOMETIC MEAN, A BETTER MEASURE OF ACTUAL HISTORICAL RETURNS**

AND WHAT INVESTORS EXPECT TO EARN IN THE FUTURE THAN THE ARITHMETIC MEAN?

A. Yes. Page 24 of Stocks for the Long Run, Third Edition contains the following:

> Investors can be expected to realize geometric returns only over long periods of time. The average geometric return is always less than the average arithmetic return except when all yearly returns are exactly equal. The difference is related to the volatility of yearly returns.
>
> A simple example demonstrates the difference. If a portfolio falls by 50 percent in the first year and then doubles (up 100 percent) in the second year, "buy and hold" investors are back to where they started, with a total return of zero. The compound or geometric return (rG), defined earlier as (1-.5)(1+1)-1, accurately indicates the zero total return of this investment over two years.
>
> The average annual arithmetic return (rA) is +25percent =(-50 percent + 100 percent)/2. Over 2 years, this average return can be turned into a compound or total return only by successfully "timing" the market, specifically increasing the funds invested in the second year and hoping for a recovery in stock prices. Had the market dropped again in the second year, the strategy would have

been unsuccessful and would have resulted in lower total returns than achieved by the buy-and-hold investor.

Q. **WHAT GROUP OF COMPANIES DID YOU USE IN YOUR CAPM ANALYSIS?**

A. I relied on the Ibbotson Associates data from their 2008 Yearbook that includes 3,901 companies.

Q. **HOW DID YOU DIVIDE THESE COMPANIES INTO TEN PORTFOLIOS?**

A. The only data available in the Ibbotson Associates report with the companies it covers divided into separate portfolios are these ten groups that were divided by size. Since these ten groups all had significantly different betas and because the actual historical earned returns for these groups was also quantified, it was possible to use these groups to show how beta related to the actual earned return earned by each of these groups. It was acceptable to use the portfolios consisting of different size companies in this analysis because:

1) By CAPM theory, size is a diversifiable risk and therefore does not impact the cost of equity.

2) The results themselves confirm that size does not matter because the least squares trend line projects to a credible risk-free rate. If size, in addition to beta, did actually influence the cost of equity, then the projection of the

data would be substantially different than the cost rate expected for a zero risk security (i.e., a security with a beta of zero.)

Q. **WHAT DID YOU USE FOR A RISK FREE RATE?**

A. The most accurate risk free rate to use with this analysis is the one that is defined by the data itself. That way, the true historical actual relationship between beta and the cost of equity is maintained.

Q. **WHAT IS THE RELATIOSHIP BETWEEN THE COMPOUNDED ANNUAL EARNED RETURN AND BETA FOR THE GROUP OF COMPANIES YOU SELECTED?**

A. The data points in Graph 2 in Exhibit JAR 7, page 2, are numbered from highest to lowest beta, with number 1 being the group with the lowest beta and number 10 being the group with the highest beta. A least-squared line was used to fit a line to the data points and the derived equation was used to calculate the returns for a given beta. Historically a company with a beta of 1 has earned a return of about 10.40%. A company with a beta equal to 0.88, the average beta of the comparative gas companies, has earned approximately 9.72%.

Q. **DOES GRAPH 2 IN EXHIBIT JAR-7 SHOWING THE RELATIONSHIP BETWEEN BETA AND RETURNS HELP CONFIRM THE CAPM THEORY?**

A. Yes. The equation of the least squares line is Y = .059922 X + 0.0445 so the line indicates a y-intercept (or security with a zero beta) of 4.45%. Theoretically a firm with a zero beta is a risk free security. The compound annual return actually achieved by investors in U.S. Treasury Bills from 1926-2007 was 4.70%, or only 25 basis points higher than the result consistent with the actual return versus actual beta data used in my CAPM analysis. This small difference is an excellent confirmation of the integrity of the CAPM theory.

Q. **DO THESE HISTORICAL ACTUAL RETURNS FROM 1926-2007 AUTOMATICALLY EQUATE TO THE COST OF EQUITY?**

A. No. The cost of equity at any given risk level is directly influenced by investors' expectations of future inflation rates, while the historical data is a product of the inflation rates that existed in the past. The compounded annual rate of inflation between 1926 and 2007, the time period from which that data used to construct this graph was compiled, inflation averaged 3.0%. Currently however the bond market shows that investor's inflation expectation is 2.65%. Since the returns demanded by investors include an allowance for inflation, it is appropriate to update the historical actual returns to be consistent with what investors currently demand for inflation. Since inflation expectation is 0.35% lower than it was from 1926-2007, the cost of equity is appropriately estimated to be 0.35% lower at all risk levels than it was on average from 1926 to 2007. The current cost of equity for the gas group with a beta of 0.88 is 9.37%. See Exhibit JAR 3, page 2.

Q. **HOW DID YOU CALCULATE WHAT THE MARKET EXPECTS INFLATION TO BE AS OF MAY 29, 2008?**

A. I took the difference between 20-year US treasury bonds and the long-term inflation indexed treasury bonds. The yield on the 30-year US Treasury bonds is 4.70%[7] and the yield on the inflation-indexed bonds is 2.05%[8]. Since the market is willing to accept a 2.05% yield instead of a 4.70% yield in return for protection against inflation, the market expects inflation to be 2.65% (4.70% - 2.05%).

Q. **DOES THEORY AND EMPIRICAL DATA SUPPORT YOUR FINDINGS?**

A. Yes. The term Security Market Line (SML) is given to the expected return-beta relationship. In the financial textbook *Investments* (McGraw-Hill/Irwin 2005), by Bodie, Kane and Marcus, it states on page 290 that "...fairly priced' assets plot exactly on the SML..." and, "...all securities must lie on the SML in market equilibrium" thus the theory predicts that linear relationships was confirmed with the actual return data from 1926-2007.

The CAPM theory says the relationship between the cost of capital and beta is linear. If the historical actual earned return data I used is consistent with what investors' expected and if the CAPM theory is correct, it is possible to estimate the risk-free rate that existed on average over the 1926-2007 period by making a linear projection of the historical stock returns. As shown on my Graph 1 (Exhibit JAR-7, page 1), the stock based empirical data results in a computed

[7] www.bloomberg.com/markets/rates/index.html, 5/29/08
[8] www.bloomberg.com/markets/rates/index.html, 5/29/08

risk-free rate of 4.45%. This is very close to the actual 4.6% compounded annual return of U.S. Treasury Bills.

Q. **IS THE U.S. TREASURY BILL YIELD A GOOD ESTIMATE OF THE RISK FREE RATE?**

A. On average for the long-term, it is. However spot distortions are common. The current rate on the 60-day U.S. Treasury is 2.03%[9] is lower than the long-run average because the U.S. Federal Reserve Chairman, Ben Bernanke, has been reducing interest rates in an attempt to stimulate the economy.

Q. **HOW DOES YOUR CAPM RESULT COMPARE TO THE RESULTS STATED IN IBBOTSON ASSOCIATES?**

A. On page 179 of "Stocks, Bonds, Bills and Inflation" Ibbotson SBBI/Morningstar 2008 yearbook, the authors conclude:

> The supply side model estimates that stocks will continue to provide significant returns over the long run, averaging around 9.66% per year, assuming historical inflation rates. The equity risk premium, based on the supply side earnings model, is calculated to be 4.24% on a geometric basis and 6.23% on an arithmetic basis.

[9] www.bloomberg.com/markets/rates/index.html, 5/29/08

In the above statement, the 9.66% return expected by Ibbotson SBBI/Morningstar is based on a stock of average risk. Based on historical inflation rates, the expected return I calculate for a company of average risk at 10.4% is higher than the 9.66% concluded by Ibbotson SBBI/Morningstar. Considering that inflation expectations are lower than the historical average and the group of 7 gas companies has a lower risk than the company of average risk, my finding of a 9.37% CAPM cost of equity is conservatively high.

Q. **IS THERE ANOTHER IMPORTANT VERIFICATION OF THE CAPM CONCLUSION YOU HAVE RECOMMENDED?**

A. Yes. Page 12 of Stocks for the Long Run by Wharton Professor, Jeremy Siegel, concludes that "… the real after-inflation, compound annual rate of return on stocks…real return on stocks… averaged 6.9 percent per year since 1926." The book also points out that this real after-inflation return on stocks has been "…extraordinarily stable…, averaging 6.6 percent from 1871 through 1925…" The book also mentions that the return since World War II was 7.1 percent.

Recognizing that the return data prior to 1926 contains many fewer companies and is in a much less mature economy than the data since 1926, I will concentrate on the inflation premium data after 1926 and will therefore conclude that the equity premium in excess of inflation for the average common stock in the U.S. is 7.1%. Adding the current inflation expectation derived from the bond market of 2.65% results in a cost of equity estimate of 9.67% for a company of average risk.

This result is virtually identical to the 9.66% estimate made by Ibbotson Associates, further confirming that my 10.4% CAPM estimate based on the results for the average stock is conservatively high.

Q. **DOES THIS CONCLUDE YOU TESTIMONY?**

A. Yes.

BY MR. BECK:

Q. Would you please provide a summary of your testimony?

A. Yes. Mr. Chairman, Commissioners, good morning. Thank you for having me here this morning. I'll just provide a brief five-minute summary.

