BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: 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.	DOCKET NO. 20180006-WS ORDER NO. PSC-2018-0327-PAA-WS ISSUED: June 26, 2018

The following Commissioners participated in the disposition of this matter:

ART GRAHAM, Chairman
JULIE I. BROWN
DONALD J. POLMANN
GARY F. CLARK
ANDREW GILES FAY

NOTICE OF PROPOSED AGENCY ACTION
ORDER APPROVING THE LEVERAGE FORMULA FOR WATER AND WASTEWATER UTILITIES

BY THE COMMISSION:

NOTICE is hereby given by the Florida Public Service Commission that the action discussed herein is preliminary in nature and will become final unless a person whose interests are substantially affected files a petition for a formal proceeding, pursuant to Rule 25-22.029, Florida Administrative Code (F.A.C.).

I. Case Background

Section 367.081(4)(f), Florida Statutes (F.S.), authorizes us to establish, not less than once each year, a leverage formula to calculate a reasonable range of returns on equity (ROE) for water and wastewater (WAW) utilities. In 2001, the leverage formula methodology was established in Order No. PSC-2001-2514-FOF-WS.[1]

On October 23, 2008, we held a formal hearing in Docket No. 20080006-WS to allow interested parties to provide testimony regarding the validity of the leverage formula that was

[1]Order No. PSC-2001-2514-FOF-WS, issued December 24, 2001, in Docket No. 20010006-WS, *In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity of water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.*

established in 2001.[2] Based on the record in that proceeding, we approved the 2008 leverage formula.[3] In that order, we reaffirmed the methodology that was previously approved in 2001.

In 2011, we approved the current leverage formula by Order No. PSC-2011-0287-PAA-WS.[4] From 2012 through 2017, we voted to continue to use the 2011 leverage formula for establishing the authorized ROE for WAW utilities.[5] From 2012 through 2017, we found that the range of returns on equity derived from the annual leverage formulas were not optimal for determining the appropriate authorized ROE for WAW utilities due to Federal Reserve monetary policies that resulted in historically low interest rates. Consequently, we decided it was reasonable to continue using the range of returns on equity of 8.74 percent to 11.16 percent from the 2011 leverage formula docket.

On November 8, 2017, our staff held a workshop to solicit input from interested persons regarding potential changes to the current leverage formula methodology. As part of the workshop, interested parties were requested to file comments by October 30, 2017. The only stakeholders that filed comments in the docket were the Office of Public Counsel (OPC) and Utilities, Inc. of Florida (UIF). OPC also filed post-workshop comments on January 31, 2018. OPC's post-workshop comments all resulted in lowering the ROE. UIF's suggestions mostly resulted in increasing the ROE.

A. <u>OPC Post-Workshop Comments</u>

OPC submitted that we adopt a rule setting forth the leverage formula. OPC contended that continued application of the leverage formula constitutes an unadopted rule. In addition, OPC questioned the applicability of a Bond Yield Differential if an all WAW utility proxy group is used. OPC specifically questioned whether the assumed bond rating of Baa3 for the average WAW utility in Florida is still a valid assumption.

OPC's post-workshop comments also stated that the leverage formula should differentiate between Class A WAW utilities and Class B and C WAW utilities. OPC opined that Class A WAW utilities would not need a small-utility risk premium.

---

[2]At the May 20, 2008, Commission Conference, upon request of the Office of Public Counsel, we voted to set the establishment of the appropriate leverage formula directly for hearing.

[3]Order No. PSC-2008-0846-FOF-WS, issued December 31, 2008, in Docket No. 20080006-WS, *In re: 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.*

[4]Order No. PSC-2011-0287-PAA-WS, issued July 5, 2011, in Docket No. 20110006-WS, *In re: 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.*

[5]Order No. PSC-2017-0249-PAA-WS, issued June 26, 2018, in Docket No. 20170006-WS, *In re: 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.*

OPC further commented that the small-utility risk premium adjustment is duplicative of the bond yield risk premium and ignores the fact that several Florida WAW utilities could be comparable to water utilities included in the new index and therefore the small-utility risk premium should be removed from the formula.

OPC also submitted that the private placement premium of 50 basis points should be removed from the leverage formula for Class A WAW utilities. OPC stated it does not believe that investors require a premium for the lack of liquidity of privately placed debt for large Florida WAW utilities that are owned by substantially larger corporations. OPC further questioned why the private placement premium of 50 basis points is fixed and if it is reasonable.

