

State of Florida



## Public Service Commission

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TALLAHASSEE, FLORIDA 32399-0850

**-M-E-M-O-R-A-N-D-U-M-**

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**DATE:** May 20, 2004

**TO:** Director, Division of the Commission Clerk & Administrative Services (Bayó)

**FROM:** Division of Economic Regulation (Lester, Winters)  
Office of the General Counsel (Vining)

**RE:** Docket No. 040006-WS – 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.

**AGENDA:** 06/01/04 – Regular Agenda – Proposed Agency Action - Interested Persons May Participate

**CRITICAL DATES:** December 31, 2004 – Pursuant to Section 367.081(4)(f), Florida Statutes

**SPECIAL INSTRUCTIONS:** None

**FILE NAME AND LOCATION:** S:\PSC\ECR\WP\040006.RCM.DOC

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### Case Background

Section 367.081(4)(f), Florida Statutes, authorizes the Commission to establish, not less than once each year, a leverage formula to calculate a reasonable range of returns on equity for water and wastewater utilities. In Docket No. 030006-WS, the Commission established the current leverage formula by Order No. PSC-03-0707-PAA-WS, issued on June 13, 2003.

This staff recommendation utilizes the current leverage formula methodology set forth in Order No. PSC-01-2514-FOF-WS, which uses returns on equity from financial models based upon an index of natural gas utilities.

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Discussion of Issues

**Issue 1:** What is the appropriate range of returns on common equity for water and wastewater (WAW) utilities pursuant to Section 367.081(4)(f), Florida Statutes?

**Recommendation:** Staff recommends that the current leverage formula methodology be applied using updated financial data. Staff recommends the following leverage formula:

$$\text{Return on Common Equity} = 7.57\% + 1.533/\text{Equity Ratio}$$

Where the Equity Ratio = Common Equity / (Common Equity + Preferred Equity + Long-Term and Short-Term Debt)

Range: 9.10% @ 100% equity to 11.40% @ 40% equity

(LESTER, WINTERS)

**Staff Analysis:** Section 367.081(4)(f), Florida Statutes, authorizes the Commission to establish a leverage formula to calculate a reasonable range of returns on equity for WAW utilities. The Commission must establish this leverage formula not less than once a year.

Staff notes that the leverage formula depends on four basic assumptions:

- 1) Business risk is similar for all WAW utilities;
- 2) The cost of equity is an exponential function of the equity ratio;
- 3) The marginal weighted average cost of investor capital is constant over the equity ratio range of 40% to 100%; and,
- 4) The cost rate at an assumed Moody's Baa3 bond rating, plus a 50 basis point private placement premium and a 50 basis point small utility risk premium, represents the average marginal cost of debt to a Florida WAW utility over an equity ratio range of 40% to 100%.

For these reasons, the leverage formula is assumed to be appropriate for the average Florida WAW utility.

The leverage formula relies on two return on equity (ROE) models and several adjustments for differences in risk and debt cost in order to conform the results of the models to the average Florida WAW utility. Both models include a four percent adjustment for flotation costs. The models are as follows:

- A Discounted Cash Flow (DCF) model applied to an index of natural gas utilities (NG) that have publicly traded stock and are followed by the Value Line Investment Survey (Value Line). The DCF model is an annual model and uses prospective growth rates. The index consists of 12 companies that derive at least 60% of their total revenue from

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gas distribution service. These companies have a median Standard and Poor's bond rating of A.

- A Capital Asset Pricing Model (CAPM) using a market return for companies followed by Value Line, the average yield on the Treasury's long-term bonds projected by the Blue Chip Financial Forecasts, and the average beta of the index of NG utilities. The market return for the 2004 leverage formula was calculated using an annual model. Staff added 20 basis points to the annual model result to estimate a quarterly result.

The indicated returns of the above models are averaged and the resulting estimate is adjusted in the following manner:

- A bond yield differential of 43 basis points to reflect the difference in yields between an A/A2 rated bond, which is the average bond rating for the NG utility index, and a BBB-/Baa3 rated bond. Florida WAW utilities are assumed to be comparable to companies with the lowest investment grade bond rating, which is Baa3. This adjustment compensates for the difference between the credit quality of "A" rated debt and the credit quality of the minimum investment grade rating.
- A private placement premium of 50 basis points is added to reflect the difference in yields on publicly traded debt and privately placed debt, which is illiquid. Investors require a premium for the lack of liquidity of privately placed debt.
- A small utility risk premium of 50 basis points is added to reflect that the average Florida WAW utility is too small to qualify for privately placed debt.