I'll start out by saying in 2001, this Commission established a formula approach to determining the cost of equity for water and wastewater companies. The result of that formula in 2001 was that the cost of equity to be allowed to a company with a 40 percent common equity ratio was 11.43 percent, and a cost of equity to be allowed to a water or wastewater company with 100 percent common equity was to be 10.0 percent, and with different numbers proportional within that range.

In the current proceeding, staff in its filing and its work papers determined that an update of the DCF and CAPM methods that were using the same procedures relied on in 2001 at this time produced a cost of equity of 12.67 percent at the 40 percent common equity ratio, which is 1.33 percent higher than this Commission's finding in 2001 for the same common equity ratio and the same group of companies. This increase should be viewed with extreme scepticism by the Commission, because the

long-term interest rates by U.S. Treasuries declined over that same period by 0.95 percent.

Such a large drop in interest rates should be expected to be accompanied by a decrease in the cost of equity, not an increase. A thorough examination of staff's work papers shows that its implementation of what it calls its DCF approach is not the problem. Indeed, it produced a result of 9.68 percent, moving in the proper direction, i.e., the same direction as interest rates, and at a similar magnitude.

The problem is concentrated in staff's implementation of its approach to the CAPM model. In 2001, its CAPM indicated a cost rate of 9.08 percent, while now it has jumped all the way to 11.40 percent. Since the CAPM approach is a risk premium plus interest rate approach, one should have expected a properly implemented CAPM to do a more consistent job of tracking interest rates.

As I state on page 17 of my direct testimony, and I quote myself, by any measure, this CAPM result is contrary to financial theory. On page 18 of my direct testimony, I explain what the error is in staff's version of the CAPM. I won't repeat that now, because the Commission certainly can review that at its own time.

On page 21, I explain that the result of a properly applied CAPM is 9.37 percent cost of equity, a result that is both consistent with the DCF result and with the change in interest rates that occurred between March 2001 and March 2008. And the reason I picked March is that that's the date of the staff's analysis.

The second topic I'll switch to which is closely related to the cost of equity topic is what form the leverage formula should take, and I propose that it needs to have a revision.

As discussed on page 22 of my direct testimony, the theoretical support for the leverage formula is the work of Professors Modigliani and Miller. And as I state in my testimony, Modigliani and Miller showed that if it were not for income taxes and bankruptcy risk, the capital structure selected by a company would have no impact on the cost of capital. As the common equity ratio increases, both the cost of debt and the cost of equity decreases. However, at the same time the cost of equity and the cost of debt decreases, the impact of the lower component cost is fully offset by the increased use of the more expensive equity component.

Commissioners, the problem is the current version of the leverage formula only considers half of

the effect defined by Professors Modigliani and Miller. It only accounts for a change in the cost of equity as capital structure changes and fails to account for the impact of the expected changes in the cost of debt. This omission exaggerates the change in the cost of equity beyond the level predicted by Modigliani and Miller.

For the leverage formula to be appropriate, it is critical for the Commission to change the form of the leverage formula it is using so that expected changes in the cost of debt are also captured by the formula. Implemented properly, the leverage formula approach has the potential to provide an efficient mechanism that could result in a fair result for cost of capital. To work correctly, the starting point cost of equity must be based upon soundly applied approaches to the DCF and CAPM. Also, the impact of the capital structure changes must follow Professors Modigliani and Miller's principles, i.e., recognize that capital structure changes impact the cost of equity and the cost of debt.

With that, I welcome and encourage any questions anybody might have, and I'll be happy to help them understand my testimonies. Thank you.

MR. BECK: Mr. Rothschild is available for cross-examination.

CHAIRMAN CARTER: Thank you, Mr. Beck.

Mr. Friedman?

MR. FRIEDMAN: Thank you.

CROSS-EXAMINATION

BY MR. FRIEDMAN:

Q. Mr. Rothschild, how would you define the average water and wastewater utility that you used in formulating your opinions?

A. The opinions, as staff did it, and I accepted it as a reasonable approach, was to use a proxy group that consisted of gas companies and to modify that result to recognize that there are differences in the cost of equity that result from financial risk variance. A financial risk is just the same way of saying changes in capital structure.

Q. All right. Let me ask you that again, because I didn't think you answered it. How would you define the average utility in Florida that you've used in forming your opinion?

A. I don't know how to answer it differently. The analysis is based upon a group of gas companies.

I understand the reasoning that the Commission accepted the use of gas companies in 2001 as a reasonable proxy for water companies and agree with that. The reasons are basically that the number of

publicly traded water companies with extended information available, in this case, covered fully by Value Line, is only a few. It's four companies. And of those, I think it's three of the four, their operations are predominantly in one state, California. And so for those reasons, few companies all in one state, the Commission felt that using gas companies was appropriate.

I felt that that was a reasonable choice to use the gas companies. I am aware that the gas industry tends to be a bit more risky than the regulated water industry, but nevertheless, I was willing to accept that and follow staff's and the Commission's guidance on that.

Q. I see what you're saying about the use of the gas companies, but that wasn't the question. The question is, how would you define the average water and wastewater utility in Florida? What is your definition that you used in formulating your opinion?

A. Well, as far as I'm concerned, what -- and maybe that's why we're not -- you can help me with what you want me to say, and to the extent that I can, I will. What my understanding is is that we need to find a way to arrive at a fair and reasonable cost of equity and cost of capital for the water and wastewater

companies in the state of Florida. And in so doing, if you're going to set one leverage formula approach, of necessity, you're going to be arriving at a result that would hopefully apply to an average company.

And I'm aware that the procedures in applying the leverage formula permit a company or other interested party to take issue with that average result. So when you ask me what average is, I'm describing it as I understood the process and the decisions that were made. If you want to ask me about the characteristics of the water companies -- I mean, we all drink water, and we don't drink gas. I mean, that's a big difference.

Q. Well, let me try a different approach, because, obviously, you and I are not on the same wave length, because I still don't think you've answered the question. Have you done any evaluation of the water and wastewater utilities in Florida with regard to their size?

A. I have not. I'm aware that there are a lot -- a lot of the companies are very small. Some of them such as Aqua are large, but they are in general small. As I explain in my direct testimony and I also discuss in my surrebuttal testimony, size does not impact the cost of equity, because size is a diversifiable risk.

So it's not an area of concern on my part for the purpose of determining the appropriate cost of capital that should be arrived at from the leverage formula.

Q. So is it safe to say that your opinions weren't based upon what an average water and wastewater utility in Florida is in characteristics?

A. No. The characteristics that are relevant have been taken into consideration. And other than the fact that I have a slight concern that gas companies typically are higher risk, they have more exposure to competition, because in the case of gas, there are -- depending upon where it's sold and what conditions it's sold, it is more subject to competition, because sometimes people can switch from gas to alternative forms of energy, whereas when you need a drink of water or you're going to take a shower, some of us might think beer is a substitute, but I don't think that's real. Water is first.

Q. Have you done any evaluation of water and wastewater utilities in Florida with regard to the revenues of those utilities? It's a simple question. Either you did the evaluation or not.

A. I'm not sure what you mean by -- I don't -- what are you suggesting I might have looked at for revenues? The size of revenues? No, I didn't consider

size appropriate, because it is a diversifiable risk.

Q. All right. Let me ask you to try to -- I've heard that mantra three or four times. Let me ask you another question and see if we can get a yes or no answer, unless you feel absolutely compelled to say something different.

Have you done any evaluation of the water and wastewater utilities in Florida with regard to the income of those utilities?

A. I have not looked at the income of the individual companies, no.

Q. So is it safe to say that you really haven't looked at the characteristics of an average water and wastewater utility in Florida?

A. No. The average characteristics of a water and wastewater utility company in Florida that I am concerned about is that they are regulated public utilities with a territorial monopoly.

Q. So other than that, you haven't done any analysis of the characteristics of an average water and wastewater utility in Florida; is that correct?

A. I have not looked at size. I have not looked at these other diversifiable characteristics, because they would not change my answer.

Q. So that was a no, that you have not looked at

those characteristics of water and wastewater utilities in Florida?

A. I have looked at characteristics that would impact the cost of equity as it would be appropriate for an average group of regulated water and wastewater utilities.

Q. All right. And so what is an average -- what are the characteristics of an average group of water and wastewater utilities as you just spoke?

A. The characteristics are that they are regulated by the Florida Public Service Commission in a responsible, law-abiding way, and also in a way that, which is true in every state, has the protection of the U.S. Constitution in terms of confiscation of property, et cetera.

Q. So you're --

A. That the companies are given a reasonable opportunity to earn a fair cost of capital as an overall effect, and that if the leverage formula which is used, for understandable and very practical and appropriate convenience, given how many companies there are, that if that leverage formula approach should not be felt by an individual company to be fair and reasonable, that the companies do have the opportunity to state that disagreement in an individual proceeding if any one or

more than one company should so choose.

Q. So is it your opinion then that in your analysis, it makes no difference whether you're Aqua Utilities Florida or whether you are Highlands Utilities Corporation?

A. It makes no difference in -- and we know Aqua is very large, and Highlands I'm not familiar with. I presume that it's very small in size. Does it matter? No, it doesn't. I suspect that it's possible that if you looked at each one of the very large number of companies, you might find one or more than one that have unique characteristics that could make it more risky than would be indicated by the average proxy of gas companies.

