

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 23, 2018

**TO:** Office of Commission Clerk (Stauffer)

**FROM:** Division of Accounting and Finance (Richards, Buys, Cicchetti) *CRR* *JB* *ALM*  
Office of the General Counsel (Harper) *Nett* *S.M.C.*

**RE:** Docket No. 20180006-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:** 06/05/18 – Regular Agenda – Proposed Agency Action – Interested Persons May Participate

**COMMISSIONERS ASSIGNED:** All Commissioners

**PREHEARING OFFICER:** Clark

**CRITICAL DATES:** None

**SPECIAL INSTRUCTIONS:** None

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### Case Background

Section 367.081(4)(f), Florida Statutes (F.S.), authorizes the Commission 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. The leverage formula methodology currently in use was established in Order No. PSC-2001-2514-FOF-WS.<sup>1</sup> On October 23, 2008, the Commission held a formal hearing in Docket No. 20080006-WS to allow interested parties to provide testimony regarding the validity of the leverage formula.<sup>2</sup> Based on the record in that

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<sup>1</sup>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.*

<sup>2</sup>At the May 20, 2008, Commission Conference, upon request of the Office of Public Counsel, the Commission voted to set the establishment of the appropriate leverage formula directly for hearing.

proceeding, the Commission approved the 2008 leverage formula in Order No. PSC-2008-0846-FOF-WS.<sup>3</sup> In that order, the Commission reaffirmed the methodology that was previously approved in Order No. PSC-2001-2514-FOF-WS.

The Commission approved the current leverage formula in 2011 by Order No. PSC-2011-0287-PAA-WS.<sup>4</sup> From 2012 through 2017, the Commission approved staff's recommendations to continue to use the 2011 leverage formula for establishing the authorized ROE for WAW utilities.<sup>5</sup> From 2012 through 2017, the Commission 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, the Commission 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, 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. A summation of the stakeholders' comments is discussed in Issue 1.

The Commission has jurisdiction pursuant to Section 367.081, F.S.

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<sup>3</sup>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.*

<sup>4</sup>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.*

<sup>5</sup>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.*

## Discussion of Issues

**Issue 1:** Should the leverage formula methodology be modified?

**Recommendation:** Yes. Several refinements should be made to the leverage formula methodology to reflect newly available information and to reflect best practices. The leverage formula methodology should 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 should be based on the projected cost of debt. (Richards)

**Staff Analysis:** Section 367.081(4)(f), F.S., authorizes the Commission to establish a leverage formula to calculate a reasonable range of returns on common equity for WAW utilities. The Commission 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 the Commission's jurisdiction, the Commission has 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, the Commission will determine the appropriate ROE based on the evidentiary record in that proceeding.

Since 2001, staff has 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. The Commission 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 six. 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 its own analysis, staff has modified the selection of proxy companies and determined that a combination of qualified WAW and natural gas utilities is reasonable and appropriate for a proxy group to use in calculating the leverage formula. Staff 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. As explained later in this recommendation, the returns calculated using the proxy group are adjusted to reflect the risks faced by Florida WAW utilities.

### Methodology

Staff's recommendation for the leverage formula reflects certain modifications from the previously approved methodology. As mentioned earlier, staff expanded the proxy group to include WAW utilities as well as natural gas utilities. The updated index consists of six 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".

In addition, staff used 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. Staff used 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."<sup>6</sup> Staff 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.

In addition to the modifications to the leverage formula methodology cited above, staff used 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. Staff believes 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). Staff updated its methodology 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). Staff then added the 120-month average spread to the projected Baa2 rated utility bond yield to estimate a projected Baa3 rated utility bond yield. Aside from the modifications cited above, all other aspects of the previously approved leverage formula methodology remain unchanged.

The leverage formula relies on ROE models described below. Staff adjusted the results of these models to reflect differences in risk and debt cost between the proxy group and the average Florida WAW utility. The ROE models include a four percent adjustment for flotation costs. The ROE models are as follows:

- 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.

Staff averaged the results of the DCF and CAPM models and adjusted the result as follows:

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<sup>6</sup>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 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 is included in the weighted average capital structure of the proxy group of utilities to derive the leverage formula.

### **Workshop Comments**

On November 8, 2017, 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 persons 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 suggestions all resulted in lowering the ROE while UIF's suggestions mostly resulted in increasing the ROE.

#### ***OPC Comments***

- OPC submitted that the Commission adopt a rule setting forth the leverage formula. OPC contended that continued application of the leverage formula constitutes an un-adopted rule.
- 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 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.
- 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 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.

### ***Staff Response to OPC's Comments***

Regarding OPC's request for the Commission 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)

Staff believes the statute, on its face, makes it clear that the Commission may establish a leverage formula by order. The Commission reviews the leverage formula yearly. Thus, if it was codified in a rule, the Commission 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 Commission order, it appears that the legislature did not intend the Commission to be in a constant rule making posture for this matter. Establishing a rule for the leverage formula may limit the Commission's 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, staff does not recommend establishment of a rule for the leverage formula.

