ILLINOIS COMMERCE COMMISSION

IAWC EXHIBIT 12.00 (Revised)

DIRECT TESTIMONY OF

PAULINE M. AHERN

ILLINOIS-AMERICAN WATER COMPANY

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DIRECT TESTIMONY OF PAULINE M. AHERN **EXHIBIT NO. 12.00 (Revised)**

I. INTRODUCTION

Q1. 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.

Q2. 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-three 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.

Q3. What is the purpose of your testimony?

A. The purpose is to provide testimony on behalf of Illinois American Water Company ("IAWC" or "Company") as to the appropriate common equity cost rate the Illinois Commerce Commission ("ICC" or "Commission") should afford it opportunity to earn on the common equity financed portion its jurisdictional rate base.

Q4. What is your recommended common equity cost rate?

A. I recommend that the Commission authorize IAWC the opportunity to earn a common equity cost rate of 11.25%, applicable to a 46.66% average common equity ratio estimated for the test year ending June 30, 2009. A common equity cost rate of 11.25% results in an overall rate of return of 8.29% based upon average capital structure ratios estimated at June 30, 2009 is conservatively reasonable. The capital structure is comprised of 53.12% long-term debt at a cost rate of 5.71%, 0.22% short-term debt at a cost rate of 4.81% and 46.66% common equity as supported by Company Witness James M. Jenkins at my recommended common equity cost rate of 11.25%.

IAWC's requested overall cost of capital is summarized in Table 1 below:

Table 1

	Capital Structure Ratios	Cost Rate	Weighted Return
Long-Term Debt	53.12%	5.71%	3.03%
Short-Term Debt	0.22	4.81	0.01%
Total Debt	53.34		3.04
Preferred Stock	0.00	0.00	0.00
Common Equity	46.66	11.25	5.25
Total	100.00%		8.29%

Q5. Have you prepared exhibits which support your overall recommended fair rate of return?

A. Yes, I have. They have been marked for identification as Schedules 12.01 through 12.09.

II. SUMMARY

Q6. Please summarize your recommended common equity cost rate.

A. The basis of my recommended common equity cost rate of 11.25% is summarized on Schedule 12.01, page 2. Because IAWC's common stock is not publicly traded, a market-based common equity cost rate cannot be determined directly for IAWC. Therefore, in arriving at my recommended common equity cost rate of 11.25%, I assessed the market-based cost rates of companies of relatively similar risk, *i.e.*, proxy group(s), for insight into a recommended common equity cost rate applicable to IAWC and suitable for cost of capital purposes. It is appropriate to look to a proxy group or groups of companies as similar in risk as possible whose common stocks are actively traded for insight into an appropriate common equity cost rate applicable to IAWC and then adjust the results upward to reflect IAWC's greater business risk (relative to the proxy group(s)). Using other utilities of relatively comparable risk as proxies is consistent with the principles of fair rate of return established in the Hope[1] and Bluefield[2] cases and adds reliability to the informed expert judgment used in arriving at a recommended common equity cost rate. However, no proxy group can be selected to be identical in risk to IAWC and therefore, the proxy groups' results must be adjusted to reflect the greater relative business risk of IAWC as will be subsequently discussed in detail. Therefore, I have evaluated the market data of a proxy group of water companies and a group of utility companies in

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[1] Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944).

[2] Bluefield Water Works Improvement Co. v. Public Serv. Comm'n, 262 U.S. 679 (1922).

arriving at my recommended common equity cost rate. The bases of my selections are described below.

In my expert opinion, in order for a cost of common equity analysis to most accurately reflect current capital market conditions, it should be based upon four well-tested market-based cost of common equity models, the Discounted Cash Flow ("DCF") Model, the Risk Premium Model ("RPM"), the Capital Asset Pricing Model ("CAPM"), and the Comparable earnings Model ("CEM"). In past cases before the Commission as well as in my testimony before other regulatory commissions, I have traditionally employed an analysis that considers all of these established models to arrive at my recommended common equity cost rate. This approach is consistent with the Efficient Market Hypothesis ("EMH"), the foundation of modern investment theory, including the DCF and CAPM models, which provides that an efficient market is one in which security prices reflect all relevant information all the time.

However, the Commission's Staff has generally relied upon only two of these established cost of common equity models, namely the DCF and CAPM models, in cases in which I have been involved before the Commission, namely Docket Nos. 03-0403, 04-0442, 05-0071/05-0072 (consolidated) and 06-0285. Staff witnesses in those Dockets recommended against reliance upon the RPM and CEM models for various reasons, and the Commission agreed. Therefore, in deference to the Commission's decisions in the named Dockets, my analysis in this proceeding employs only the DCF and CAPM

models as applied by the ICC Staff in Docket Nos. 03-0403, 04-0442, 05-0071/05-0072 (consolidated) and 06-0285.

The results derived from each are as follows:

Table 2
Including All Results

	Proxy Group of Eight Water Cos.		Proxy Group of Thirteen Utils. Selected Upon the Basis of Least Relative Distance
Discounted Cash Flow Model	11.38%		10.72%
Capital Asset Pricing Model	11.16		12.22
Indicated Common Equity Cost Rate Before Business Risk Adjustment	11.27%		11.47%
Business Risk Adjustment		0.10	
Common Equity cost Rate After Adjustment for Business Risk	11.37%		11.57%
Indicated Common Equity Cost Rate		11.45%	

Including Results Greater than 8.6% and Less than 12.1%[3]

	Proxy Group of Eight Water Cos.		Proxy Group of Thirteen Utils. Selected Upon the Basis of Least Relative Distance
Discounted Cash Flow Model	11.51%		9.95%
Capital Asset Pricing Model	10.97		11.29
Indicated Common Equity Cost Rate Before Business Risk Adjustment	11.24%		10.62%
Business Risk Adjustment		0.10	

[3] See Note 7 on page 2 of Schedule 12.07 and Note 5 on page 4 of Schedule 12.09.

Common Equity cost Rate After Adjustment for Business Risk	11.34%		10.72%
Indicated Common Equity Cost Rate		11.13%	
Recommended Common Equity Cost Rate		11.25%	

After reviewing the cost rates based upon the DCF and CAPM models, I conclude that common equity cost rates, before business risk adjustment ranging from 11.24% to 11.27% for the eight water companies and 10.62% to 11.47% for the thirteen water companies. After applying a business risk adjustment of 10 basis points due to IAWC's small size relative to the two proxy groups as will be discussed in detail subsequently, coupled with its need to replace aging infrastructure, the indicated ranges of common equity cost rate are 11.34% to 11.37% for the eight water companies and 10.72% to 11.57% for the thirteen utilities. The indicated common equity cost rates are 11.45%[4] including all results and 11.13%[4] including those results greater than 8.6% and less than 12.1%. I recommend a common equity cost rate of 11.25% based upon the midpoint of these cost rates, 11.29%, rounded to the nearest 25 basis points, 11.25%, applicable to the Company's proposed common equity ratio of 46.66%.

[4] 11.45% is based upon giving 2/3 weight to the 11.37% common equity cost rate for the eight utilities and 1/3 weight to the 11.57% common equity cost rate for the thirteen utilities. Likewise, 11.13% is based upon giving 2/3 weight to the 11.34% common equity cost rate for the eight water companies and 1/3 weight to the 10.72% common equity cost rate for the thirteen utilities.