For example, if there were one water company that had a high percentage of its sales to an industrial customer, it might start taking on some of the characteristics of the risk of that industry it was serving. Should that be the case, the leverage formula result might be inappropriate, and that might be a case where a company could perhaps be able to make a justifiable case to the Commission why it should be an exception to the leverage formula result.

Q. Now, what do you understand the purpose of this proceeding to be?

A. The purpose of this proceeding is to arrive at a result that a company can suggest the Commission use without having to go through the burden and expense of providing its own evidence, its own witness to support that, and that if all people, all parties agree, then the Commission would just simply use that result.

On the other hand, if there were characteristics that would make an individual company particularly different from the average proxy group, then the company is free to make the arguments if it feels it can or should.

Q. All right. So when you say average proxy group, you're referring to the gas companies, not a average water and utility utility, water and wastewater utility?

A. Well, a decision was made by the Commission in 2001, a decision I agree with, which was to say that it is reasonable to use this group of gas companies as a proxy for the water companies, for the reason I explained earlier.

Q. But you've done no analysis of the water companies themselves to figure out what the characteristics are of an average?

A. I have done the characteristics -- I'm aware of the characteristics which are appropriate, and that

specifically is the regulatory process and the selling of a product that is almost unique, and it's just not subject to obsolescence. So the combination of territorial monopoly and the importance of the product and the Commission that in good faith comes up with fair and reasonable results to the best of its ability and so forth is what's important.

And the other characteristics, which certainly vary from company to company, are diversifiable risks. And diversifiable risks can be substantial, but when they're diversifiable, they're taken away by the averaging process that investors do by making those investments in a portfolio. And as a result, the financial markets, in essence, arbitrage out that risk, and so there's no extra return provided for it. If there's no extra return provided for it, then I don't care what they are for the purpose of this testimony.

MR. FRIEDMAN: Commissioners, I'm going to move to strike all of the opinions of this witness. Section 367.081(4)(f) in this proceeding is to provide a leverage formula that reasonably reflects the range of returns on common equity for the average water and wastewater utility. Obviously, this witness has no idea of the characteristics of an average water and wastewater utility, and therefore, his opinions suffer

from the same fate. And that being the case, I would suggest to you that his opinions are irrelevant to this process, and I would move that both his rebuttal and surrebuttal, all of his testimony be stricken.

CHAIRMAN CARTER: Mr. Beck.

MR. BECK: The fact that Mr. Friedman doesn't agree with Mr. Rothschild's analysis, which parallels the very analysis this Commission has done -- I mean, what Mr. Friedman is saying is the Commission's analysis has been incorrect all these years, because he followed the same process the Commission has. So the fact that Mr. Friedman doesn't like it doesn't make it irrelevant. So I oppose his motion.

CHAIRMAN CARTER: Ms. Helton.

MS. HELTON: Yes, sir. If I understood what just happened, I think that Mr. Friedman is suggesting that Mr. Rothschild is not a qualified expert witness to testify in this proceeding, and I think the time for doing that has long passed. I think our Order Establishing Procedure requires parties to raise questions regarding whether a witness is an expert witness by the time of the pre-hearing conference, so we are past that stage.

It seems to me that we also allow witnesses to answer a question and to explain their answers, and it

seems to me that's what I think Mr. Rothschild has done. If Mr. Friedman disagrees, he can ask more questions, or he can suggest in his brief that he will file later with the Commission why he disagrees and why he thinks Mr. Rothschild's arguments aren't appropriate to this process.

MR. FRIEDMAN: Commissioner, I'm not saying he's not an expert. He's clearly an expert. What I'm saying is that the opinions that he has rendered are not opinions that are related to this statute, and therefore, it's irrelevant.

CHAIRMAN CARTER: Mr. Beck, you want a stab at it?

MR. BECK: Commissioner, he has followed -- the procedures he was questioned about are the same ones that the Commission followed. He has described his analysis that is parallel to the Commission's orders and is parallel to what the staff proposed. He has explained why the gas companies are a proper surrogate for Florida companies. You know, it's hard for me to believe that we even have to address this. He has followed the same procedure the staff and the Commission has before and has explained the basis for it, so certainly it's relevant.

CHAIRMAN CARTER: I'm going to overrule the

objection at this point.

BY MR. FRIEDMAN:

Q. Mr. Rothschild, can we go to your amendment to your testimony? Do you have that in front of you?

A. I'm not sure what you mean.

Q. You filed some -- or your counsel sent to me what was purported to be amendments to your direct testimony, starting on page 14, line 15.

A. Yes.

Q. All right. Do you have that in front of you?

A. Yes.

Q. Why were you changing your testimony as to how your proposed formula would work?

A. Why was I changing it? It wasn't explained as clearly the first time as I thought it should have been.

Q. So you're saying there's no real substantive changes in here, that it's only merely changes to explain it more clearly?

A. Well, I'm not sure whether -- I think the change is substantive, but it doesn't change my recommendation at all, if that's what you mean. It's explaining -- I think it just does a better job and more than accurate job of explaining how to implement the very exact same formula that I was recommending in the first place.

Q. Well, doesn't it go further than just explaining? Don't you in fact change some of your assumptions from your original prefiled testimony?

A. I don't believe so, no.

Q. Would you look at your prefiled testimony, your original prefiled testimony on page 14, starting at line 21? Would you read that testimony for us?

A. "Based on average bond rating of comparative group calculate this cost of debt to be 7.36 percent."

Q. And would you read paragraph 2 on your direct testimony, page 1?

A. "Based on average bond rate of comparative group calculate the cost of debt to be 6.08 percent."

Q. All right. Am I missing something? That doesn't mean that you're changing your cost of debt from 7.36 to 6.08?

A. No. If you look at the source documents and other places in the testimony where the recommendations are made, the 6.08 percent was used. The description that appeared on the page 14 to 15 in the original testimony was inaccurate. It was not consistent with the rest of the testimony, and that's the reason I made the change. So it's not a change in my recommendation. It's a change in the explanation of how to implement my recommendation.

Q. And you don't think that's a substantive change to reduce the cost down from 7-point -- over 130 basis points?

A. Well, I believe when you asked me the question if I thought it wasn't a substantive change, I disagreed with you on that.

Q. It is a substantive change in your testimony?

A. Well, I believe it's substantive. I think it's because it's important to explain to the Commission how to implement the formula. But it's not a change at all, substantive or otherwise, to what my recommendation is.

So, in other words, it's like you bought something, some new electronic device or whatever it is, and it's all working fine, but the manual wasn't right, and we changed the manual to make it right. We're not sending any replacement parts. We're just telling you how to properly use it.

Q. What's the significance of that particular change, and why did you -- you made that change for a reason, and it's a substantive change. You're reducing a rate by 130 basis points. What's the purpose for it?

A. The purpose for it is to make it correct, to be consistent with the formula that was derived in the testimony and explained in the testimony so that the

implementation of the -- all of my intent is explained properly.

Q. All right. So in this change, are you assuming that the average water and wastewater utility in Florida would have the same bond rating as the average company in the natural gas index?

A. No, I'm not making that assumption at all. The approach doesn't make that assumption. What the approach does is say you're starting with the group of gas companies, and you're starting with the -- and the group of gas companies have a financial characteristic, a financial risk, which is its financial capital structure. And it has an average bond rating and an average cost of debt, if they were to refinance today, or as of the time the testimony was prepared, what their cost of debt would have been, and then, as the leverage formula does, recognizes that the cost of debt changes as the financial risk of the companies changes.

Q. So in making this change, you're not saying that the water and sewer companies in Florida can obtain financing at the same -- or the same bond rating as gas companies?

A. Well, they might or might not. They could have a higher bond rating than some or a lower bond rating than some, depending upon the financial risk that

each individual company takes on.

Q. Does the beta measure non-diversifiable risk?

A. Yes.

Q. What are the betas of publicly traded water utilities?

A. The betas of publicly traded water utilities are -- I've seen the betas that are reported in Value Line for companies, and the betas for those companies have been approximately 1 recently. And, of course, when you're looking at a beta for a company, you could be seeing the impact of both the regulated and unregulated activities of the companies.

Q. Okay. What is the betas of gas utilities?

A. The betas of the gas utilities that are made up of the group of 10 gas companies selected by staff which are shown on my Exhibit JAR-9 vary from a low of .8 to a high of .95, and average 0.88.

Q. What percentage of the non-regulated revenues for those Value Line water companies?

A. I don't know. I haven't made that analysis.

Q. Have you ever heard of businesses being referred to as mom and pops, a mom-and-pop business?

A. Yes.

Q. And how would you define such a business?

A. I would -- I guess a colloquialism, I would

describe it as a family-owned business that typically is small, but doesn't have to be small.

Q. All right. And those small ones, do you have any revenue in mind as to what you would call a small mom and pop?

A. No. It's not like there's a number that people -- I don't remember ever seeing that in a financial textbook or other financial literature, but we've all heard the term, of course. No, I think to give you a number of what the revenues would be is stretching the meaning. It's not a quantifiable number.

Q. And you say that because -- you say that you haven't heard of that in your discipline. Is that because those types of businesses are not typically the ones that get into the market of borrowing money that you're interested in?

A. No. It's because it's not intended to be a precise term. It's more of local color, local flavor. We can go to the mom-and-pop pizza place, and they know how to make good sauce. And it could be used other ways, but it's not -- it's not used with the specificity of definition that I think you're trying to put to it.