Finally, OPC submitted that flotation costs should not be included in the DCF and CAPM models since none of Florida's WAW utilities are publicly traded and do not incur costs related to issuing new shares of stock.

B. UIF's Post-workshop Comments

UIF retained Ms. Pauline M. Ahern, who provided 47 pages of technically detailed suggestions and comments to change the DCF and CAPM methodologies used to derive the ROE of the proxy group. UIF suggested that we include a WAW utility index along with or replacing the natural gas utility index in the leverage formula. UIF further suggested we consider changing the DCF model to utilize the single-stage DCF model and use expected growth rate projections of EPS (earnings per share) as published in Value Line in place of using projected dividends.

In addition, UIF stated we should eliminate foreign companies in the CAPM Market Equity Risk Premium (MERP) because the WAW utilities are based in the US. UIF suggested that the CAPM MERP should be based on a market-value weighted average instead of a simple average. According to UIF, we should add two additional MERP estimates to the CAPM and average the results. The first one using a linear Ordinary Least Squares regression, and the second using an Empirical CAPM.

Also, UIF suggested that the private placement premium should remain at 50 basis points. UIF added that the small-utility risk premium should be increased from 50 basis points to 100 basis points. Additionally, UIF suggested that flotation costs of 20 basis points, or 4%, should be included, and that we should use a projected yield on Baa3/BBB- rated public utilities in the derivation to adjust the cost of equity at a 40% equity ratio.

` This order addresses the appropriate leverage formula for 2018. We have jurisdiction pursuant to Section 367.081, F.S.

II. Modification of the Leverage Formula

A. Analysis of OPC's Post-Workshop Comments

OPC asks us to adopt a leverage formula rule. Section 367.081(4)(f), F.S., states:

> The Commission may regularly, not less often than once each year, ***establish by order*** a leverage formula or formulae that reasonably reflect the range of returns on common equity for an average water or wastewater utility and which, for purposes of this section, shall be used to calculate the last authorized rate of return on equity for any utility which otherwise would have no established rate of return on equity. In any other proceeding in which an authorized rate of return on equity is to be established, a utility, in lieu of presenting evidence on its rate of return on common equity, may move the commission to adopt the range of rates of return on common equity that has been established under this paragraph. (Emphasis added)

We believe that the statute, on its face, makes it clear that we may establish a leverage formula by order. We review the leverage formula yearly. Thus, if it was codified in a rule, we would have to initiate rulemaking every year to review the leverage formula. Based on the statutory language allowing the leverage formula to be established by order, it appears that the legislature did not intend for us to be in a constant rulemaking posture for this matter. Establishing a rule for the leverage formula may limit our discretion in an area where maximum discretion is advised. Maximum discretion is advised because determination of the required return on equity is subjective and a matter of opinion arrived at by informed judgement. Consequently, we decline OPC's suggestion to establish a rule for the leverage formula.

Regarding OPC's comments on the bond yield differential, we believe it is a necessary adjustment that recognizes the spread between the median bond rating of the utility proxy group (usually an A rating) to the assumed average Florida WAW utility's bond rating which is the lowest investment grade bond rating (Baa3). If the Florida WAW utilities under our jurisdiction were to be rated, we believe that, on average, they would be well below investment grade.

Regarding OPC's contention that the leverage formula should differentiate between large Class A WAW utilities and smaller Class B and C WAW utilities, we disagree. The leverage formula is derived to appropriately compensate the average WAW utility in Florida. The largest WAW utility in Florida is substantially smaller and more risky from a financial perspective than the utilities in the proxy group. UIF is by far the largest WAW utility in Florida and has total common equity of $47 million. The average market capitalization of the utilities in the proxy group is $3.9 billion and the smallest company has a market capitalization of $400 million. Small-company risk premiums are a widely accepted adjustment that have been used by financial analysts for decades to account for the differences in the expected returns between small-cap and large-cap companies. If any adjustment should be made to account for the difference between the Class A and Class B and C WAW utilities, an upward adjustment should be made for Class B and C WAW utilities.