III. GENERAL PRINCIPLES

Q7. What general principles have you considered in arriving at your recommended common equity cost rate of 11.25%?

A. In unregulated industries, the competition of the marketplace is the principal determinant of the price of a product or service. In the case of regulated public utilities, regulation must act as a substitute for such marketplace competition. Consequently, marketplace data must be relied upon to assure that the utility can fulfill its obligations to the public and provide adequate service at all times. This requires a level of earnings sufficient to maintain the integrity of presently invested capital and permit the attraction of needed new capital at a reasonable cost in competition with other comparable-risk firms, consistent with the fair rate of return standards established by the U.S. Supreme Court in the Hope and Bluefield cases cited previously. Consequently, in my determination of common equity cost rate, I have evaluated data gathered from the marketplace for utilities as similar in risk as possible to IAWC.

IV. BUSINESS RISK

Q8. Please define business risk and explain why it is important to the determination of a fair rate of return.

A. Business risk incorporates all of the risks of a firm other than financial risk, which will be discussed subsequently. Examples of business risk include the quality of management, the regulatory environment, customer mix, service territory growth and the like, which have a direct bearing on earnings.

Business risk is important to the determination of a fair rate of return because the greater the level of risk, the greater the rate of return investors demand, consistent with the basic financial precept of risk and return.

Q9. Please discuss the business risks facing the water industry in general.

A. The water utility industry faces significant risks related to replacing aging transmission and distribution systems. Value Line Investment Survey[5] observes:

> …[m]aintenance costs are expected to remain extremely high, as infrastructure demands grow more stringent. Many of the current infrastructures are more than 100 years old and in need of serious upkeep, or even complete replacement in some cases. Making matters worse, the Environmental Protection Agency (EPA) continues to increase its water purification standards, given the geopolitical volatility worldwide and the threat of bio-terrorist actions on U.S. water systems. In all, infrastructure repair costs are expected to climb into the hundreds of millions of dollars over the next two decades.
>
> This puts smaller companies in the industry at a distinct disadvantage. Many do not have the resources to meet the higher burdens and are deciding to merge with larger, more financially sound enterprises. As a result, some of the biggest water utility companies are growing bigger, faster than ever.
>
> * * * *
>
> We recommend that most investors look elsewhere. Despite the necessity for water, the capital intensive nature of the industry washes away any growth appeal.

In addition, because the water industry is much more capital-intensive than the electric, combination electric and gas, natural gas or telephone industries, the investment required to produce a dollar of revenue is greater. For example, for the water industry, it took $3.48 of net utility plant on average to produce $1.00 in operating revenues in 2006. In contrast, for the electric, combination

[5] Value Line Investment Survey, April 27, 2007.

electric and gas, natural gas or telephone industries, on average, it took $1.63, $1.36, $0.83 and $1.15, respectively, to produce $1.00 in operating revenues in 2006. Specifically for IAWC it took $3.74 of net utility plant to produce $1.00 in operating revenues in 2006. And, because investor-owned water utilities typically do not receive federal funds for infrastructure replacement, the challenge to investor-owned water utilities is exacerbated and their access to financing is restricted, thus increasing risk.

The National Association of Regulatory Commissioners ("NARUC") very recently recognized the risks the water industry faces that stem from its capital intensity when NARUC adopted the following resolution, set forth in relevant part, on July 27, 2005.[6]

> WHEREAS, To meet the challenges of the water and wastewater industry which may face a combined capital investment requirement nearing one trillion dollars over a 20-year period, the following policies and mechanisms were identified to help ensure sustainable practices in promoting needed capital investment and cost-effective rates: a) the use of prospectively relevant test years; b) the distribution system improvement charge; c) construction work in progress; d) pass-through adjustments; e) staff-assisted rate cases; f) consolidation to achieve economies of scale; g) acquisition adjustment policies to promote consolidation and elimination of non-viable systems; h) a streamlined rate case process; i) mediation and settlement procedures; j) defined timeframes for rate cases; k) integrated water resource management; l) a fair return on capital investment; *and* m) improved communications with ratepayers and stakeholders; *and*
>
> WHEREAS, Due to the massive capital investment required to meet current and future water quality and infrastructure requirements, adequately adjusting allowed equity returns to

[6] "Resolution Supporting Consideration of Regulatory Policies Deemed as 'Best Practices,'" Sponsored by the Committee on Water. Adopted by the NARUC Board of Directors, July 27, 2005.

> recognize industry risk in order to provide a fair return on invested capital was recognized as crucial…
>
> RESOLVED, That the National Association of Regulatory Utility Commissions (NARUC), convened in its July 2005 Summer Meetings in Austin, Texas, conceptually supports review and consideration of the innovative regulatory policies and practices identified herein as "best practices;" *and be it further*
>
> RESOLVED, That NARUC recommends that economic regulators consider and adopt as many as appropriate of the regulatory mechanisms identified herein as best practices…

IAWC itself is facing an expected "massive capital investment" as it projects company funded capital expenditures of $412.728 million for the years 2007 through 2012, representing an increase of 65% over the December 31, 2006 net plant of $637.654 million.

The water utility industry also experiences lower relative depreciation rates. Lower depreciation rates, as one of the principal sources of internal cash flows for all utilities, mean that water utility depreciation as a source of internally-generated cash is far less than for electric, natural gas or telephone companies. Water utilities' assets have longer lives and, hence, longer capital recovery periods. As such, water utilities face greater risk due to inflation which results in a higher replacement cost per dollar of net plant than for other types of utilities.

In addition, as noted by S&P[7]:

> Environmental regulations, which can be particularly stringent for water utilities, impact credit quality. Mandatory compliance with environmental legislation is often quite capital intensive. This is particularly so in the areas of wastewater discharge and drinking water quality. In most jurisdictions observed by Standard & Poor's,

[7] Standard & Poor's, Criteria: Infrastructure Finance, Water and Wastewater Utilities, Projects and Concessions, September 1998, p. 47.

pressures from environmental standards is likely to increase. High compliance costs can impact a water utility's creditworthiness if their financing is up-front and their recovery is over a long period, potentially putting stress on the financial profile in the short term.

A key rating consideration is the extent of the link between a water utility's legislated environmental standards and its rate-setting mechanism. Stringent environmental rules requiring expensive upgrade and compliance costs are not necessarily a negative rating factor, so long as the utility has a flexible and transparent process for passing the costs through to consumers, and these consumers are willing and able to bear these costs. Standard & Poor's considers whether the environmental and economic regulators are acting in isolation, or perhaps have different constituencies.

Moody's[8] also notes that:

We expect that the credit quality of the investor-owned U.S. water utilities will likely deteriorate over the next several years, due to ongoing large capital spending requirements in the industry. Larger capital expenditures facing the water utility industry result from the following factors:

- Continued federal and state environmental compliance requirements;
- Higher capital investments for constructing modern water treatment and filtration facilities;
- Ongoing improvement of maturing distribution and delivery infrastructure; and
- Heightened security measures for emergency preparedness designed to prevent potential terrorist acts.

Given the overwhelming importance of protecting the public health, the water utility industry remains regulated by the federal and state regulatory agencies. As a result of this importance, the level of state regulators' responsiveness is critical in enabling the water utilities to maintain their financial integrity. In addition, when utilities are permitted a fair rate of return and timely rate adjustments to reflect the costs of providing this essential service, they will be more able to implement the necessary safeguards to protect the public health.