Q. Isn't it true that there are many mom-and-pop utilities in Florida, water and sewer utilities?

A. I would suspect that that's true in the sense

that you mean it.

Q. Now, those mom-and-pop utilities, they generally can't borrow money without personal guarantees of their shareholders, can they?

A. I haven't studied that. I don't know. It could vary from company to company, and the climate for financing at the time, and what assets and the believed quality of those assets that they might have. So it's going to vary.

Q. Are you aware of any small mom-and-pop water and sewer utilities in Florida that have borrowed money without having to have personal guarantees?

A. I haven't specifically studied that. I don't know.

Q. The DCF model that you have used in this case, is that something that you just started using, or is it something -- the same application that you've used before?

A. It's the same, my version of the DCF, although I also looked at staff's version and talk about it. There's are a lot of similarities, I might add, between the staff's approach to the DCF and mine, and I talk about that in my testimony also.

But to specifically answer your question, it's the same formula that I've used. I don't remember the

last time I made a substantive change to it. It has been used for a long time.

Q. You were a witness, were you not, in the Connecticut Natural Gas Corporation case that was in the late '90s, early 2000s? Is that correct?

A. I certainly have been a witness in a Connecticut Natural Gas case. I don't specifically remember the time, but that sounds reasonable.

Q. Isn't it true that in that case that the Department of Utility of the District of Columbia found that the use of retention growth was a poor choice to rely on in the DCF model and that it imposes a downward, bias in determining the appropriate cost of equity?

A. You asked me about Connecticut Natural Gas and the D.C. Commission? Did I remember correctly, or am I --

Q. This was a case in 2000.

A. Which case did you --

Q. Oh, I'm sorry. It's Connecticut, Utility Commission of Connecticut.

A. You're talking about a DPUC decision?

Q. Yes. Isn't it true that in that case, they found that your opinion imposed a downward bias in determining the appropriate cost of equity?

A. I don't remember that decision specifically,

but I've seen decisions by commissions that have both found the B times R growth approach, which I might add is the very same approach that staff uses in its -- staff in this case uses in its DCF determination and is the same as this Commission has accepted before and other commissions have accepted before.

Q. And isn't it true --

A. There are decisions out there, however, that have misunderstood the approach. So they don't -- commissions don't get it right 100 percent of the time.

Q. So, in other words, you admit there are cases out there, such as the Connecticut and District of Columbia cases, where your opinions were not accepted?

A. Well, it's safe to say that having testified in 350 cases while I -- approximately 350 cases, there are instances when the Commission has totally adopted my testimony. The more common approach is that they'll come close to adopting what I've done, usually closer, much closer than the company witness to the finding. But there are instance where they go against it. So you could take that list of decisions, and you could spin it one way, I could spin it another way, and somebody else could spin it a third way.

But for the purpose of this proceeding, I would like the Commission to be aware that the concept

of B times R shouldn't really be at issue, because staff's approach, which is the approach adopted by this Commission in 2001, when staff uses the DCF method, what it calls the DCF method, uses B times R. And I think that is appropriate for many, many, many reasons. And frankly, at this point in time, I don't know why people would use other approaches when they just don't have the mathematical derivation basis that B times R does.

Q. But other commissions have in fact done that, accepted -- try to keep the answer short, please. Other commissions have rejected your proposal, have they not?

A. There are some that have rejected it. There are some that have totally adopted it.

Q. Okay. You brought this up in your prefiled testimony. You pointed out a case where you had testified that they had adopted your testimony, so I thought it was fair to bring out that there are other cases in fact that commissions have not accepted your testimony. And I think what you're saying is that's correct, that there are commissions out there that did not accept your testimony; correct?

A. Well, I think, if I remember correctly, what you're talking about is something in the surrebuttal testimony. Am I allowed to talk about that now, or are we going to stay to the direct?

Q. I think that we've beat that point to death.

A. Excuse me?

Q. I think we've beat that point to death.

Let me ask you to look at --

A. And if I might elaborate, I think what you're talking about is in the surrebuttal testimony, where I was talking about what Ms. Ahern had relied on as seemingly an independent expert, and it was really a witness in a case where he was arguing against using B times R, and the Commission adopted it. And so that was why it was quoted, in the context of relying on Dr. Morin and how he had been treated.

Q. All right. Let's move on. Would you look at the top of page 48, please?

A. Yes, I have page 48.

Q. Is that the standard CAPM pricing model?

A. Is that the standard? I don't think there is such a thing as, quote, the standard, in reading many, many cost of capital testimonies and decisions and so forth over the years. I couldn't characterize any as, quote, the standard, unquote.

Q. This is one that you accept?

A. Well, this is a form of describing it. What the section -- let me -- are you talking about what I have on lines 1 through 5 of page 48, or do you have a

different --

Q. Correct.

A. That's the standard -- that would probably be -- I wouldn't call that the approach. It's an overall description of how the structure is. But when you come to applying CAPM, which is how I was answering you, there's no such thing as a standard way.

Q. Okay. So under this formula -- and it's got the definitions down at the bottom, the COE, Rf, B, and Rm. I should be able to take the number that's -- you're solving for COE; is that correct?

A. Yes.

Q. So that's the unknown. So the other three, the Rf, the B, and the Rm, are all the known factors that you're going to put in this formula, are you not, to come out with the unknown cost of equity?

A. Yes.

Q. Okay. In your formula, did you use a beta of .88?

A. Yes.

Q. What was the expected return on the market that you used in this calculation?

A. The expected return on the market would be -- to find that number, you would look at the graph that I presented and find the return that would exist at a beta

of 1.0. So, for example, what you would do is look at Exhibit Number JAR-7. And just look at the graph if you want. I didn't need that number separately to implement the result the way that I did, but you can do that if you want to. And you end up with something -- approximately 10 percent.

Q. All right. And what risk-free rate did you use in this calculation?

A. The risk-free rate is -- what you don't have to separate out, because what's on JAR-7 shows you the return that would be expected based upon any beta you want to look up. A risk-free rate by definition is a security with a beta of zero. So you would find -- and the exact number is derived and explained in my testimony. I don't remember exactly what it is right now. Somewhere around 4 percent is the risk-free rate.

And if you wanted to use something -- if you wanted to see what the rate would be over a low-risk investment such as a 30-year Treasury, you would first have to compute the beta of a 30-year Treasury and see what the return would be for it on that line.

Q. And is that free risk rate observable in the market?

A. Yes. It's observable on average over the entire time period. What I explain in my testimony is

that if you take a spot point in time and use the risk-free rate, it is frequently, if not always, subject to distortion, depending upon whether or not the Federal Reserve is trying to stimulate the economy or slow down the economy.

Right now, for those of us who are -- which is probably everybody because the financial crisis that we're dealing with is so large. Right now, if you go out -- in fact, yesterday, for myself, I purchased a two-month Treasury and receive a yield of approximately 0.6 percent. A two-month Treasury has a tiny bit of risk, because there's a little bit of variation and risk for the premium, but the return was very, very low. As we all know, what's happening right now with this huge flight to quality, the end, the Federal Reserve trying to stimulate the economy together, the short-term interest rates are very low.

So although that is really the risk-free rate, it would not be an appropriate spot benchmark to use because of the distortions put in by the Federal Reserve. So what you need to do is, to take out the distortion, take a look and see what the relationship has been over multiple decades.

And indeed, the analysis that I've shown is based upon what the risk-free rate has been on average

since 1926, and then that number is adjusted based upon the difference between inflation over the historic period and the current perspective that investors have for inflation, because a risk-free rate includes an allowance for inflation, and that does change over time.

Q. Are you familiar with the average of the electric and gas equity returns authorized by state commissions for the first nine months of this year?

A. I don't have that specific number in front of me, no.

Q. Is that something you've looked at recently?

A. I have looked at average allowed returns. I don't remember for sure whether it was -- whether it included electric companies or not. It perhaps did. And I don't know whether it was the first nine months or the first six months that I looked at. I looked at whatever was the most current available when I looked at it sometime within the last few months.

I remember -- yes, there must have been electric companies in there, because I remember the lowest allowed return was to Con Ed in New York State, and that was very low 9s. And there were some numbers that, of course, were higher than that, but I don't remember what the average was.

Q. Would you agree that -- and I'm trying to zero

in on that number. That for the first three quarters of 2008, that the average ROE approved by commissions for electric utilities was 10.51 and for gas was 10.39? Do those sound like numbers that you would have read?

MR. BECK: Mr. Chairman, I'm going to object on relevance. I don't even know what relevance this has.

MR. FRIEDMAN: I'm trying to -- we're comparing with gas companies, and so I'm trying to elicit from him what he knows about what the rate of returns for gas companies has been over the last three quarters by other regulatory commissions for electric and gas utilities. I think it's relevant. He's looking at gas utilities. I want him to say -- you know, want him to say what he thinks the returns are. Because commissions are giving 10.39, that's what -- I'm trying to ask him to verify whether he understands that information or not.

CHAIRMAN CARTER: Ms. Helton?

MS. HELTON: I have to confess, I was talking to Ms. Brubaker when Mr. Friedman asked the question, but listening to the discourse, it seems to me that it's an appropriate question.

CHAIRMAN CARTER: Okay. Overruled. You may proceed.