After the above adjustments, the resulting cost of equity estimate is included in the average capital structure for the NG utilities. The cost of equity is determined at a 40% equity ratio and the leverage formula is derived. The leverage formula derived using the current methodology with updated financial data is presented in Attachment 1.

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Issue 2: Should the Commission close this docket?

Recommendation: No. Upon expiration of the protest period, if a timely protest is not received from a substantially affected person, the decision should become final and effective upon the issuance of a Consummating Order. However, this docket should remain open to allow staff to monitor changes in capital market conditions and to readdress the reasonableness of the leverage formula as conditions warrant. (VINING, LESTER)

Staff Analysis: Upon expiration of the protest period, if a timely protest is not received from a substantially affected person, the decision should become **final** and effective upon the issuance of a Consummating Order. However, this docket should remain open to allow staff to monitor changes in capital market conditions and to readdress the reasonableness of the leverage formula as conditions warrant.

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SUMMARY OF RESULTS

Leverage Formula Update

	<u>Updated Results</u>	<u>Currently in Effect</u>
(A) CAPM ROE for Natural Gas Index	10.02%	9.53%
(B) DCF ROE for Natural Gas Index	<u>9.36%</u>	<u>10.74%</u>
AVERAGE	9.69%	10.13%
Bond Yield Differential	.43%	.44%
Private Placement Premium	.50%	.50%
Small-Utility Risk Premium	.50%	.50%
Adjustment to Reflect Required Equity		
Return at a 40% Equity Ratio	<u>.28%</u>	<u>.38%</u>
Cost of Equity for Average Florida WAW		
Utility at a 40% Equity Ratio	<u>11.40%</u>	<u>11.96%</u>

2003 Leverage Formula (Currently in Effect)

Return on Common Equity =	8.16% + 1.518/ER
Range of Returns on Equity =	9.68% - 11.96%

2004 Leverage Formula (Recommended)

Return on Common Equity =	7.57% + 1.533/ER
Range of Returns on Equity =	9.10% - 11.40%

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Marginal Cost of Investor Capital  
Average Water and Wastewater Utility

<u>Capital Component</u>	<u>Ratio</u>	<u>Marginal Cost Rate</u>	<u>Weighted Marginal Cost Rate</u>
Common Equity	43.16%	11.12%	4.80%
Total Debt	<u>56.84%</u>	7.57% *	<u>4.30%</u>
	100.00%		9.10%

A 40% equity ratio is the floor for calculating the required return on common equity. The return on equity at a 40% equity ratio is  $7.57\% + 1.533/.40 = 11.4\%$

Marginal Cost of Investor Capital  
Average Water & Wastewater Utility at 40% Equity Ratio

<u>Capital Component</u>	<u>Ratio</u>	<u>Marginal Cost Rate</u>	<u>Weighted Marginal Cost Rate</u>
Common Equity	40.00%	11.40%	4.56%
Total Debt	<u>60.00%</u>	7.57% *	<u>4.54%</u>
	100.00%		9.10%

Where: ER = Equity Ratio = Common Equity/(Common Equity + Preferred Equity + Long-Term Debt + Short-Term Debt)

\* Assumed Baa3 rate for April 2004 plus a 50 basis point private placement premium and a 50 basis point small utility risk premium.

Source: Moody's Credit Perspectives

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ANNUAL DISCOUNTED CASH FLOW MODEL