Regarding the bond yield differential, staff believes 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 the Commission's jurisdiction were to be rated, staff believes 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, staff disagrees. 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 staff's recommended proxy group is \$5.45 billion and the smallest company has a market capitalization of \$400 million. Small-company risk premiums are a widely accepted adjustment that has 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, staff disagrees. 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, the Commission has previously included this adjustment to reflect the difference in yields on publicly traded debt and privately placed debt, which is illiquid. Staff admits 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, staff believes recognition of the private placement risk should be included in the leverage formula. The private placement premium of 50 basis points was approved by the Commission in Order No. PSC-2008-0846-FOF-WS.<sup>7</sup> In its order, the Commission 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

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<sup>7</sup>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.*

premium adjustment of 50 basis points as reflected in Attachment A to this Order.

Staff believes 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, staff disagrees with OPC and believes 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 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.

### ***UIF Comments***

UIF retained ScottMaden, Inc., management consultants, to file comments of its behalf. Ms. Pauline M. Ahern, CRRA, who testified on behalf of UIF in the 2008 leverage formula docket, submitted comments. In summary, Ms. Ahern provided 47 pages of technically detailed suggestions to change the DCF and CAPM methodologies used to derive the ROE of the proxy group. Those suggestions are summarized below.

- The Commission should consider including a WAW utility index along with or replacing the natural gas utility index in the leverage formula.
- The Commission should 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.
- The Commission should eliminate foreign companies in the CAPM Market Equity Risk Premium (MERP) because the WAW utilities are based in the U.S.
- The CAPM MERP should be based on a market-value weighted average instead of a simple average.
- The Commission 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.
- The private placement premium should remain at 50 basis points.
- The small-utility risk premium should be increased from 50 basis points to 100 basis points.
- Flotation costs of 20 basis points, or 4%, should be included.
- The Commission 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.



### **Staff Response to UIF's 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, staff 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. Staff does not believe that the small-utility risk premium should be increased without further study to determine if that would be appropriate. Staff agrees that flotation costs should be recognized in the application of the ROE models and they have been since 2001.

UIF suggested 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, staff believes it is reasonable to use a projected Baa3 rated utility bond yield and that it is consistent with staff's 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, staff disagrees. All DCF models are derived from the equation that represents all expected cash flows into perpetuity. The multi-stage model allows staff to avail itself of the explicit expected dividends provided by Value Line. Using a less robust form of the DCF model provides no benefit. Staff also disagrees 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, staff disagrees. 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, staff believes 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.

### **Conclusion**

For the reasons discussed above, staff recommends several refinements to the leverage formula methodology to reflect newly available information and to reflect best practices. The leverage formula methodology should 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 should be based on the projected cost of debt.

**Issue 2:** What is the appropriate range of returns on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), Florida Statutes?

**Recommendation:** The leverage formula methodology described in Issue 1 should be applied using a proxy group comprised of natural gas and WAW utilities and updated financial data. Accordingly, the following leverage formula should be used until the leverage formula is addressed again in 2019:

$$\text{ROE} = 6.24\% + (1.94 \div \text{Equity Ratio})$$

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

Range: 8.18% at 100% equity to 11.08% at 40% equity

Additionally, the Commission should cap returns on common equity at 11.08 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. (Richards)

**Staff Analysis:** Section 367.081(4)(f), F.S., authorizes the Commission to establish a leverage formula to calculate a reasonable range of returns on common equity for WAW utilities. The Commission 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 the Commission's jurisdiction, the Commission has 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 using of the leverage formula, the Commission will determine the appropriate ROE based on the evidentiary record in that proceeding.

### Updated Leverage Formula

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 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.

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

In the instant docket, staff updated the current leverage formula using the most recent 2018 financial data and the methodology described in Issue 1 which uses a proxy group including both natural gas and WAW utilities and market-capitalization based weighted average results. The derivation of the leverage formula is presented in Attachment 1.

Using the updated financial data in the revised leverage formula decreases the lower end of the current allowed ROE range by 56 basis points and decreases the upper end of the range by 8 basis points. Overall, the spread between the range of returns on equity based on the updated leverage formula is 290 basis points (8.18 percent to 11.08 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, staff believes 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. As such, staff recommends the following leverage formula be used until a new leverage formula is determined in 2019:

$$\text{ROE} = 6.24\% + (1.94 \div \text{Equity Ratio})$$

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

The appropriate range of returns on equity is 8.18% at 100% equity to 11.08% at 40% equity.

Additionally, staff recommends that the Commission cap returns on common equity at 11.08 percent for all WAW utilities with equity ratios less than 40 percent. Staff recommends this in an effort to discourage imprudent financial risk. This cap is consistent with the methodology in Order No. PSC-2008-0846-FOF-WS.