THE WITNESS: May I have the question again, please?

BY MR. FRIEDMAN:

Q. Yes. The question -- I won't be able to repeat it verbatim, but my question was, in that -- I don't know if you called it evaluation, but you said you had looked at those rates of return. And my question was, in looking at those rates of return, did you discover that for the first three quarters of 2008, that commissions had granted rate of returns averaging 10.39 percent for gas utilities?

A. I don't specifically remember exactly what the average was. I do remember noticing that there was a fairly wide dispersion.

And I would point out that when there's such a wide dispersion, I think you have to be -- anyway, for a lot of reasons, you have to be very careful how you use that number. What's the capital structure of the companies, what's the biases that might exist from a particular commission, to what extent is a particular commission's result weighed heavily in there.

For example, if you have six or eight companies and there are two decisions from one state, you don't really have a broad determination. Also, how long ago was the evidence presented, and on and on. So

while I don't object personally to looking at that kind of information, I think you have to be very, very careful how you use it.

Q. If the average water and wastewater utility in Florida could get rated bonds, do you believe that they could get an A rating, the average utility?

A. Without knowing the average capital structure, I couldn't possibly answer that question.

Q. Okay.

A. But I would also point out that the leverage formula specifically adjusts the cost of equity consistent with the change in capital structure. And if my form of the leverage formula is adopted, it would also specifically adjust the cost of debt in determination of the cost of equity. And if a company had the financial characteristics consistent with a lower bond rating, that would be appropriately cranked into the formula, and if the company had characteristics consistent with a higher bond rating, that also would be cranked into the formula.

Q. All right. So what's the capital structure characteristics of a company getting A-rated bonds?

A. If you look at Exhibit Number JAR-8, it shows a graph that presents the relationship between the bond rating and the percentage of common equity in the

capital structure. So by reading this graph, you can get a reading of how the percent common equity influences the bond rating.

Q. So the 40 to 60 --

A. And indeed, the whole thing the leverage formula is about is appropriately capturing this relationship. I mean, "the whole thing" is an overstatement. It's an important part of what it does. It's not the whole thing.

Q. Are you familiar with the gas companies that are in the surrogate list that's been used?

A. I have some familiarity.

Q. Have you ever heard of ATMOS Energy?

A. I've heard of ATMOS Energy, yes.

Q. And isn't it true that the outstanding balances of their long-term debt is between 2.3 and $500 million?

A. It's between -- what's the numbers?

Q. 2.3 million and 500 million.

A. 2.3 --

Q. Million and 500 million for their various long-term debt?

A. You mean the size of the various specific issuances or --

Q. Correct, correct.

A. I don't know. It's something I could look up, but I certainly do not have that committed to memory.

Q. Do you know if the average water and wastewater utility in Florida has average debt in the 2.3 to 500 million range?

A. I would suspect not. Of course, I would point out to you that the embedded -- that the way the leverage formula works is to determine the appropriate cost of equity consistent with the capital structure of the company, and then to use the specific embedded cost of debt for that company when determining the overall cost of capital.

Q. Have you heard of South Jersey Gas Company?

A. I have testified in South Jersey Gas proceedings.

Q. That's the smallest of companies in that index, is it not, or in that list, that surrogate list?

A. I don't know offhand.

Q. If you testified in that case, then you're probably familiar with their long-term debt ranging from 9.9 million up to 35 million?

A. I said I have testified in South Jersey Gas proceedings. It's not like it was that case. I'm not sure what you mean by that case. And I don't remember offhand what the size of their various debt issuances

are.

Q. Are you familiar with ATMOS Energy Corporation's issuance of common stock in 2003?

A. No.

Q. Is there less liquidity associated with privately placed debt?

A. Less than what?

Q. Than publicly placed debt.

A. Well, privately placed debt is frequently relatively illiquid. Publicly placed debt could be very liquid or very illiquid, depending upon other characteristics. So the correct answer to your question is maybe.

Q. Is the leverage formula that we're here today to discuss designed to be applied to a portfolio of water and wastewater utilities or to a single utility?

A. It is designed to be applied to a single utility in a way that is consistent with what the marketplace demands for return, and what the marketplace demands for return is the return consistent with the risk difference that occurs if that investment is part of a portfolio.

Q. So you're assuming that it's always a part of a portfolio?

A. No, I'm making no such assumption. But

because the marketplace for investments is competitive, an investor who might choose to make a non-diversified investment will be exposed to a higher risk than those who invest in diversified portfolios, but will not receive one cent of extra return for taking on that kind of risk.

The only risk the marketplace pays for is the risk that cannot be diversified away. That's about as standard and generally accepted in finance as just about anything I know of. Some people tend to kind of like to sweep that under the rug, but they shouldn't.

Q. Mr. Rothschild, can you explain what you mean by the vulnerability of the DCF?

A. Perhaps if you could give me the context I could. Do you have a specific reference?

Q. In the deposition, you were asked, "For the purposes of the 2008 staff recommendation, do you have any reason to believe staff applied the DCF portion of the Commission-approved CAPM analysis differently in 2008 than it did in 2001?"

You responded, "I have no reason to believe that it was mechanically used differently. However, the financial factors are such that using it in the current environment is much more prone to error than it was in 2001. It's a formula whose vulnerability wasn't as

readily apparent in 2001."

MR. BECK: Marty, could you give us the page number and lines, please?

MR. FRIEDMAN: Page 35, lines 1 to 9.

MS. HELTON: Mr. Chairman, while Mr. Rothschild is looking at that page, one of the things that we have realized is that we never marked this for identification, and we never gave it an exhibit number. Even though I think it has been admitted, it does not have an exhibit number.

CHAIRMAN CARTER: Well, since he's looking, let's do that now. It will be 47; is that right, staff?

MS. HARTMAN: Yes, it will be 47.

CHAIRMAN CARTER: Okay. Show it done.

(Exhibit Number 47 was marked for identification and admitted into the record.)

A. The vulnerability here is, I'm talking about the vulnerability for the purposes of this case is the CAPM method as applied by staff, not what staff is calling the DCF method. So it's not a vulnerability of the DCF method as either the staff has used it in this case or I have used it in this case.

But with that clarification, do you want me to explain the vulnerability of the CAPM method?

Q. No, the DCF.

A. Well, the DCF method, staff calls the DCF method the approach it has used where it used the B times R, as I have done. And this vulnerability is not applicable to that approach. That's what's so good about it, is that it doesn't have that vulnerability.

Q. All right. The question was if you had reason to believe that the staff applied the DCF portion of the Commission-approved CAPM analysis differently. And so when you said down here the formula whose vulnerability wasn't as readily apparent in 2001, you weren't referring to the DCF portion of the Commission-approved CAPM?

A. I was referring to the version of the DCF that was used to establish the -- that was used in the process of computing the risk premium. And the vulnerability I was talking about is the vulnerability of the -- of when you take a DCF form, which is dividend yield plus growth, and stick in a measure of growth that is not a long-term, sustainable, constant growth.

The vulnerability is, if the growth that's measured is an unsustainable growth, it will overstate or understate, depending upon the characteristics at the time, the true cost of equity. And you could have a point in time where the difference isn't very much, as appeared to be the case in 2001, or you can have a case

where the difference is a lot, but it shouldn't surprise anybody.

No -- I mean, when you go around and ask financial professionals about how to apply the DCF method and talk to them about it, if you ask them, "Well, what about taking a five-year growth rate," I wish I had a recorded tape of the laughs you get. It's not considered a serious method. People in the trade know it's not an approach to apply the DCF method, and that's the vulnerability I'm talking about. If you take a growth measure that's not sustainable and add it to a dividend yield, you end up with what the computer world calls garbage in equals garbage out.

CHAIRMAN CARTER: Mr. Friedman, hang on for a second. Okay? Are you okay?

MR. FRIEDMAN: I'm getting real near the end of mine.

CHAIRMAN CARTER: Okay. I was trying to find a decent point to give the court reporter a break, but you may proceed.

MR. FRIEDMAN: I've got a couple of minutes.

CHAIRMAN CARTER: You're recognized.

MR. FRIEDMAN: At least my part.

BY MR. FRIEDMAN:

Q. In your opinion, should the CAPM and the DCF

yield similar results?

A. You would expect that, and it usually is the case. If it were not the case, there ought to be a darn good reason for it. Usually it is very close, if not always.

Q. But if they're dissimilar, then one or both of the models are wrong? Is that your opinion?

A. If there is a large difference, then there is a problem that should be identified, yes, what's wrong in the measurement technique.

Q. And when you speak of size doesn't matter, does that mean that you believe that an investor who invests a thousand dollars in a company such as Microsoft would expect the same return as a similar investment made in a small water and sewer utility in Florida with revenue of less than $200,000, all else being equal?

A. Well, let's talk about what you mean by all else being equal. If the risk profile is equal, then the answer is yes. But if the risk profile is dissimilar for any reason, then the answer is no. The risk that I'm talking about, to be more specific and more accurate, is the non-diversifiable risk.

MR. FRIEDMAN: Okay. That's all I've got.

CHAIRMAN CARTER: Commissioners, let's do this

before we go. We'll come back, and then we can ask questions from the bench, but let me give the court reporter a break. We'll come back at 25 after. We're on recess.

(Short recess.)