Reasons why smaller WAW utilities are more risky than other utilities include: (1) WAW utilities are more capital intensive than electric or natural gas utilities; (2) WAW utilities experience lower relative depreciation rates than other utilities, thereby providing less cash flow; (3) WAW utilities experience consistently negative free cash flow, thereby increasing their financing requirements; (4) WAW utilities' credit metrics are inferior to those of electric and natural gas utilities; (5) Florida WAW utilities are substantially smaller than electric and natural gas utilities by virtually any measure including total revenues, total assets, and market capitalization; (6) WAW utilities' earnings are much more volatile (uncertain) than electric and natural gas utilities' earnings; and (7) WAW utilities experience many more business failures than electric and natural gas utilities.

Regarding OPC's claim that the risk premium adjustment is duplicative, we disagree. The small-utility risk premium adjustment and the bond yield risk premium adjustment are not the same and compensate an investor for different risks. The small-utility risk premium is an adjustment for the smaller sized companies based on market capitalization and the bond yield risk premium is an adjustment based on the assumed credit rating of the average Florida WAW utility (Baa3) as compared to the median credit rating of the proxy group (A).

Regarding OPC's comment about the private placement premium, we have previously included this adjustment to reflect the difference in yields on publicly traded debt and privately placed debt, which is illiquid. We understand that a private placement premium may change over time based on financial market conditions. However, information regarding actual private placement premiums is not readily available to derive an actual amount. Nevertheless, we believe recognition of the private placement risk should be included in the leverage formula. The private placement premium of 50 basis points was approved in Order No. PSC-2008-0846-FOF-WS.[6] In this order, we stated:

> In addition, we find that the average WAW utility in Florida does not have access to public financing. The fact that an average WAW utility in Florida cannot access public financing justifies the inclusion of a private placement premium adjustment to compensate for the lack of liquidity and the higher cost of financing of privately placed debt. For these reasons, we find that that it is appropriate to continue to make a private placement premium adjustment of 50 basis points as reflected in Attachment 1 to this Order.

We believe that the average WAW utility in Florida continues to not have access to public financing and will have to pay a higher interest rate for privately placed debt and a private placement premium is still appropriate.

Regarding flotation costs, we disagree with OPC and believe that accounting for flotation costs in the application of the models is appropriate and in accordance with financial theory and application of the financial models. Although none of Florida's WAW utilities are publically

---

[6]Order No. PSC-2008-0846-FOF-WS, issued December 31, 2008, in Docket No. 20080006-WS, *In re: 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.*

traded, application of the DCF and CAPM models to a proxy group is used to approximate the required return on equity and appropriate estimation of the required ROE includes an adjustment for flotation costs.

B. Analysis of UIF's Post-Workshop Comments

Several of UIF's suggestions are already included in the current leverage formula methodology as a result of the outcome of the 2008 hearing and subsequent order. In this docket, we included WAW utilities along with the natural gas utilities in its proxy group as suggested by UIF to increase the sample group of companies available. The private placement premium and small-utility risk premium are also included in the current methodology. We do not believe that the small-utility risk premium should be increased without further study to determine if that would be appropriate. We agree that flotation costs should be recognized in the application of the ROE models and they have been since 2001.

UIF suggests that an estimated projected yield on Baa3 rated public utility bonds be used to calculate the assumed bond yield for the average Florida WAW utility. The required return on equity is a forward-looking concept and is based on projections. Also, the costs included in the test year should reflect the costs expected during the period rates are going to be in effect. Consequently, we believe it is reasonable to use a projected Baa3 rated utility bond yield and that it is consistent with our practice of relying on the projected risk-free rate used in the CAPM.

Regarding UIF's suggestion to use a single-stage DCF model using expected earnings growth in the model, we disagree. All DCF models are derived from the equation that represents all expected cash flows into perpetuity. The multi-stage model allows us to avail ourselves of the explicit expected dividends provided by Value Line. Using a less robust form of the DCF model provides no benefit. We also disagree with the use of expected earnings growth in lieu of expected dividend growth. DCF theory is unambiguous when explaining that the expected cash flows associated with a share of stock are dividends. This is important because the time value of money underscores DCF theory and all earnings are not paid out to investors when they are earned. Expected earnings are crucial to determining expected dividends, but expected dividends are the expected cash flows that determine the value of a stock.