[8] Moody's Investors Service, Global Credit Research, "Credit Risks and Increasing for U.S. Investor Owned Water Utilities", Special Comment, January 2004, p. 5.

In addition, the water utility industry, as well as the electric and natural gas utility industries, faces the need for increased funds to finance the increasing security costs required to protect the water supply and infrastructure from potential terrorist attacks in the post-September 11, 2001 world, as noted by Value Line above.

In view of the foregoing, it is clear that the water industry's high degree of capital intensity coupled with the need for substantial infrastructure capital spending and increased anti-terrorism security spending, require regulatory support in the form of adequate and timely rate relief, as recognized by NARUC, so water utilities will be able to successfully meet the challenges they face.

Q10. Does IAWC face additional extraordinary business risk?

A. Yes. IAWC's smaller size, *i.e.*, total capital of $563.874 million at December 31, 2006 (see page 3 of Schedule 12.01) relative to average total capital of $555.480 million in 2006 for the proxy group of eight water companies (see page 3 of Schedule 12.01), and $11.638 billion for the proxy group of thirteen utilities indicates similar business risk relative to the eight water companies and greater business risk relative to the thirteen utilities for IAWC, because all else equal, size has a bearing on risk.

Q11. Please explain why size has a bearing on business risk.

A. Smaller companies are less capable of coping with significant events which affect sales, revenues and earnings.

The loss of revenues from a few larger customers, for example, would have a greater effect on a small company than on a much larger company with a larger customer base. Because IAWC is the regulated utility to whose rate base the ICC's ultimately allowed overall cost of capital and fair rate of return will be applied, the relevant risk reflected in the cost of capital must be that of IAWC, including the impact of its small size on common equity cost rate. Size is an important factor which affects common equity cost rate, and IAWC is slightly smaller than the average company in the water group and significantly smaller than the average company in the utility group based upon total investor-provided capital as shown below:

Table 3

	2006 Total Capital ($millions)	Times Greater Than The Division	Market Capitalization (1) ($ Millions)	Times Greater Than The Division
Proxy Group of Eight Water Companies	$555.480	1.0x	$729.211	1.3x
Proxy Group of Thirteen Utilities	11,637.958	20.6x	10,122.044	21.2x
IAWC	563.874		579.569(2) 478.157(3)	

(1) From Schedule 12.01, page 3.
(2) Based upon the average market-to-book ratio of the proxy group of eight water companies.
(3) Based upon the average market-to-book ratio of the proxy group of thirteen utilities.

I have also done a study of the market capitalization of the proxy groups of eight water companies and thirteen utilities. The results are shown on page

5 of Schedule 12.01, which summarizes the market capitalizations as of July 13, 2007.

IAWC's common stock is not publicly traded. Consequently, I have assumed that if it were publicly traded, its consolidated common shares would be selling at the same market-to-book ratio as the average market-to-book ratio for each proxy group, or 232.6% (eight water companies) and 191.9% (thirteen utilities) at July 13, 2007. Hence, IAWC's market capitalization is estimated at $579.569 million and $478.157 million based upon the average market-to-book ratios of each proxy group, respectively, as of July 13, 2007. In contrast, the market capitalization of the average water company was $729.211 million on July 13, 2007, or 1.3 times larger than IAWC's estimated market capitalization. In addition, the market capitalization of the average utility was $10.122 billion at July 13, 2007, or 21.2 times larger than IAWC. It is conventional wisdom, supported by actual returns over time, and a general premise contained in basic finance textbooks, that smaller companies are more risky which causes investors to expect greater returns as compensation for the greater risk.

Q12. Does the financial literature affirm a relationship between size and common equity cost rate?

A. Yes. Brigham[9] states:

> A number of researchers have observed that portfolios of small-firms have earned consistently higher average returns than those of large-firms stocks; this is called "small-firm effect." On the

[9] Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition, The Dryden Press, 1989, p. 623.

> surface, it would seem to be advantageous to the small firms to provide average returns in a stock market that are higher than those of larger firms. In reality, it is bad news for the small firm; what *the small-firm effect means is that the capital market demands higher returns on stocks of small firms than on otherwise similar stocks of the large firms.* (italics added)

V. <u>FINANCIAL RISK</u>

Q13. Please define financial risk and explain why it is important to the determination of a fair rate of return.

A. Financial risk is the additional risk created by the introduction of senior capital, *i.e.*, debt and preferred stock, into the capital structure. In other words, the higher the proportion of senior capital in the capital structure, the higher the financial risk.

Utilities formerly were considered to have much less business risk relative to unregulated enterprises, and, as a result, a larger percentage of debt capital was acceptable to investors. In June 2004, S&P revised its utility financial guidelines and assigned new business profile scores to U.S. utility and power companies to better reflect the relative business risk among companies in the sector. S&P's revised financial guidelines for utilities can be found in Schedule 12.02, page 14, while pages 1 through 9 describe the utility bond rating process. As shown on page 14, S&P's revised financial guidelines for utilities establishes financial guideline ratios for ten levels of business position/profile with "1" being considered lowest risk and "10" being highest risk.

As shown on Schedule 12.03, page 1, the average S&P bond rating (issuer credit rating) and business profile of the eight water companies is A+ (A)

and “2.3”, which rounds to “2” and BBB+ (BBB+) and “4.1” (rounded to “4”), for the thirteen utilities.

Q14. How can one measure the combined business and financial risks, *i.e.*, investment risk of an enterprise?

A. Similar bond ratings/issue credit ratings reflect similar combined business and financial risks, *i.e.*, total risk. Although the specific business or financial risks may differ between companies, the same bond rating indicates that the combined risks are similar as the bond rating process reflects acknowledgment of all diversifiable business and financial risks in order to assess credit quality or credit risk. For example, S&P expressly states that the bond rating process encompasses a qualitative analysis of business and financial risks (see pages 3 through 9 of Schedule 12.02). While not a means by which one can quantifiably differentiate common equity risk between companies, the bond (credit) rating provides a useful means to compare common equity risk between companies because it is the result of a thorough and comprehensive analysis of all diversifiable business and financial risks, *i.e.*, investment risk.

VI. ILLINOIS-AMERICAN WATER COMPANY

Q15. Have you reviewed financial data for IAWC?

A. Yes. IAWC provides water and/or wastewater services to approximately 1.0 million people in 125 communities throughout Illinois. IAWC is a wholly-owned subsidiary of American Water, which, in turn, is a subsidiary of RWE AG. Thus, the Company’s common stock is not publicly traded.

As shown on page 1 of Schedule 12.04, during the five-year period ending 2006, the achieved average earnings rate on book common equity for

IAWC was 4.89% ranging between 1.84% in 2003 and 7.33% in 2004. The five-year ending 2006 average common equity ratio based upon total capital was 44.35%, while the five-year average dividend payout ratio was 80.01%.

Coverage of interest charges, excluding all AFUDC, from funds from operations for the years 2002-2006 ranged between 3.21 and 5.58 times and averaged 4.12 times during the period, while funds from operations relative to total debt ranged from 7.41% to 19.89% and averaged 14.36% for the period.