CHAIRMAN CARTER: We are back on the record. And before we get back to the witness, let's do this. Commissioners, what we were doing is -- I just want to kind of clarify something for the record as it relates to in our preliminary, just kind of go back there for a moment as it relates to witness Ahern. The prefiled testimony of the witness was entered is record as though read.

Additionally, because of stipulation of the parties, the direct testimony as well as the exhibit, Exhibit 3, PMA-1, is also entered along with her testimony, and there's no objection by the parties. I just wanted to clarify that just for the record.

With that, Commissioners, when we last left, Mr. Friedman, had you completed?

MR. FRIEDMAN: Yes, I had. Thank you.

CHAIRMAN CARTER: Okay. Let's do this then. Commissioners, what's your preference, for me to go to staff first and then come to the bench, or what?

COMMISSIONER SKOP: I've got a few I would

like to ask.

CHAIRMAN CARTER: Commissioner Skop, you're recognized, sir.

COMMISSIONER SKOP: Thank you, Mr. Chairman.

I just have a few questions. I was trying to follow along with the testimony, and at times it was difficult, so I'm going to go back and ask some questions. If I could refer, Mr. Rothschild, to page 48 of your prefiled testimony.

THE WITNESS: Yes, Commissioner.

COMMISSIONER SKOP: And at the top of that, basically it provides the equation for I guess what's typically known as the standard textbook Capital Asset Pricing Model. Do you agree with that? I mean, there was a little debate in your testimony in terms of how the numbers are applied or the methodology that goes to calculating each of those variables, but you would agree that's the standard formula for the Capital Asset Pricing Model; correct?

THE WITNESS: Yes.

COMMISSIONER SKOP: Okay. If I could also please refer you to page 1 of 2 on JAR-3. I don't know if this is a typo, but I was trying to kind of follow along.

THE WITNESS: I'm sorry. Page?

COMMISSIONER SKOP: JAR-3, page 1.

THE WITNESS: Yes, I have it.

COMMISSIONER SKOP: And following down, I guess what is line item 1 through 8 basically provides some historical return data on various betas, and I guess its source is Ibbotson Associates, the Yearbook, which is a standard source for some of those historical market returns.

But in item 1, line item 1, it shows a beta of 1, and in line item 2, I think it shows a beta of .88, and then line item 8, it shows again a beta of 1. Line item 9, it shows a beta of .89, and I was wondering whether that's a typo, or is there something I'm missing? I didn't get to look through all the detail there, but is that supposed to be .88, or is there a reason why that's .89?

THE WITNESS: Let me check and see if I can answer that for you right away. I believe you're correct that they should be the same.

The .88 shows also on JAR-9. I don't know whether it's just a rounding error where the computer picked it up or whether it's a typo. I would have to check and look at the formulas actually on the Excel spreadsheet to let you know for sure. But conceptually, they should be the same.

COMMISSIONER SKOP: Okay. And I guess you would agree, just based on the Capital Asset Pricing Model formula, that the results could vary significantly by the choice of beta that's used. It's very sensitive to beta. You would agree with that?

THE WITNESS: Well, certainly. Beta is an input number, and the whole theory behind the CAPM is that the cost of equity changes in proportion to the change in beta, so, yes.

COMMISSIONER SKOP: If I could refer you to JAR-7 on page 1, and that was the market return graph I think that you referenced before. And again, sometimes down on this end of the bench, I have trouble hearing everything from the far side of the room. But I think that you mentioned that for a beta of 1, the return was around 10 percent, and I guess I'm seeing somewhat of a higher return for that, and so I just wanted you to qualify your answer if you could, please.

THE WITNESS: Certainly. I was referring not to the page you're referencing, but the next page, which is a little bit different. And the difference is that page 1 shows the historic actual results which would be consistent with the actual inflation rate that existed over that 1926 to 2007 period, which was 3.0 percent, as indicated in the heading of the graph.

The next page, JAR-7, page 2, is the same data brought down a little bit to recognize that as of the time this analysis was done, investors were expecting a 2.65 percent inflation rate. And these days, it's pretty easy to get an accurate reading of what investors expect, because U.S. Treasuries trade both in inflation protected and non-inflation protected, and when looking at the difference between the two, you know exactly what the marketplace is paying for an allowance for inflation.

COMMISSIONER SKOP: And then going back to page 5 of your prefiled testimony, if I heard you correctly, I guess my understanding is that you're suggesting that the Commission depart from the methodology which the Commission previously approved in its 2001 order in terms of the leverage formula and adopt your revised recommendation. Is that correct, generally correct?

THE WITNESS: Yes, that's connect. I think -- was it Albert Einstein that said you need make something as simple as you possibly can, but no simpler. And I wish I could tell you it could be the one-factor formula. It can't. You have to consider the fact that the cost of debt and the cost of equity both change as the capital structure changes. So, yes, I'm

recommending a little bit more complicated formula.

COMMISSIONER SKOP: And also, too, I believe I'm correct, and correct me if I'm wrong. One of your responses to a question I think that you were asked on cross-examination was that you responded that in today's market conditions, there's currently a flight to quality. Is that correct?

THE WITNESS: Oh, yes, definitely.

COMMISSIONER SKOP: And you would agree that small water companies are, generally speaking, not as well capitalized as large publicly traded water companies; is that correct?

THE WITNESS: If you mean they don't have as much total capitalization, that's true, but it doesn't mean that they're more risky, or it doesn't mean they wouldn't be caught up in the flight to quality.

COMMISSIONER SKOP: Let me stop you there. If there is a flight to quality, which again, obviously the credit markets are very tight right now, but I guess my more pointed question is, we've heard the term "mom and pop." If there is a flight to quality, how are mom-and-pop or smaller wastewater providers within the state going to be able to access capital without paying additional premiums?

THE WITNESS: Well, again, as long as you're

tracking the risk, you're capturing it. The whole process, the whole basis for applying the leverage formula says that you can use natural gas companies as a proxy. And if you have situations where that proxy doesn't work, then a company is free to make such an argument as having a special case.

The capital markets right now are so -- and by right now, we're talking about events that have occurred over the last few weeks. And hopefully, although nobody knows how long it's going to take to stabilize, hopefully we'll be stabilized within another few weeks. And that's not a prediction. I'm just saying we don't know.

You could have a local -- a situation where a local bank that is feeling pressure to loan some money might feel much more comfortable loaning it to the local water company, the mom-and-pop who the banker knows and who knows that it can drive down the street and see the assets and see that water is going through the pipes and everything is fine.

I'm not trying to paint a Pollyanna picture for you. I'm simply saying to make a generalization at this point would be inappropriate, and to recognize that the current situation's time duration is unknown and hopefully will not last long enough where it should be

given -- should form the framework for how to set the leverage formula in this case. But if it does last longer, you do have the safety valve of making an independent decision on a case-by-case basis, which I think you would have to do in response to the crisis. Otherwise, you would have a formula result which would be embedding in it the current crisis, which hopefully will be solved soon.

COMMISSIONER SKOP: So on that same point, would you, I guess, agree that the same uncertainty holds true for the regulatory rate-setting process, trying to set rates in a volatile capital market, volatile swings of interest rates and borrowing costs?

THE WITNESS: Yes. Certainly anytime the Commission is setting rates, the rates are set prospectively with an unknown of what's going to happen during the life of the rates. But I agree with you that that uncertainty is orders of magnitude larger now. We don't know at what point in time the Federal Reserve might say, "Gee, the stimulation of the economy is working. We can raise interest rates again." The rates being charged by the Federal Reserve are quite low now, and presumably -- they can't go below zero, but we don't know if they're going to drop them more or not and how much more and when.

COMMISSIONER SKOP: Also, you would agree in terms of both the Discounted Cash Flow and the Capital Asset Pricing Model, in terms of each of those models, there is no exact science in terms of selecting what the appropriate return on equity would be? They merely suggest an appropriate range, or usually you say they should converge if things are going right, but here the spread tends to be a little bit larger than what might hope to be seen. But within that range, you would agree that it's not an exact science in terms of what specific number is chosen, and that would be highly sensitive to the input variables?

THE WITNESS: Well, I agree that it's not an exact science, that nobody can tell you what the cost of equity is with two decimal places and high reliability associated to that. However, the converse is a little bit different. You can be highly confident that a DCF method implemented by using a five-year earnings per share growth rate is subject to wide fluctuations of result and a result that can be expected to be highly inaccurate frequently, because a five-year earnings per share growth rate is not a constant growth rate.

So there's a lot of things that I've seen in these proceedings, and that's just one example, where you can be confident it's wrong, but when you get to the

a method that's right, it doesn't mean -- I certainly agree with you, it doesn't mean you can say, "Well, I know the cost of equity is 9.51, and 9.52, anybody that suggests that is out to lunch." No, it's not like that.

COMMISSIONER SKOP: Just two more quick questions and then an observation.

I guess with respect to EPS type driven models or earnings per share, would it be appropriate to use that type of analysis in today's market conditions to the extent that earnings are not readily discernible on a forward-going basis?

THE WITNESS: That's a very good question. And to make sure this is clear, both my testimony and staff's analysis was done prior to the current financial crisis. I have not attempted to update the analysis as of today's situation, but if I did, I agree with you totally. It would be a very challenging environment to do that update, easy enough to get the stock price, easy enough to get the dividend yield, but really tough to get what's on investors' minds in terms of future expected growth rates, future expected earned return on book equity.