Regarding UIF's recommendation that foreign stocks be removed from the determination of the expected market return in the CAPM model, we disagree. Under CAPM theory, the expected market return is the return on all asset classes worldwide. Most analysts use the expected return on the US stock market as a proxy for the return on all asset classes out of convenience. Consequently, there is no reason to exclude foreign companies trading on the US market.

Regarding UIF's recommendations to consider adding more versions of the CAPM to the leverage formula analysis, we believe the additional methodologies require a much greater level of subjectivity than the traditional CAPM but will continue to consider their inclusion in the leverage formula analysis.

C. Modification of the Leverage Formula is Necessary

Section 367.081(4)(f), F.S., authorizes us to establish a leverage formula to calculate a reasonable range of returns on common equity for WAW utilities. We must establish this leverage formula not less than once a year. For administrative efficiency, the leverage formula is used to determine the appropriate return for an average Florida WAW utility. However, use of the leverage formula by utilities is discretionary, and a utility can file cost of equity testimony in lieu of using the leverage formula. As is the case with other regulated companies under our jurisdiction, we have discretion in the determination of the appropriate ROE based on the evidentiary record in any proceeding. If one or more parties in a rate case or limited proceeding file testimony in lieu of the use of the leverage formula, we will determine the appropriate ROE based on the evidentiary record in that proceeding.

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 but a linear function of the debt to equity ratio over the relevant range;

3) The marginal weighted average cost of investor capital is constant over the equity ratio range of 40 percent to 100 percent; and

4) The debt 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 an average Florida WAW utility over an equity ratio range of 40 percent to 100 percent.

Since 2001, we have used the leverage formula methodology established in Order No. PSC-2001-2514-FOF-WS and reaffirmed in Order No. PSC-2008-0846-FOF-WS. This methodology used ROEs derived from financial models applied to an index of natural gas utilities. We determined in 2001 and 2008 that there were an insufficient number of publicly traded WAW utilities that met the requisite criteria to assemble an appropriate proxy group, and, therefore, natural gas utilities were used instead. However, due to mergers and acquisitions of natural gas utilities over the past two years, the number of acceptable natural gas utilities has been reduced from eight to five. Concurrently, the number of publicly-traded water companies followed by Value Line has risen from four to nine.

Based on comments made at the workshop and the analysis conducted by our staff, which is presented in more detail in Attachment 1, we believe modification of the leverage formula methodology is warranted. We find that it is necessary to refine the leverage formula methodology to reflect newly available information and to reflect best practices. The leverage formula methodology shall be modified to include a combined proxy group of natural gas and WAW utilities with updated financial data based on market-capitalization based weighted averages. Also, the cost of debt used in determining the leverage formula shall be based on the projected cost of debt.

D. <u>The Modifications to the Leverage Formula</u>

Proxy Group: The leverage formula methodology shall be modified to include a combined proxy group of natural gas and WAW utilities as proxy companies in calculating the leverage formula. We find that the selected natural gas utilities and WAW utilities that derive at least 50 percent of their revenue from regulated rates. These utilities have market power and are influenced significantly by economic regulation. In Attachment 1, the returns calculated using the proxy group are adjusted to reflect the risks faced by Florida WAW utilities. The updated index consists of five natural gas companies and seven WAW companies that derive at least 50 percent of their total revenue from regulated operations. These companies have a median Standard and Poor's bond rating of "A".

Weighted Average: In addition, the leverage formula shall be modified to use a weighted average, where appropriate, as opposed to using a simple average as was done in the previous leverage formula calculations. The weighted average was calculated using the market capitalization of the proxy companies. We find that it is reasonable to use the market- capitalization based weighted average because of the size disparity among the companies comprising the new proxy group. There is a much greater size difference between companies in both assets and revenues when using both WAW and natural gas companies as opposed to using only natural gas companies. As pointed out in UIF's comments, "a market value weighted average is consistent with the manner in which returns for the Standard & Poor's 500 composite Index (S&P) are estimated."[7] We used a market capitalization weighted average of: (1) Discounted Cash Flow (DCF) model results, (2) the Beta values in the Capital Asset Pricing Model (CAPM), and (3) the equity ratio of the proxy group.