VII. PROXY GROUPS

Q16. Please explain how you chose the proxy group of eight water companies.

A. The basis of selection for the proxy group of eight water companies were those companies that meet the following criteria: 1) they are assigned an S.I.C. Code of 4941 (water supply systems); 2) they have actively traded common stock; 3) they have Zacks' forecasted long-term earnings per share EPS) growth rates; 4) they derived more than 70% of their 2006 operating revenues from water operations; and 5) they are included in S&P's Compustat Services, Inc. PCPlus Research Insight Database. Eight companies met all of these criteria.

Q17. Please describe Schedule 12.05.

A. Schedule 12.05 contains comparative capitalization and financial statistics for the eight water companies for the years 2002 through 2006. The schedule consists of three pages. Page 1 contains a summary of the comparative data for the years 2002-2006. Page 2 contains notes relevant to page 1, as well as the basis of selection and names of the individual companies in the proxy group. Page 3 contains the capital structure ratios based upon total capital (including short-term debt) by company and on average for the years 2002-2006.

During the five-year period ending 2006, the historically achieved average earnings rate on book common equity for this group ranged between 9.59% in 2003, and 10.56% in 2002, and averaged 10.08%. The five-year ending 2006 average common equity ratio based upon total investor-provided capital was 47.19%, while the five-year average dividend payout ratio was 73.19%.

Coverage of interest charges, excluding all AFUDC from funds from operations. for the years 2002-2006 ranged between 3.61 and 4.22 times and averaged 3.94 times during the five-year period, while funds from operations relative to total debt ranged from 16.43% to 19.60% and averaged 18.01% for the five-year period.

Q18. Please explain how you chose the proxy group of thirteen utilities selected on the basis of least relative distance.

A. Investment risk is the sum of business and financial risks. I chose to examine eight operating / financial ratios that I believe provide comprehensive insight into the business and financial risks of utilities, including water companies. I based my analyses upon the average results for the years 2004, 2005, and 2006. As the benchmark for IAWC, I utilized the three-year average for each of eight ratios which are described as follows: 1) pretax interest coverage; 2) common equity ratio based on total capital; 3) fixed asset turnover; 4) the percentage of allowance for funds used during construction (AFUDC) to net income; 5) cash flow as a percentage of total capitalization; 6) the ratio of net cash flow to

expenditures; 7) interest coverage based on funds flow; and 8) operating earnings stability.

I employed IAWC ratios as described above in order to select companies similar in risk to IAWC. I began with all electric, gas, combination electric and gas and water utilities for which data are available for the entire time period in the S&P's Compustat Services, Inc., PC Plus/Research Insight Database. I calculated the three-year average ratios for 97 electric, gas, combination electric and gas and water utilities and rank-ordered them in terms of the least relative distance to IAWC. The sum of distance was obtained by calculating the squared distances between the eight operating / financial ratios of each firm and those of the Company, summing those squared distances, and then by calculating the square root of the summation. Thirteen utilities were selected as: 1) having the lowest sum of distance from IAWC; and 2) having Zacks' long-term EPS growth rate projections which pay common dividends and which have investment grade bonds as rated by Moody's and S&P. Their financial profile is summarized in Schedule 12.06.

Q19. Please describe Schedule 12.06.

A. Schedule 12.06 contains comparative capitalization and financial statistics for the thirteen utilities selected upon the basis of least relative distance for the years 2002 through 2006. The schedule consists of six pages. Page 1 contains a summary of the comparative data for the years 2002-2006. Page 2 contains notes relevant to page 1, as well as the basis of selection and names of the individual companies in the proxy group. Pages 3 and 4 contain the capital

structure ratios based upon total capital (including short-term debt) by company and on average for the years 2002-2006. Page 5 contains the basis for the selection of the thirteen utilities while page 6 contains notes relative to page 5.

During the five-year period ending 2006, the historically achieved average earnings rate on book common equity for this group ranged between 5.86% in 2002, and 11.08% in 2003, and averaged 9.76%. The five-year ending 2006 average common equity ratio based upon total investor-provided capital was 41.41%, while the five-year average dividend payout ratio was 125.30%.

Coverage of interest charges, excluding all AFUDC from funds from operations for the years 2002-2006 ranged between 3.92 and 4.59 times and averaged 4.24 times during the five-year period, while funds from operations relative to total debt ranged from 16.33% to 22.83% and averaged 19.46% during the five-year period.

VIII. COMMON EQUITY COST RATE MODELS

A. The Efficient Market Hypothesis

Q20. Please describe the conceptual basis of the EMH.

A. The EMH, which is the foundation of modern investment theory, was pioneered by Eugene F. Fama[10] in 1970. An efficient market is one in which security prices reflect all relevant information all the time. This implies that prices adjust

[10] Fama, Eugene F., "Efficient Capital Markets: A Review of Theory and Empirical Work". Journal of Finance, May 1970, pp. 383-417.

instantaneously to new information, thus reflecting the intrinsic fundamental economic value of a security.[11]

The essential components of the EMH are:

A. Investors are rational and invest in assets providing the highest expected return given a particular level of risk.

B. Current market prices reflect all publicly available information.

C. Returns are independent i.e., today's market returns are unrelated to yesterday's returns.

D. Capital markets follow a random walk i.e., the probability distribution of expected returns approximates a normal distribution.

Brealey and Myers state:[12]

> When economists say that the security market is 'efficient', they are not talking about whether the filing is up to date or whether desktops are tidy. They mean that information is widely and cheaply available to investors and that all relevant and ascertainable information is already reflected in security prices.

The three forms of the EMH are:

A. The "weak" form which asserts that all past market prices and data are fully reflected in securities prices i.e., technical analysis cannot enable an investor to "outperform the market".

B. The "semistrong" form which asserts that all publicly available information is fully reflected in securities prices i.e., fundamental analysis cannot enable an investor to "outperform the market".

C. The "strong" form which asserts that all information, both public and private, is fully reflected in securities prices i.e., even insider information cannot enable an investor to "outperform the market".

The "semistrong" form of the EMH is generally held to be true because the use of insider information often enables investors to "outperform the

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[11] Morin, Roger A., New Regulatory Finance, Public Utility Reports, Inc., Arlington, VA, 2006, p. 279-281.

[12] Brealey, R.A. and Myers, S.C., Principles of Corporate Finance, McGraw-Hill Publications, Inc., 1996, pp. 323-324.

market" and earn excessive returns. The generally-accepted "semistrong" form of the EMH means that all perceived risks are taken into account by investors in the prices they pay for securities. Investors are aware of all publicly-available information, including bond ratings, discussions about companies by bond rating agencies and investment analysts as well as the various cost of common equity methodologies (models) discussed in the financial literature. In an attempt to emulate investor behavior, it is my opinion that no single common equity cost rate model should be relied upon in determining a cost rate of common equity and that the results of multiple cost of common equity models should be taken into account. However, as discussed above, in deference to the Commission's decisions in Docket Nos. 03-0403, 04-0442 and 05-0071/05-0072 (consolidated), and 06-0285, in the current docket I utilize only the DCF and CAPM models in arriving at my recommended common equity cost rate.

B. <u>Discounted Cash Flow Model</u>

Q21. What is the theoretical basis of the DCF model?