You could take the biggest, fanciest, and most respected experts on the economy -- let's say Hank Paulson were here today and you asked him -- if

everybody accepts him as the biggest expert. I don't know. He certainly has a lot of experience in the area. If you asked him, "Well, how deep is the recession going to be and when is it going to end," I think we all know he would say he doesn't know either. And, of course, nobody knows. This is an unprecedented situation, and it's going to take a little bit more time to get that into focus. So we don't know what's in the minds of investors right now.

COMMISSIONER SKOP: And then as a follow-up question to that -- and again, that covered EPS, and I thank you for giving your insight. With respect to your revised testimony, I guess line item 2 where you spoke on the average bond rating of the comparative group calculated in the cost of debt, the number I guess had been revised. Under today's market conditions, given the tight credit market, would you expect the cost of debt for that same comparative group to have risen substantially if the analysis were to be rerun under today's market conditions?

THE WITNESS: I haven't looked at that number recently. It's possible it did. I've seen some inconsistent interest rate quotes from some large, highly respected companies and know some of those quotes were higher than I might have initially expected. So

it's very possible that the results could be higher today, could be materially higher than when I prepared this testimony for a debt cost rate.

I would caution -- well, I'm not necessarily opposed to updating for that. I would caution that this is such a distortion right now that I just don't know how long it would last.

COMMISSIONER SKOP: And I appreciate that. And again, just so everyone understands my line of questioning, it wasn't to attack any of the work or anything that was done. It's basically to state that the credit market is in a state of turmoil, as are the financial markets right now. It's very difficult from a regulatory perspective to make sound regulatory policy in these ever-changing conditions, and I think that's where each of my colleagues and I try and rely on the best possible information.

But again, some of the analysis has been prepared, you know, weeks and months in advance of where we are today, and I think it's important to be cognizant, not to have an overbearing on where we are today, but at least be cognizant of, you know, the historical context and the current market conditions.

But I guess with respect to where we're at, some of the points were raised, and I'm glad, Mr. Beck,

that we have taken this to hearing. I mean, there was I think originally a PAA action, and there was a lot of discussion and debate as to whether one size fits all, is appropriate, and the things before.

So I'm happy that the Commission is having the opportunity to fully vet this issue, to the extent that, you know, the staff recommendation again came in higher than it was previously, and that's somewhat divergent to some rate-setting policies that the Commission has undertaken.

So again, I think that the Commission strives to have consistently applied and uniform rate-setting policy, and I think that that lends itself to having that stable regulatory environment, so I think that having this is a good thing to fully vet these issues, because again, you see one tracking up here where it trended down in another instance, and again, I think that it's important harmonize that to have that sound regulatory policy that each of my colleagues strives to achieve. So I look forward to hearing some more testimony and trying to read through it thoroughly. Thank you.

CHAIRMAN CARTER: Thank you, Commissioner Skop. Commissioner McMurrian.

COMMISSIONER McMURRIAN: Thank you.

Mr. Rothschild, I just have one clarifying question. In some of the questions that Commissioner Skop was asking you about with respect to the small mom and pops, I think you said something close to as long as you're tracking the risk, you're capturing it. Can you help me understand what you mean by tracking the risk and how you're capturing it by tracking it? I know it's a simple question, but it's the one I have.

THE WITNESS: I'm not sure. I don't remember the context, so I'm not sure. But certainly what we want to do is -- in applying the leverage formula, the Commission -- and I compliment, very sincerely compliment the Commission for the concept of a leverage formula instead of the very expensive, burdensome thing of having to have expert witnesses in each of several hundred rate proceedings for several hundred companies.

So a decision was made to use a proxy group to reflect the average risk of that group. And as long as you accept that the group is reasonably reflective of the risk of -- as a starting point, and if the quantification of that cost of equity for the average of the group and the change for capital structure is done properly, everything will work as a reasonable guideline.

And I compliment the Commission on the fact

that there's a safety valve. If a company has a unique situation, it's free to say, "Well, the leverage formula doesn't work for us," and other interested parties too, and it's balanced. My client could come in and say that it doesn't feel it's right either, and the Commission can use its judgment to react to those comments. That's good.

When you're talking about the risk, in the procedure that's set up, the risk has to be either accounted for only through changes in capital structure, as the leverage formula does, or accounted for internally on a case-by-case exception basis. So either way, I think the Commission is reasonably covered.

Of course, if the leverage formula is too far from an acceptable result, then it will stop working. And if it came up to, to pick a silly number, 5 percent cost of equity, every company in every proceeding would come in and say, "This doesn't work. I appreciate your approach on the leverage formula, but we can't live with 5 percent. Our costs are simply much higher than that." Or if it came in at a very high number, hypothetically 15 percent, then you're going to have some customers or my client or somebody coming and saying, "Fifteen percent, it doesn't work. It's too high. It's unreasonable."

So for it to work, you should have a basis of something that's close to appropriate and have the safety valves in case there's an exception. When you have several hundred companies, it's quite possible there are some that have unique characteristics that can't be captured in a one-size-fits-all formula.

CHAIRMAN CARTER: Thank you, Commissioner McMurrian.

Staff, you're recognized.

BY MS. HARTMAN: Thank you.

CROSS-EXAMINATION

BY MS. HARTMAN:

Q. Mr. Rothschild, other than Aqua America, can you identify any water and wastewater utility under the Commission's jurisdiction that has issued common stock on either the New York Stock Exchange or the NASDAQ?

A. I have not looked at that. I do not know, so I cannot identify it. But if it were the case, I wouldn't know.

Q. Okay. Can you identify any Florida water or wastewater utility under the Commission's jurisdiction that has been assigned a credit rating by Standard & Poor's?

A. Basically, the same answer I just did.

Q. Okay. Can you identify any Florida water or

wastewater utility under the Commission's jurisdiction that has been assigned a credit rating by any major credit rating agency?

A. Same answer again.

Q. Okay. You talked a little earlier with Mr. Friedman about the baseline cost rate for debt included in your leverage formula, and I believe that was 6.08 percent. Is that correct?

A. Yes.

Q. This 6.08 rate is the cost rate for large publicly traded companies with a single-A credit rating; is that correct?

A. It's the cost rate associated with a single-A credit rating, period. You don't have to qualify it any further than that, as of the time that analysis was done. And, of course, as we all know, the financial markets change, and particularly in these times, they can change dramatically from one day to the next.

Q. Thank you. Is it your testimony that the average Florida water and wastewater utility under the Commission's jurisdiction has the same access to capital from the public debt markets at the same cost rates as the proxy group of large publicly traded natural gas companies?

A. The size of the issuances, if they're much

smaller, make public debt offerings uneconomical, so from that perspective, they don't have -- the path to going public -- excuse me. The path to issuing the funds that's appropriate is not necessarily the same. That's not to say they can't get financing on terms consistent with their risk.

I should also point out to you that when the leverage formula is applied, the specific cost of debt incurred by each company is what is put into the determination of the overall cost of capital, and I have done nothing to suggest that that be done otherwise.

Q. In preparing for your direct testimony in this proceeding, you reviewed the Commission staff's recommendation filed May 8, 2008; is that correct?

A. Yes.

Q. Okay. And wouldn't you agree that the Commission's water and wastewater return on equity leverage formula is an efficient and practical approach for determining the return on equity for water and wastewater utilities under the Commission's jurisdiction?

A. As I've said earlier today, I think the approach makes a lot of sense, but I think you have to make the modification to make it just a little bit more complicated, which is to put one other term in and to

recognize that not only does cost of equity change as capital structure changes, but the cost of debt does also, and that needs to be considered when quantifying the change in cost of equity that occurs consistent with changes in capital structure. So with that additional comment, then I would be inclined to agree with what you just said.

Q. Okay. And I thought I heard you say earlier that you agreed with the concept of using a DCF analysis in the determination of the Commission's water and wastewater ROE leverage formula; is that correct?

A. I'm -- can you repeat that? I don't quite understand the question.

Q. Sure. Do you agree with the concept of using a DCF analysis in the determination of the Commission's water and wastewater ROE leverage formula?

A. Yes, I agree with the concept of using a properly applied DCF method, certainly, and I have specifically proposed that use in my testimony.

Q. Okay. And you also agree with the concept of using a CAPM analysis in the determination of the Commission's water and wastewater ROE leverage formula; is that also correct?

A. I believe it can be appropriate to use a CAPM, but I do not believe it's appropriate to use a CAPM in

the form done by staff, for the reasons that I explained in my testimony.

Q. Okay. Thank you. If you could please turn to page 14 of your direct testimony and let me know when you're there.

A. I'm there.

Q. Okay. The 9.40 return shown on line 20 of your testimony is based on the results of your DCF and CAPM analysis; is that correct?

A. Yes.

Q. Is it your testimony that the average Florida water and wastewater utility under the Commission's jurisdiction should receive the same return on equity as the large publicly traded natural gas companies in the proxy group?

A. No. It's my testimony that the cost of equity should be modified based upon the difference in financial risk, as is what is intended to have happen within the context of an appropriate leverage formula.

Q. Can you identify any natural gas company in Florida with an authorized return on equity of 9.40 percent?

A. I have not reviewed the allowed returns for gas companies. What I have done is review staff's DCF computation, my DCF computation, and my CAPM approach,

all of which have support the recommendation.