Projected Yield: The leverage formula shall be modified to use a projected yield on Baa3 rated public utility bonds to estimate the bond yield of an average Florida WAW utility in the calculation of the weighted average cost of capital of the proxy group is reasonable and appropriate. We find that using a projected yield is appropriate because required returns are forward looking and based on projections. The previously approved methodology used the most current monthly average bond yield for a Baa2 rated utility and added the 120-month average spread between a Baa3 rated utility bond yield and the Baa2 rated bond yield as published by Value Line Investment Survey (Value Line). We believe the methodology should be updated to use the projected Baa2 rated utility bond yield for the upcoming four quarters as published by the most recent Blue Chip Financial Forecasts (Blue Chip). We find that modifying the formula to add the 120-month average spread to the projected Baa2 rated utility bond yield to estimate a projected Baa3 rated utility bond yield is also necessary.

ROE Models: The result of the ROE models shall be adjusted so that the leverage formula reflects the differences in risk and debt cost between the proxy group and the average Florida WAW utility. The ROE models shall also include a four percent adjustment for flotation costs. The ROE models are as follows:

---

[7]Comments on Florida leverage formula to establish the annual authorized range of returns for water & wastewater utilities of Pauline M. Ahern, CRRA, on behalf of Utilities, Inc. of Florida, P. 20.

- A multistage Discounted Cash Flow (DCF) model applied to an index of natural gas and WAW utilities that have publicly traded stock and are followed by the Value Line. This DCF model is an annually compounded model and uses prospective dividend growth rates.

- A Capital Asset Pricing Model (CAPM) that relies on a market return for companies followed by Value Line, the average projected yield on the U.S. Treasury's 30-year bonds published by Blue Chip Financial Forecasts, and the weighted average beta for the index of natural gas and WAW utilities. The market return for the 2018 leverage formula was calculated using a quarterly DCF model with stock prices as of April 16, 2018.

The updated leverage formula will average the results of the DCF and CAPM models and the result will be as follows:

- A bond yield differential of 64 basis points was added to reflect the difference in yields between an A/A2 rated bond, which is the median bond rating for the combined 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 because the average Florida WAW utility is too small to qualify for privately placed debt and smaller companies are considered by investors to be more risky than larger companies.

After the above adjustments, the resulting cost of equity estimate will be included in the weighted average capital structure of the proxy group of utilities to derive the leverage formula.

Using the updated financial data in the revised leverage formula decreases the lower end of the current allowed ROE range by 63 basis points and decreases the upper end of the range by 23 basis points. Overall, the spread between the range of returns on equity based on the updated leverage formula is 282 basis points (8.11 percent to 10.93 percent). In comparison, the range of returns on equity for the existing leverage formula from 2011 is 242 basis points (8.74 percent to 11.16 percent).

The projected assumed Baa3 bond rate of 6.24 percent used in the updated leverage formula calculation includes a 50 basis point adjustment for small-company risk and a 50 basis point

adjustment for a private placement premium and remains low relative to historic levels. In comparison, the assumed Baa3 bond rate used in the existing leverage formula is 7.13 percent. The lower Baa3 bond rate of 6.24 percent is the cause of the decrease at the lower end of the range and the increased spread.

Based on the aforementioned, we find that the revised leverage formula methodology applied to a proxy group of natural gas and WAW utilities with updated financial data based on market-capitalization weighted averages produces a reasonable range of ROEs for WAW utilities and reflects current financial markets. We find that the following leverage formula shall be used until a new leverage formula is determined in 2019:

$$ROE = 6.24\% + (1.88 \div \text{Equity Ratio})$$

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

Range: 8.11% at 100% equity to 10.93% at 40% equity

Additionally, we will cap returns on common equity at 10.93 percent for all WAW utilities with equity ratios less than 40 percent. This is in an effort to discourage imprudent financial risk. This cap is consistent with the methodology in Order No. PSC-2008-0846-FOF-WS.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that the leverage formula is set forth in the body of this Order and in Attachment 1 of this Order. It is further

ORDERED that the provisions of this Order, issued as proposed agency action, shall become final and effective upon the issuance of a Consummating Order unless an appropriate petition, in the form provided by Rule 28-106.201, Florida Administrative Code, is received by the Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the close of business on the date set forth in the “Notice of Further Proceedings” attached hereto. It is further

ORDERED that 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.

By ORDER of the Florida Public Service Commission this 26th day of June, 2018.

/s/ Carlotta S. Stauffer
CARLOTTA S. STAUFFER
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399
(850) 413-6770
www.floridapsc.com

Copies furnished: A copy of this document is provided to the parties of record at the time of issuance and, if applicable, interested persons.