INDEX COMPANY	NATURAL GAS INDEX VALUE LINE ISSUE: Ed. 3 - MARCH 19,2004									APRIL		
	DIVO	DIV 1	DIV2	DIV3	DIV4	EPS4	ROE4	GR1-4	GR4+	HIGH PRICE	LOW PRICE	AVG. PRICE
AGL RESOURCES	1.12	1.12	1.12	1.12	1.12	2.35	12.00	1.0000	1.0628	29.41	27.53	28.470
CASCADENATURAL GAS	.96	0.96	0.97	0.97	0.98	1.95	15.00	1.0069	1.0746	22.52	20.53	21.525
ENERGEN CORP.	.75	0.77	0.79	0.81	0.83	3.85	18.00	1.0253	1.1412	42.61	40.41	41.510
KEYSPAN COW.	1.78	1.78	1.82	1.86	1.90	3.40	12.00	1.0220	1.0529	38.99	35.41	37.200
LACLEDEGROUP	1.36	1.36	1.37	1.37	1.38	2.10	11.00	1.0049	1.0377	31.35	27.54	29.445
NICOR, INC.	1.86	1.86	1.91	1.95	2.00	2.70	14.50	1.0245	1.0376	35.65	33.26	34.455
NORTHWEST NATURAL GAS	1.30	1.33	1.37	1.41	1.45	2.40	10.50	1.0292	1.0416	31.65	29.15	30.400
PEOPLES ENERGY	2.16	2.20	2.21	2.23	2.24	3.20	10.50	1.0060	1.0315	45.19	41.15	43.170
PIEDMONT NATURAL GAS	1.72	1.78	1.82	1.86	1.90	3.05	11.50	1.0220	1.0434	43.03	39.80	41.415
SOUTH JERSEY INDUSTRIES	1.62	1.67	1.70	1.74	1.77	3.40	10.50	1.0196	1.0503	42.10	40.24	41.170
SOUTHWEST GAS	.82	0.82	0.85	0.87	0.90	2.15	9.50	1.0315	1.0552	24.06	22.75	23.405
WGL HOLDINGS	1.30	1.30	1.31	1.33	1.34	2.15	9.50	1.0102	1.0358	30.39	27.75	29.070
AVERAGE	1.3958	1.4125	1.4359	1.4598	1.4842	2.73	12.0417	1.0168	1.0554			33.436
					1.5664							

S&P STOCK GUIDE: MAY 2004 with April Stock Prices

Stock Price w/four Percent Flotation Costs	32.0988	Annual	9.36%	ROE
Cash Flows	1.28014	1.185877	1.102313	1.024729
Present Value of Cash Flows	32.0988	.961839	26.5439	

\$32.10 = April 2004 average stock price with a 4% flotation cost.

9.36% = Cost of equity required to match the current stock price with the expected cash flows.

Sources:

1. Stock Prices - S&P Stock Guide, May 2004 Edition.
2. DPS, EPS, ROE - Value Line Edition 3, March 19, 2004.

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Capital Asset Pricing Model Cost of Equity for  
Water and Wastewater Industry

CAPM analysis formula

$$K = RF + \text{Beta}(\text{MR} - \text{RF})$$

$$K = \text{Investor's required rate of return}$$

$$\text{RF} = \text{Risk-free rate (Blue Chip forecast for Long-term Treasury bond)}$$

$$\text{Beta} = \text{Measure of industry-specific risk (Average for water utilities followed by Value Line)}$$

$$\text{MR} = \text{Market return (Value Line Investment Survey For Windows, May 2004)}$$

$$\underline{10.02\%} = 5.48\% + .73(11.46\% - 5.48\%) + .20\%$$

Note: We calculated the market return using an annual DCF model for a large number of dividend paying stocks followed by Value Line. For April 2004 stock prices, the result was 11.26%. We have added 20 basis points to allow for the quarterly compounding of dividends. The resulting market return is 11.46%. We have also added 20 basis points to the CAPM result to allow for a four-percent flotation cost.



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**BOND YIELD DIFFERENTIALS**  
 Public Utility Long Term Bond Yield Averages

Long-Term Corporate Bond Yield Averages  
 for Avg. Public Utility

120 Month Average Spread	0.1074	0.1074	0.1074	0.1074
MONTWYEAR	A2 SPREAD	A3 SPREAD	Baal SPREAD	Baa2 SPREAD Baa3
Apr-2004	6.35 0.04	6.39 0.04	6.42 0.04	6.46 0.04 6.50

Source: Moody's Credit Perspectives

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Natural Gas Distribution Proxy Group	S & P Bond Rating	% of Gas Revenue	V/L Market Capital (millions)	Equity- Ratio	Value Line Beta
AGL Resources	A-	95%	1,838.3	41%	0.75
Cascade Natural Gas	BBB+	100%	249.2	41%	0.70
Energen Corp.	A-	62%	1,526.9	55%	0.70
KeySpan Corp.	A+	60%	6,119.0	37%	0.75
Laclede Group	A	74%	594.2	35%	0.70
NICOR Inc.	AA	88%	1,610.3	41%	1.00
Northwest Nat. Gas	A	98%	840.4	46%	0.65
Peoples Energy	A-	70%	1,661.7	44%	0.75
Piedmont Natural Gas	A	77%	1,426.8	53%	0.70
South Jersey Industries	A	70%	532.7	41%	0.55
Southwest Gas	BBB-	84%	792.6	33%	0.75
WGL Holdings Inc.	AA-	63%	1,419.3	49%	0.70
Average:				43.16%	0.73

Source:

Value Line Investment Survey for Windows, April 2004

S.E.C. Forms 10Q and 10K for Companies

C.A. Turner Utilities Report, May 2004