A. The theory of the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting the cash flows at the cost of capital, or the capitalization rate. DCF theory suggests that an investor buys a stock for an expected total return rate which is expected to be derived from cash flows received in the form of dividends plus appreciation in market price (the expected growth rate). Thus, the dividend yield on market price plus a growth rate equals the capitalization rate, *i.e.*, the total return rate expected by investors.

Q22. Please describe the quarterly version of the DCF model which you use to calculate the indicated common equity cost rate.

A. The traditional, or annual, single-stage, DCF model is based upon the assumption that dividends are paid annually. Virtually every utility pays dividends on a quarterly basis. The quarterly DCF model takes into account the reality of quarterly payments of dividends to investors. Therefore, I have utilized two versions of the quarterly DCF model. The first follows the version of the quarterly DCF model which ICC Staff utilizes to derive the market return of the S&P 500 for use in its application of the CAPM. To distinguish it from the second version, I will call it the quarterly compounded growth DCF. This version of the quarterly DCF measures the annual required rate of return on common equity as follows:

$$k_{quarterly} = \frac{(D_{annual} / 4) * \{1 + [(1 + g^{1/4}) - 1]\}}{P} + g$$

$$k_{annual} = (1 + k_{quarterly}^{4} - 1$$

Where: $k \equiv$ the cost of common equity;

$P \equiv$ the current stock price;

$D_{annual} \equiv$ the current indicated annual dividend per share;

$g \equiv$ the expected dividend growth rate.

The second version follows the quarterly DCF model which ICC Staff utilizes to derive its DCF cost rate for proxy groups of comparable companies. It measures the annual required rate of return on common equity as follows:

$$k = \frac{\sum_{q-1} D_{1,q} (1 + k^{4})^{1 - [x + 0.25 (q - 1)]}}{P} + g$$

Where:

k	≡	the cost of common equity;
P	≡	the current stock price;
$D_{1,q}$	≡	the next dividend paid at the end of quarter q, where q = 1 to 4;
x	≡	the elapsed time between the stock observation and first dividend payment dates, in years; and
g	≡	the expected dividend growth rate.

The expression $(1 + k)^{1-[x+0.25(q-1)]}$ is a future value factor that measures the value of each expected dividend $(D_{1,q})$ one year from the stock price measurement date. The DCF model above assumes that the dividend growth rate is constant and that the stock price equals the sum of the discounted value of each quarterly dividend.

Q23. Please describe the market price you used in your applications of the quarterly DCF model.

A. The market price is a recent spot date, *i.e.*, July 13, 2007 as reported by Zacks, at www.zacks.com/research.

b. Selection of Growth Rates for Use in the Quarterly DCF Model

Q24. Please explain the basis of the growth rates of the proxy group of eight water companies and the proxy group of thirteen utilities which you use in your applications of the quarterly DCF model.

A. Consistent with the Commission's reliance upon ICC Staff's application of the DCF model, I have utilized Zacks' estimated long-term growth in EPS as shown in Column 4 on page 2 and column 12 on page 3 of Schedule 12.07.

Q25. Please summarize the DCF model results.

A. As shown on Line No. 1, page 1 of Schedule 12.07, the results of the applications of the quarterly compounded growth DCF model are 11.30% for the proxy group of eight water companies and 10.68% for the proxy group of thirteen utilities. As shown on Line No. 2, the results of the application of the quarterly DCF model are 11.46% and 10.75% for the two proxy groups, respectively. Based upon these two applications of the quarterly DCF model, my conclusion of DCF common equity cost rates including all indicated common equity cost rates are 11.38% and 10.72% for the eight water companies and the thirteen utilities, respectively as shown on Line No. 3.

On the bottom half of page 1 of Schedule 12.07, I have shown the results of my applications of the two quarterly DCF models including only those results which are greater than 8.6%, *i.e.*, 200 basis points above the prospective yield on A rated public utility bonds and less than 12.10%, *i.e.*, 550 basis points above the prospective yield on rated public utility bonds. The average prospective yield on Moody's A rated public utility bonds of 6.60% is based upon Blue Chip Financial Forecasts' July 1, 2007 consensus forecast of about 50 economists of the expected yield on Aaa rated corporate bonds of 6.07% and derived on page 1 of Schedule 12.08. It is necessary to adjust the average Aaa rated corporate bond yield to be equivalent to a Moody's A2 rated public utility bond. Thus, an adjustment to the average prospective yield on Aaa rated corporate bonds of 0.53% was required, as detailed in Note 2 on

page 1, resulting in a prospective yield on Moody's A rated public utility bonds of 6.60%.

In addition, based upon a review of recent authorized returns on common equity (ROE) throughout the United States relative to concurrent estimates of the forecasted average yield on A rated public utility bonds, I determined that the equity risk premium implicit in authorized ROEs for the twelve months ended June 2007 between 303 and 507 basis points, averaging 398 basis points. In accordance with the EMH, investors are aware of these implicit equity risk premia and, in my opinion, would not consider returns providing an equity risk premium of only 200 basis points or less, or 550 basis points or more, either reasonable or credible. Therefore, it is reasonable, if not conservative, to eliminate DCF results which are 8.60% or less or are 12.10% or greater.

As shown on page 1 of Schedule 12.07, Line No. 4, the results of the application of the quarterly compounded growth DCF model are 11.52% and 9.91% for the two proxy groups, respectively, including only those indicated DCF cost rates greater than 8.6% and less than 12.1%. In addition, as shown on Line No. 5, the results of the application of the quarterly version of the DCF model are 11.50% and 9.99% for the two groups, respectively, including only those indicated DCF cost rates greater than 8.6% and less than 12.1%. Line No. 6 shows my conclusion of DCF common equity cost rates of 11.51% for the eight water companies and 9.95% for the thirteen utilities, again, including only those indicated DCF cost rates greater than 8.6% and less than 12.1%.

C. The Capital Asset Pricing Model

Q26. Please explain the theoretical basis of the CAPM.

A. CAPM theory defines risk as the covariability of a security's returns with the market's returns. This covariability is measured by beta ("β"), an index measure of an individual security's variability relative to the market. A beta less than 1.0 indicates lower variability while a beta greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all other risk, i.e., all non-market or unsystematic risk, can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. The CAPM presumes that investors require compensation for risks that cannot be eliminated through diversification. Systematic risks are caused by macroeconomic and other events that affect the returns on all assets. Essentially, the model is applied by adding a risk-free rate of return to a market risk premium. This market risk premium is adjusted proportionately to reflect the systematic risk of the individual security relative to the market as measured by beta. The traditional CAPM model is expressed as:

$$R_s = R_f + \beta(R_m - R_f)$$

Where: R_s = Return rate on the common stock

R_f = Risk-free rate of return

R_m = Return rate on the market as a whole

β = Adjusted beta (volatility of the security relative to the market as a whole)

Q27. Please describe your selection of a risk-free rate of return.

A. My application of the traditional CAPM is summarized on Schedule 12.09, page 1. As shown on Line No. 1, the risk-free rate for applications is 5.33%. It is based upon the average consensus forecast of the reporting economists in the July 1, 2007 Blue Chip Financial Forecasts as shown in Note 4, pages 3 and 4, of the expected yields on long-term U.S. Treasury bonds for the six quarters ending with the second calendar quarter 2007.

Q28. Why is the prospective yield on long-term U.S. Treasury Bonds appropriate for use as the risk-free rate?