AEH

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing that is available under Section 120.57, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing will be granted or result in the relief sought.

Mediation may be available on a case-by-case basis. If mediation is conducted, it does not affect a substantially interested person's right to a hearing.

The action proposed herein is preliminary in nature. Any person whose substantial interests are affected by the action proposed by this order may file a petition for a formal proceeding, in the form provided by Rule 28-106.201, Florida Administrative Code. This petition must be received by the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the close of business on July 17, 2018.

In the absence of such a petition, this order shall become final and effective upon the issuance of a Consummating Order.

Any objection or protest filed in this/these docket(s) before the issuance date of this order is considered abandoned unless it satisfies the foregoing conditions and is renewed within the specified protest period.

ATTACHMENT 1

SUMMARY OF RESULTS
2018 Water and Wastewater Leverage Formula

	Updated Results	Currently In Effect
(A) DCF ROE	7.63%	8.25%
(B) CAPM ROE	9.46%	9.40%
AVERAGE	8.55%	8.83%
Bond Yield Differential	0.64%	0.57%
Private Placement Premium	0.50%	0.50%
Small-Utility Risk Premium	0.50%	0.50%
Adjustment to Reflect Required Equity Return at a 40% Equity Ratio	0.74%	0.76%
Cost of Equity for Average Florida WAW Utility at 40% Equity Ratio	10.93%	11.16%

2017 Leverage Formula (Currently in Effect)
Return on Common Equity = 7.13% + (1.61 ÷ Equity Ratio)
Range of Returns on Equity = 8.74% to 11.16%

2018 Leverage Formula
Return on Common Equity = 6.24% + (1.88 ÷ Equity Ratio)
Range of Returns on Equity = 8.11% to 10.93%

Marginal Cost of Investor Capital
Average Water and Wastewater Utility

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	47.48%	10.19%	4.84%
Total Debt	52.52%	6.24%*	3.27%
	100.00%		8.11%

A 40% equity ratio is the floor for calculating the required return on common equity.
The return on equity at a 40% equity ratio: 6.24% + (1.88 ÷ 0.40) = 10.93%

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

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	40.00%	10.93%	4.37%
Total Debt	60.00%	6.24%*	3.74%
	100.00%		8.11%

Where: Equity Ratio = CE / (CE + Pref. Equity + LTD + STD)
*Assumed Baa3 rate for April 2018 plus a 50 basis point private placement premium and
A 50 basis point small utility risk premium.

Sources:
Value Line Selection and Opinion
Companies' 10-K Filings

Discounted Cash Flows Results

Company	Weight[1]	Div_0	Div_1	Div_2	Div_3	Div_4	EPS_4	ROE_4	GR_{1-4}	GR_{4+}	AVG-PR[2]	Weighted DCF Results[3]
Atmos Energy	19.40%	1.94	2.08	2.21	2.35	2.50	5.15	0.11	1.06	1.06	81.78	1.58%
Northwest Natural Gas Company	3.41%	1.89	2.00	2.06	2.13	2.20	3.50	0.11	1.03	1.04	57.17	0.25%
ONE Gas, Inc.	7.46%	1.84	2.00	2.15	2.32	2.50	4.00	0.09	1.08	1.03	65.22	0.50%
Southwest Gas Holdings	6.82%	2.08	2.18	2.31	2.45	2.60	5.10	0.09	1.06	1.04	68.10	0.51%
Spire Inc.	6.82%	2.25	2.40	2.43	2.47	2.50	5.50	0.10	1.01	1.05	69.14	0.56%
American States Water	4.05%	1.07	1.15	1.24	1.34	1.45	2.45	0.14	1.08	1.06	52.42	0.32%
American Water Works	30.92%	1.78	1.95	2.15	2.36	2.60	4.50	0.11	1.10	1.04	80.35	2.22%
Aqua America	12.79%	0.85	0.91	1.01	1.12	1.25	1.95	0.13	1.11	1.04	32.91	0.98%
California Water Service Group	3.84%	0.75	0.78	0.85	0.93	1.02	1.90	0.12	1.09	1.05	36.43	0.29%
Middlesex Water	1.28%	0.91	0.96	1.01	1.06	1.11	2.10	0.13	1.05	1.06	38.37	0.11%
SJW Group	2.35%	1.12	1.20	1.28	1.36	1.45	3.45	0.14	1.07	1.08	56.04	0.24%
York Water	0.85%	0.70	0.75	0.83	0.91	1.00	1.60	0.14	1.10	1.05	30.24	0.07%
											Annual Weighted DCF Results:	**7.63%**

The ROE of 7.63 percent represents the expected cost of equity required to match the average stock price with present value of expected cash flows.