Q. Okay. Can you identify any natural gas company in Florida with an authorized return on equity less than 11 percent?

A. I have not looked at the authorized returns. And for many reasons, I would caution backward-looking regulation like that to say, well, what was allowed to a gas company three years ago would somehow be appropriate today. If regulation were done that way, the allowed return would never change. And the environment, of course, the capital environment is always changing, and so I think it's important to recognize that one needs to look at the current financial market in making the determination of what the cost of equity is today.

Q. Do water and wastewater utilities need to attract capital in order to provide regulated utility service?

A. Certainly it's possible that there are some of the small companies that might not, but as a general proposition, a company is entitled to a fair return, and that fair return would be sufficient to permit the company to raise capital should the raising of such capital be necessary and appropriate for its business.

Q. Mr. Rothschild, you're familiar with this U.S. Supreme Court case, Federal Power Commission vs. Hope

Natural Gas Company?

A. Yes.

Q. And you're also familiar with the landmark U.S. Supreme Court case of Bluefield Water Works & Improvement Company vs. Public Service Commission of West Virginia?

A. Yes.

Q. Okay. And in general terms, would you agree that those two decisions hold that the authorized return for a public utility should be commensurate with returns on investments of other companies of comparable risk sufficient to maintain the financial integrity of the company and sufficient to maintain its ability to attract capital under reasonable terms?

A. Yes.

Q. Can you direct us to any exceptions cited in either of these decisions that suggest than returns for water utilities should be significantly less than returns for other regulated companies operating in the same state?

A. There is nothing in those decisions which talks about the need to provide an allowed return that was consistent with some other return to some other company at some prior time. What is important and what is done if a DCF is applied properly and a CAPM is

applied properly is to measure the cost of equity today. If a prior return was too low or too high, either at the time or as it would apply today, there is no requirement to continue doing that. It must be fixed.

Q. Could you please turn to page 26 of your direct testimony and let me know when you're there.

A. I'm sorry. Page --

Q. Twenty-six.

A. Yes.

Q. Would you agree that the return on equity indicated by your recommended leverage formula produces a range of returns of 6.52 percent to 10.53 percent?

A. That's what it shows on those lines, yes.

Q. So if the Commission adopted your leverage formula, a water and wastewater utility with a 60 percent equity ratio would receive an authorized return on equity of 8.46 percent?

A. Yes. And let me explain that part of what's happening here is, when you consider income taxes and the cost of debt change, as Modigliani and Miller have taught, in the real world of taxes, there is such a thing, at least theoretically, as an optimal capital structure.

And if a company uses too much or too little equity, then there is an inefficiency that results. So

what you're seeing if a company is using a very high percentage of common equity is an inability of the company to earn its cost of equity. But it shouldn't in that case, because it would be management using too much equity, not taking the appropriate available use of tax benefits.

Q. Are you aware if there are any regulated utilities in Florida with equity ratios at or above 60 percent with authorized return on equities well in excess of 8.46 percent?

A. Are there any that are well in excess of 8.46?

Q. Uh-huh, with equity ratios at or above 60 percent.

A. I haven't looked at the -- other than looking at the results of the leverage formula, which I know has been applied, I haven't looked specifically company by company. But if you asked me would the most recently approved leverage formula produce a result higher than 60 percent, I believe it would. Higher than 8.46, at 60, it would.

And the Commission here needs to decide if it believes that management has a responsibility to implement an efficient capital structure, and if it doesn't, is that something that ratepayers should pay for anyway. If you use the tax-affected capital

structure, then you will be putting pressure on management to use an optimal capital structure, not too much equity, not too little equity.

If the Commission feels that, no, that it wants to permit management to use extra equity, even if it's more expensive, then you would change the formula that I'm proposing. And I show the other results in the testimony, to look at a capital structure where -- to look at the development of a leverage formula where you don't consider income taxes.

I think, as I understand regulation, it should be a substitute for competition. And in the world of competition, if you have a company that's using an inefficient capital structure and the competition is using an efficient capital structure, the one using the inefficient capital structure will not earn as high a return. They have higher than necessary expenses. So I think it's more in keeping with what regulation should be all about to do it as I've shown.

Q. In your opinion, should the authorized return on equity for Florida water and wastewater utilities under the Commission's jurisdiction systematically be hundreds of basis points less than the authorized return allowed for other utilities under the Commission's jurisdiction?

A. I don't think the Commission -- when you're applying the leverage formula and a decision is made to use a proxy group of companies and the cost of equity is found to be appropriate for those companies, that should be sufficient criteria. If there were some other decisions in Florida or elsewhere that came up with different results from a different time and a different set of facts associated with that company, I don't think you say, well -- I don't think you just automatically take those results and put them in here. If you want to do that, then make that company or the proxy groups used for that company as the support for the leverage formula.

I mean, otherwise, what are you doing? You're putting an analysis forward for a group of companies that were selected by the Commission in 2001 as appropriate, and we're doing an analysis of them, and we're carrying that forward. So I don't understand. What you are going to say? "Well, yeah, but this answer is different than somewhere else, so we're going to take the somewhere else answer?" Then why don't we just do that in the first place? Why do we bother to do any other analysis?

MS. HARTMAN: We have no further questions.

CHAIRMAN CARTER: Thank you. Commissioners,

anything further from the bench?

Mr. Beck.

MR. BECK: Thank you, Mr. Chairman.

REDIRECT EXAMINATION

BY MR. BECK:

Q. Mr. Rothschild, do you recall when Mr. Friedman was asking you to compare the beta of the comparative gas companies to the beta of certain water utilities reviewed by Value Line?

A. Yes, I do.

Q. Which of those two betas do you believe is appropriate for use in determining the leverage graph?

A. Well, the beta that's appropriate is the beta of the gas companies, because that has been defined by the Commission -- and as I said, I agree with that choice -- as being the appropriate risk structure to use. If you're saying we want to switch the risk comparison to some other group, then that would entail rejecting this group of gas companies and using something else.

And I would point out that if you're taking the beta of the water companies, which is 1.0, that's reflective of the market risk of those four companies. Three of those are California, which is part of the reason that the Commission felt that the group wasn't

appropriate, because it was all one state.

And another thing is, when you're talking about beta, beta is a useful tool to determining the risk of a portfolio. It's not a particularly useful tool to determine the risk for one company. And when you have a portfolio of four companies, that's really not quite enough companies to be as accurate -- a particularly accurate statement about even that group.

So I wouldn't get hung up over the beta difference of .8 and 1.0, given that the group with .88 is 10, which is starting to be big enough to have some meaning, versus a group with only four companies in it. So a difference of .12 could just be statistical noise rather than a substantive difference.

MR. BECK: Thank you. That's all I have.

CHAIRMAN CARTER: Thank you. Okay, Mr. Beck.

MR. BECK: Commissioner, I would move Exhibits 4 through 14 for identification into evidence.

CHAIRMAN CARTER: Any objections?

MR. BECK: Subject to my prior objection, I don't have any.

CHAIRMAN CARTER: Without objection, show it done. Commissioners, on your list, that will be Exhibits 4 through 14. Entered.

(Exhibit Numbers 4 through 14 were admitted

into the record.)

CHAIRMAN CARTER: Commissioner Skop, you're recognized.

COMMISSIONER SKOP: Thank you, Mr. Chairman. One more question I forgot to ask previously, but if I could take a moment. If I could just ask Mr. Rothschild to look at JAR-7, page 1. And the source of that data -- and I hate to have to flip back -- is JAR-3, page 2.

So if we're looking at JAR-3, page 2, and it shows the betas that are used and the historical compounded returns, and then it basically develops the beta from the slope of the graph, is there any significance to the choice of beta that was initially selected to develop that empirical slope line? For instance, the lowest beta is .91, and the empirical slope beta that's suggested or derived is .88. Would that have influenced any of the derived beta?

THE WITNESS: I'm not sure I understand the question. The betas that -- these groups were selected -- the only way the data was available to me, my source for this was what was -- Ibbotson Associates Yearbook, and it was Ibbotson Associates that defined these decile groups.

COMMISSIONER SKOP: Yes, the decile groups.

Okay. I just -- again, there's a lot of data to look at on the fly, and I'm trying to digest it.

THE WITNESS: Sure. I understand.

COMMISSIONER SKOP: So I appreciate that clarification. Thank you.

CHAIRMAN CARTER: Thank you, Commissioners. Anything further?

Mr. Beck, I believe wraps it up for this portion for this witness on direct; right?

MR. BECK: Yes.

CHAIRMAN CARTER: And staff, kind of bring us back down to reality. I think now we move -- we've had the direct case for both the company as well as OPC, so now we move to rebuttal; is that correct?

MS. HARTMAN: Yes.

(PROCEEDINGS CONTINUE IN SEQUENCE IN VOLUME 2.)

CERTIFICATE OF REPORTER

STATE OF FLORIDA:

COUNTY OF LEON:

I, MARY ALLEN NEEL, Registered Professional Reporter, do hereby certify that the foregoing proceedings were taken before me at the time and place therein designated; that my shorthand notes were thereafter translated under my supervision; and the foregoing pages numbered 1 through 158 are a true and correct record of the aforesaid proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor relative or employee of such attorney or counsel, or financially interested in the foregoing action.

DATED THIS 28th day of October, 2008.

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