A. The yield on long-term T-Bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on A rated public utility bonds, and is consistent with the long-term investment horizon inherent in utilities' common stocks. Therefore, it is consistent with the long-term investment horizon presumed in the standard DCF model employed in regulatory ratemaking. Moreover, Morin[13] states:

> As a proxy for the risk-free rate, long-term rates are the relevant benchmarks when determining the cost of common equity rather than short-term or intermediate-term interest rates.4(footnote omitted) There are several reasons for this, both conceptual and practical.
>
> At the conceptual level, because common stock is a long-term investment and because the cash flows to investors in the form of dividends last indefinitely, the yield on very long-term government bonds, namely, the yield on 30-year Treasury bonds, is the best measure of the risk-free rate for use in the CAPM5(footnote omitted) . . . . The expected common stock return is based on long-term cash flows, regardless of an individual's holding time period.

[13] Id., at p. 151.

> On the grounds of stability and consistency, the yields on long-term Treasury bonds match more closely with expected commons tock returns. Finally, yields on 90-day Treasury Bills typically do not match the investor's planning horizons. Equity investors generally have an investment horizon far in excess of 90 days.
>
> At the practical level, short-term rates are volatile, fluctuate widely, and are subject to more random disturbances than are long-term rates, leading to volatile and unreliable equity return estimates. Short-term rates are also largely administered rates. For example, Treasury Bills are used by the Federal Reserve as a policy vehicle to stimulate the economy and to control the money supply, and are used by foreign governments, companies, and individuals as a temporary safe harbor for money.

In addition, as noted in their Valuation Edition 2007 Yearbook[14]

> The horizon of the chosen Treasury security should match the horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury Note would not be appropriate since the Company will continue to exist beyond those five years.
>
> The prospective yield is utilized for the same reasoning that an investor would rely upon estimated long-term growth rates in EPS in the DCF – namely, the cost of capital is prospective, as is the ratemaking process, i.e., rates are set to be collected over a future time period.

In conclusion, the average expected yield on long-term Treasury Bonds is the appropriate proxy for the risk-free rate in the CAPM because it is less volatile than yields on Treasury Bills, is almost risk-free as noted by Morin above and is consistent with the long-term investment horizon implicit in common stocks.

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[14] Id., p. 59.

Q29. Please explain the estimation of the expected equity risk premium for the market.

A. First, I estimate investors' expected total return rate for the market by conducting a quarterly compounded growth DCF analysis of the companies in the S&P 500 as of July 13, 2007, consistent with ICC Staff's methodology of calculating investors' expected total return rate for the market. I utilized dividend, stock price, market capitalization and estimated long-term EPS growth rate data from www.zacks.com/research. Companies not paying a dividend or for whom Zacks does not report a long-term EPS growth rate were excluded from the analysis. The individual DCF indicated common equity cost rates were then weighted using the individual companies' market capitalizations as reported by Zacks for July 13, 2007. The estimated weighed average market return of the remaining 269 companies, representing 86.44% of the market capitalization of the S&P 500 is 13.46%.

Next, I subtract the expected risk-free rate of return of 5.33% which is the average forecasted yield on 30-year U.S. Treasury notes for the six quarters ending with the fourth quarter of 2008 as reported in the July 1, 2007 Blue Chips Financial Forecasts shown in Note 4 on pages 3 and 4 of Schedule 12.09. The result is an expected equity risk premium of 8.13% for the market as derived in Note 3 on page 3 of Schedule 12.09, some proportion of which must be allocated to the companies in the proxy group through the use of beta. As a measure of risk relative to the market as a whole, the beta is an

appropriate means by which to apportion the market risk premium to a specific company or group.

Q30. What estimates of beta did you utilize to allocate a proportion of the expected market equity risk premium to the companies in the two proxy groups?

A. I used two different betas for each proxy group; the first based upon the Value Line methodology and the other based upon the Merrill Lynch methodology. When available, I utilized Value Line adjusted betas for each company in the two proxy groups. However, Value Line does not publish a Ratings & Report for Artesian Resources, Inc. (Artesian). Therefore, I have calculated a beta estimate for Artesian using Value Line's methodology. Value Line estimates beta using the following formula, an ordinary least-squares technique:[15]

$$R_{i,t} = a_i + (\beta_i * R_{m,t}) + e_{i,t}$$

Where: $R_{i,t}$ = the return on security i in period t.
$R_{m,t}$ = the return on the market portfolio (New York Stock Exchange (NYSE) Composite Index) in period t;
a_i = the intercept term for security i;
β_i = beta, the measure of market risk for security i;
$e_{i,t}$ = the residual term in period t for security i.

Once Value Line estimates a "raw", or unadjusted, beta using the above methodology, employing 259 weekly observations of stock return data, it then adjusts its "raw" beta for regression bias using the following equation:

$$B_{adjusted} = 0.35 + 0.67 * \beta_{raw}$$

[15] Value Line Inc.

Consistent with ICC Staff's methodology, I have also applied Merrill Lynch's regression analysis model using total excess return data in place of total price change data which Merrill Lynch uses and the NYSE Composite Index in place of the S&P 500 which Merrill Lynch uses. These betas were calculated using monthly return data for a period of 60 months, the following formula and an ordinary least squares regression technique:

$$R_{i,t} - R_{f,t} = a_i + [\beta_i * (R_{m,t} - R_{f,t})] + e_{i,t}$$

Where:

$R_{i,t}$ = the return on security i in period t;

$R_{f,t}$ = the risk-free rate of return in period t, the yield on 3-month U. S. Treasury bills;

$R_{m,t}$ = the return on the market portfolio (New York Stock Exchange (NYSE) Composite Index) in period t;

a_i = the intercept term for security i;

β_i = beta, the measure of market risk for security i;

$e_{i,t}$ = the residual term in period t for security i.

I then adjusted the "raw" betas using Merrill Lynch's adjustment formula:

$$B_{adjusted} = 0.33743 + 0.66257 * \beta_{raw}$$

I then averaged the Value Line betas and those calculated using the Merrill Lynch methodology. The average betas for each company in the two proxy groups are shown in column 3 on page 2 of Schedule 12.09.

Q31. What are the results of your application of the CAPM to the proxy groups?

A. As shown on Schedule 12.09, Line No. 3 of page 1, the CAPM cost rate is 11.16% for the proxy group of eight water companies and 12.22% for the proxy group of thirteen utilities including all results. On Line No. 4, I show the conclusions of CAPM cost rates including only those CAPM cost rates greater

than 8.6% and less than 12.1% for reasons discussed previously. These CAPM cost rates are 10.97% and 11.29% for each proxy group, respectively.

IX. CONCLUSION OF COMMON EQUITY COST RATE

Q32. What is your recommended common equity cost rate?