Sources:
Stock prices obtained from Yahoo Finance for the 30-day period April 1, 2018 through April 30, 2018
Natural Gas company dividends, earnings, and ROE obtained from Value Line Reports issued March 2, 2018
Water and Wastewater company dividends, earnings and ROE obtained from Value Line Reports issued April 13, 2018

Notes:
[1] Company's weight is based off of the Company's Market-Capitalization
[2] Average Stock Prices include four percent flotation cost
[3] Company's DCF results are weighed against their Market Capitalization Weight

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

CAPM analysis formula

K	=	RF + Beta (MR – RF) + Flotation Cost
K	=	Investor's required rate of return
Beta	=	Measure of industry-specific risk (average for natural gas and water utilities followed by Value Line
MR	=	Market Return (Value Line Investment Analyzer Web Browser)
RF	=	Risk-free rate (Blue Chip forecast for Long-Term Treasury Bond

9.46% = 3.58% + 0.69 (11.83% - 3.58%) + 0.20%

Note:
We calculated the market return using a quarterly DCF model for a large number of dividend paying stocks followed by Value Line. As of April 16, 2018, the result was 11.83 percent.
We added 20 basis points to the CAPM result to account for a flotation cost of four percent.

Public Utility Long-Term Bond Yield Averages

Month, Year	A2	Spread	A3	Spread	Baa1	Spread	Baa2	Spread	Baa3
April, 2018	4.15	0.11	4.26	0.11	4.37	0.11	4.48	0.11	4.59
120 – Month Average Spread							4.480	**0.161**	0.0464

Consensus Forecasts – Corporate Baa Bond Rate

2Q 2018	3Q 2018	4Q 2018	1Q 2019
4.8	5.0	5.2	5.3
Average Forecasted Corporate Baa Bond Rate:			**5.075**

Assumed Bond Yield for Baa3 Utilities: 0.161 + 5.075 = 5.236

	Updated Results	Currently In Effect
Private Placement Premium	0.50%	0.50%
Small-Utility Risk Premium	0.50%	0.50%
Assumed Bond Yield for Baa3 Utilities	5.24%	6.13%
Assumed Bond Yield for Florida WAW Utilities:	**6.24%**	**7.13%**

Sources:
Value Line Selection and Opinion
Blue Chip Financial Forecast – May 2018

2018 Leverage Formula Proxy Group

Company	S&P Bond Rating	Percent Regulated Revenue	V/L Market Capital (Millions)	Equity Ratio	Weighted Equity Ratio	Value Line Beta	Weighted Value Line Beta
Atmos Energy	A	95.99%	$9,100	52.59%	10.20%	0.70	0.14
NW Natural Gas	A+	96.16%	$1,600	47.10%	1.61%	0.65	0.02
One Gas, Inc.	A	100.00%	$3,500	55.71%	4.16%	0.70	0.05
SW Gas	BBB+	51.09%	$3,200	47.07%	3.21%	0.75	0.05
Spire, Inc.	A-	95.36%	$3,200	43.63%	2.98%	0.65	0.04
American States Water	A+	77.24%	$1,900	58.22%	2.36%	0.75	0.03
American Water Works	A	88.11%	$14,500	41.08%	12.70%	0.65	0.20
Aqua America	A+	99.43%	$6,000	47.70%	6.10%	0.70	0.09
Cal. Water Service	A+	93.93%	$1,800	46.22%	1.77%	0.75	0.03
Middlesex Water	A	88.28%	$600	56.86%	0.73%	0.80	0.01
SJW Group	A	96.63%	$1,100	50.39%	1.18%	0.70	0.02
York Water	A-	100.00%	$400	56.71%	0.48%	0.80	0.01
AVERAGE	**A**	**90.19%**	**$3,908**	**50.27%**	**47.48%**	**0.72**	**0.69**

Sources:
Value Line Ratings and Reports
S.E.C. Form 10K for Companies
Standard and Poor's