A. It is 11.25% based upon the common equity cost rates resulting from application of the DCF and CAPM models previously relied upon by this Commission, as summarized below:

Table 4

Including All Results

	Proxy Group of Eight Water Cos.		Proxy Group of Thirteen Utils. Selected Upon the Basis of Least Relative Distance
Discounted Case Flow Model	11.38%		10.72%
Capital Asset Pricing Model	11.16		12.22
Indicated Common Equity Cost Rate Before Business Risk Adjustment	11.27%		11.47%
Business Risk Adjustment		0.10	
Common Equity Cost Rate After Adjustment for Business Risk	11.37%		11.57%
Indicated Common Equity Cost Rate		11.45%	

Including Results Greater than 8.6% and Less than 12.1%[16]

	Proxy Group of Eight Water Cos.		Proxy Group of Thirteen Utils. Selected Upon the Basis of Least Relative Distance
Discounted Case Flow Model	11.51%		9.95%
Capital Asset Pricing Model	10.97		11.29
Indicated Common Equity Cost Rate Before Business Risk Adjustment	11.24%		10.62%
Business Risk Adjustment		0.10	
Common Equity Cost Rate After Adjustment for Business Risk	11.34%		10.72%
Indicated Common Equity Cost Rate		11.13%	
Recommended Common Equity Cost Rate		11.25%	

As discussed previously, IAWC has greater business risk than the average proxy group company because of its small size relative to each proxy group, whether measured by book capitalization or the market capitalization of common equity (estimated market value for IAWC whose common stock is not traded). Therefore, it is necessary to upwardly adjust the 11.27% and 11.47% indicated common equity cost rates including all results and the 11.24% and 10.62% common equity cost rates including those results greater than 8.6% and less than 12.1% for reasons discussed previously based upon each proxy group, respectively.

[16] See Note 7 on page 2 of Schedule 12.07 and Note 5 on page 4 of Schedule 12.09.

Based upon IAWC's small relative size, an adjustment to reflect IAWC's smaller relative size of 0.21% (21 basis points) relative to the indicated common equity cost rate of the eight water companies and 1.97% (197 basis points) relative to the thirteen utilities are indicated. These adjustments are based upon data contained in Chapter 7 entitled "Firm Size and Return" from the 2007 Yearbook – Valuation Edition. The determinations are based on the size premia for decile portfolios of New York Stock Exchange ("NYSE"), American Stock Exchange ("AMEX") and NASDAQ listed companies for the 1926-2006 period and related data shown on pages 3 through 18 of Schedule 12.01. The average size premia for the deciles in which the proxy groups fall have been compared to the average size premia for the 8th and 9th deciles between which IAWC would fall if its stock were traded and sold at the July 13, 2007 average market/book ratio of either 232.6% or 191.9% experienced by each proxy group, respectively. As shown on page 3 of Schedule 12.01, the size premium spread between IAWC and the eight water companies is 0.21% and 1.97% relative to the thirteen utilities. Page 4 contains notes relative to page 3. Page 5 contains data in support of page 3 while pages 6 through 18 of Schedule 12.01 contain relevant information from the 2007 Yearbook – Valuation Edition.

Consequently, business risk adjustments of 0.21% and 1.97% are indicated for the eight water companies and the thirteen utilities, respectively. However, I will make an extremely conservative business risk adjustment of

just 0.10% (10 basis points), to the indicated common equity cost rates of 11.27%/11.24% and 11.47%/10.62% for the eight and thirteen utilities.

Therefore, as shown on page 2 of Schedule 12.01 at Line Nos. 5 and 11 and Table 4 above, the indicated common equity cost rates based on each proxy group, including the business adjustment based upon IAWC's small size are 11.37% and 11.57% including all results and 11.34% and 10.72% including those results greater than 8.6% and less than 12.1%. The indicated common equity cost rates of 11.45% including all results and 11.13% including those results greater than 8.6% and less than 12.1% are based upon giving two-thirds (2/3) weight and one-third (1/3) weight to the common equity cost rates after adjustment for business risk of the eight water companies and thirteen utilities, respectively. My recommended common equity cost rate of 11.25% is based upon the midpoint of these cost rates ((11.45% + 11.13%) / 2 = 11.29%, rounded to the nearest 25 basis points, or 11.25%). In my opinion, such a cost rate is both reasonable and conservative.

Q33. Does that conclude your direct testimony?

A. Yes.

APPENDIX A

PROFESSIONAL QUALIFICATIONS

OF

PAULINE M. AHERN, CRRA
PRINCIPAL

AUS CONSULTANTS

PROFESSIONAL QUALIFICATIONS
OF
PAULINE M. AHERN, CRRA
PRINCIPAL
AUS CONSULTANTS

PROFESSIONAL EXPERIENCE

1996-Present

As a Principal, I offer testimony as an expert witness on the subjects of fair rate of return and cost of capital before state public utility commissions. I provide assistance and support to clients throughout the entire ratemaking litigation process.

1994-1996

As an Assistant Vice President, I prepared fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. These supporting exhibits include the determination of an appropriate ratemaking capital structure and the development of embedded cost rates of senior capital. The exhibits also support the determination of a recommended return on common equity through the use of various market models, such as, but not limited to, Discounted Cash Flow analysis, Capital Asset Pricing Model and Risk Premium Methodology, as well as an assessment of the risk characteristics of the client utility. I also assisted in the preparation of responses to any interrogatories received regarding such testimonies filed on behalf of client utilities. Following the filing of fair rate of return testimonies, I assisted in the evaluation of opposition testimony in order to prepare interrogatory questions, areas of cross-examination, and rebuttal testimony. I also evaluated and assisted in the preparation of briefs and exceptions following the hearing process. I have submitted testimony before state public utility commissions regarding appropriate capital structure ratios and fixed capital cost rates.

1990-1994

As a Senior Financial Analyst, I supervised two analysts in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. The team also assisted in the preparation of interrogatory responses.

I evaluated the final orders and decisions of various commissions to determine whether further actions are warranted and to gain insight which may assist in the preparation of future rate of return studies.

I 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 co-authored an article with Frank J. Hanley entitled "Comparable Earnings: New Life for an Old Precept" which was published in the American Gas Association's Financial Quarterly Review, Summer 1994.

I was awarded the professional designation "Certified Rate of Return Analyst" (CRRA) by the National Society of Rate of Return Analysts (now the Society of Utility and Regulatory Financial Analysts (SURFA)). This designation is based upon education, experience and the successful completion of a comprehensive examination.

As Administrator of Financial Analysis for AUS Utility Reports, which reports financial data for over 200 utility companies and has approximately 1,000 subscribers, I oversee the preparation of this monthly publication, as well as the annual publication, Financial Statistics - Public Utilities.

1988-1990

As a Financial Analyst, I assisted in the preparation of fair rate of return studies including capital structure determination, development of senior capital cost rates, as well as the determination of an appropriate rate of return on equity. I also assisted in the preparation of interrogatory responses, interrogatory questions of the opposition, areas of cross-examination and rebuttal testimony. I also assisted in the preparation of the annual publication C. A. Turner Utility Reports - Financial Statistics -Public Utilities.

1973-1975

As a research assistant in the Research Department of the Regional Economics Division of the Federal Reserve Bank of Boston, I was involved in the development and maintenance of econometric models to simulate regional economic conditions in New England in order to study the effects of, among other things, the energy crisis of the early 1970's and property tax revaluations on the economy of New England. I was also involved in the statistical analysis and preparation of articles for the New England Economic Review. Also, I acted as assistant editor for New England Business Indicators.

1972

As a research assistant in the Office of the Assistant Secretary for International Affairs, U.S. Treasury Department, Washington, D.C., I developed and maintained econometric models which simulated the economy of the United States in order to study the results of various alternate foreign trade policies so that national trade policy could be formulated and recommended.

I am also a member of the Society of Utility and Regulatory Financial Analysts (formerly the National Society of Rate of Return Analysts).

Clients Served

I have offered expert testimony before the following commissions:

Arkansas
California
Connecticut
Delaware
Florida
Hawaii
Idaho
Illinois
Indiana
Kentucky
Maine
Maryland
Michigan
Missouri
Nevada
New Jersey
New York
North Carolina
Ohio
Pennsylvania
South Carolina
Virginia
Washington

I have sponsored testimony on the rate of return and capital structure effects of merger and acquisition issues for:

California American Water Company
New Jersey- American Water Company

I have sponsored testimony on fair rate of return and related issues for:

Alpena Power Company
Aqua Illinois, Inc.
Aqua New Jersey, Inc.
Aqua Virginia, Inc
Audubon Water Company
Carolina Pines Utilities, Inc.
Consumers Illinois Water Company
Consumers Maine Water Company
Consumers New Jersey Water Company
City of DuBois, Pennsylvania
Elizabethtown Water Company
Emporium Water Company
GTE Hawaiian Telephone Inc.
Greenridge Utilities, Inc.
Borough of Hanover, Pennsylvania
Long Neck Water Company
Massanutten Public Service Corp.
Middlesex Water Company
Missouri-American Water Company
Mt. Holly Water Company
Nero Utility Services, Inc.
New Jersey-American Water Company
NRG Energy Center Pittsburgh
Ohio-American Water Company
Penn Estates
Pinelands Waste Water Company
Spring Creek Utilities, Inc.
Sussex Shores Water Company
Tega Cay Water Service, Inc.
Twin Lakes Water Service, Inc.
Thames Water Americas
Tidewater Utilities, Inc.
Transylvania Utilities, Inc.
Twin Lakes Utilities, Inc.
United Utility Companies
United Water Arkansas, Inc.
United Water Connecticut, Inc.
United Water Delaware, Inc.
United Water Idaho, Inc.
United Water Indiana, Inc.
United Water New Jersey, Inc.
United Water New Rochelle, Inc.
United Water New York, Inc.
United Water Owego, Inc/Nichols, Inc.
United Water Pennsylvania, Inc.
United Water Virginia, Inc.
United Water West Lafayette, Inc.
Utilities, Inc. of Central Nevada
Utilities, Inc. of Florida
Utilities Services of South Carolina
Valley Energy, Inc.
Water Service Corp. of Kentucky

Pinelands Water Company
Pittsburgh Thermal
Wellsboro Electric Company
Western Utilities, Inc.

I have sponsored testimony on capital structure and senior capital cost rates for the following clients:

Alpena Power Company
Arkansas-Western Gas Company
Associated Natural Gas Company
PG Energy Inc.
United Water Delaware, Inc.
Washington Natural Gas Company

I have assisted in the preparation of rate of return studies on behalf of the following clients:

Algonquin Gas Transmission Company
Arkansas-Louisiana Gas Company
Arkansas Western Gas Company
Artesian Water Company
Associated Natural Gas Company
Atlantic City Electric Company
Bridgeport-Hydraulic Company
Cambridge Electric Light Company
Carolina Power & Light Company
Citizens Gas and Coke Utility
City of Vernon, CA
Columbia Gas/Gulf Transmission Cos.
Commonwealth Electric Company
Commonwealth Telephone Company
Conestoga Telephone & Telegraph Co.
Connecticut Natural Gas Corporation
Consolidated Gas Transmission Company
Consumers Power Company
CWS Systems, Inc.
Delmarva Power & Light Company
East Honolulu Community Services, Inc.
Equitable Gas Company
Equitrans, Inc.
Florida Power & Light Company
Gary Hobart Water Company
Gasco, Inc.
GTE Arkansas, Inc.
GTE California, Inc.
GTE Florida, Inc.
GTE Hawaiian Telephone
GTE North, Inc.
GTE Northwest, Inc.
GTE Southwest, Inc.
Great Lakes Gas Transmission L.P.
Pennsylvania-American Water Co.
PG Energy Inc.
Philadelphia Electric Company
South Carolina Pipeline Company
Southwest Gas Corporation
Stamford Water Company
Tesoro Alaska Petroleum Company
United Telephone of New Jersey
United Utility Companies
Missouri American Water Company.
United Water Delaware, Inc.
United Water Idaho, Inc.
United Water Indiana, Inc.
United Water New Jersey, Inc.
United Water New York, Inc.
United Water Pennsylvania, Inc.
United Water Virginia, Inc.
United Water West Lafayette, Inc.
Vista-United Telecommunications Corp.
Washington Natural Gas Company
Washington Water Power Corporation
Waste Management of New Jersey –
Transfer Station A
Wellsboro Electric Company
Western Reserve Telephone Company
Western Utilities, Inc.
Pennsylvania-American Water Co.
PG Energy Inc.
Philadelphia Electric Company
South Carolina Pipeline Company
Southwest Gas Corporation
Stamford Water Company
Tesoro Alaska Petroleum Company
United Telephone of New Jersey

Hawaiian Electric Company
Hawaiian Electric Light Company
United Utility Companies
Missouri American Water Company.

Rate of Return Study Clients, Continued

IES Utilities Inc.
Illinois Power Company
Interstate Power Company
Iowa Electric Light and Power Company
Iowa Southern Utilities Company
Kentucky-West Virginia Gas Company
Lockhart Power Company
Middlesex Water Company
Milwaukee Metropolitan Sewer District
Mountaineer Gas Company
National Fuel Gas Distribution Corp.
National Fuel Gas Supply Corp.
National Fuel Gas Distribution Corp.
National Fuel Gas Supply Corp.
Newco Waste Systems of NJ, Inc.
New Jersey Natural Gas Company
New Jersey-American Water Company
New York-American Water Company
North Carolina Natural Gas Corp.
Northumbrian Water Company
Ohio-American Water Company
Oklahoma Natural Gas Company
Orange and Rockland Utilities
Paiute Pipeline Company
PECO Energy Company
Penn-York Energy Corporation
Pennsylvania-American Water Co.
PG Energy Inc.
Philadelphia Electric Company
South Carolina Pipeline Company
Southwest Gas Corporation
Stamford Water Company
Tesoro Alaska Petroleum Company
United Telephone of New Jersey
United Utility Companies
Missouri American Water Company.
United Water Delaware, Inc.
United Water Idaho, Inc.
United Water Indiana, Inc.
United Water New Jersey, Inc.
United Water New York, Inc.
United Water Pennsylvania, Inc.
United Water Virginia, Inc.
United Water West Lafayette, Inc.
Vista-United Telecommunications Corp.
Washington Natural Gas Company
Washington Water Power Corporation
Waste Management of New Jersey – Transfer Station A
Wellsboro Electric Company
Western Reserve Telephone Company
Western Utilities, Inc.

EDUCATION:

1973 – Clark University – B.A. – Honors in Economics
1991 – Rutgers University – M.B.A. – High Honors

PROFESSIONAL AFFILIATIONS:

American Finance Association
Financial Management Association
Society of Utility and Regulatory Financial Analysts
President – 2006-2008
Secretary/Treasurer – 2004-2006
Energy Association of Pennsylvania
National Association of Water Companies – Member of the Finance Committee