**Issue 3:** Should this docket be closed?

**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. (Harper)

**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.

SUMMARY OF RESULTS  
2018 Water and Wastewater Leverage Formula

	Updated Results	Currently In Effect
(A) DCF ROE	7.69%	8.25%
(B) CAPM ROE	<u>9.49%</u>	<u>9.40%</u>
AVERAGE	8.59%	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	<u>0.85%</u>	<u>0.76%</u>
Cost of Equity for Average Florida WAW Utility at 40% Equity Ratio	<u>11.08%</u>	<u>11.16%</u>

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% + (1.94 ÷ Equity Ratio)

Range of Returns on Equity = 8.18% to 11.08%

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	48.48%	10.24%	4.96%
Total Debt	<u>51.52%</u>	6.24%*	<u>3.21%</u>
	<u>100.00%</u>		<u>8.18%</u>

A 40% equity ratio is the floor for calculating the required return on common equity.

The return on equity at a 40% equity ratio:  $6.24\% + (1.94 \div 0.40) = 11.08\%$

Marginal Cost of Investor Capital  
Average Water and 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%	11.08%	4.43%
Total Debt	<u>60.00%</u>	6.24%*	<u>3.74%</u>
	<u>100.00%</u>		<u>8.18%</u>

Where:  $\text{Equity Ratio} = \text{CE} / (\text{CE} + \text{Pref. Equity} + \text{LTD} + \text{STD})$

\*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

<u>Company</u>	<u>Weight<sup>[1]</sup></u>	<u>Div<sub>0</sub></u>	<u>Div<sub>1</sub></u>	<u>Div<sub>2</sub></u>	<u>Div<sub>3</sub></u>	<u>Div<sub>4</sub></u>	<u>EPS<sub>4</sub></u>	<u>ROE<sub>4</sub></u>	<u>GR<sub>1-4</sub></u>	<u>GR<sub>4+</sub></u>	<u>AVG-PR<sup>[2]</sup></u>	<u>Weighted DCF Results<sup>[3]</sup></u>
Atmos Energy	12.83%	1.94	2.08	2.21	2.35	2.50	5.15	0.11	1.06	1.06	81.78	1.05%
Northwest Natural Gas Company	2.26%	1.89	2.00	2.06	2.13	2.20	3.50	0.11	1.03	1.04	57.17	0.17%
ONE Gas, Inc.	4.94%	1.84	2.00	2.15	2.32	2.50	4.00	0.09	1.08	1.03	65.22	0.33%
Public Service Enterprise Group	33.85%	1.80	1.90	2.00	2.10	2.20	3.50	0.11	1.05	1.04	48.64	2.65%
Southwest Gas Holdings	4.51%	2.08	2.18	2.31	2.45	2.60	5.10	0.09	1.06	1.04	68.10	0.34%
Spire Inc.	4.51%	2.25	2.40	2.43	2.47	2.50	5.50	0.10	1.01	1.05	69.14	0.37%
American States Water	2.68%	1.07	1.15	1.24	1.34	1.45	2.45	0.14	1.08	1.06	52.42	0.21%
American Water Works	20.45%	1.78	1.95	2.15	2.36	2.60	4.50	0.11	1.10	1.04	80.35	1.47%
Aqua America	8.46%	0.85	0.91	1.01	1.12	1.25	1.95	0.13	1.11	1.04	32.91	0.65%
California Water Service Group	2.54%	0.75	0.78	0.85	0.93	1.02	1.90	0.12	1.09	1.05	36.43	0.19%
Middlesex Water	0.85%	0.91	0.96	1.01	1.06	1.11	2.10	0.13	1.05	1.06	38.37	0.07%
SJW Group	1.55%	1.12	1.20	1.28	1.36	1.45	3.45	0.14	1.07	1.08	56.04	0.16%
York Water	0.56%	0.70	0.75	0.83	0.91	1.00	1.60	0.14	1.10	1.05	30.24	<u>0.04%</u>
<b>Annual Weighted DCF Results:</b>												<b><u>7.69%</u></b>

The ROE of 7.69 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:

<sup>[1]</sup> Company's weight is based off of the Company's Market-Capitalization

<sup>[2]</sup> Average Stock Prices include four percent flotation cost

<sup>[3]</sup> 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

9.49% = 3.58% + 0.69 (11.83% - 3.58%) + 0.20%

Note:

Staff 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.

Staff 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
<b>120 – Month Average Spread</b>							4.480	<b>0.161</b>	0.0464

Consensus Forecasts – Corporate Baa Bond Rate

2Q 2018	3Q 2018	4Q 2018	1Q 2019
4.8	5.0	5.2	5.3
<b>Average Forecasted Corporate Baa Bond Rate:</b>			<b>5.075</b>

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

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

Sources:

Value Line Selection and Opinion

Blue Chip Financial Forecast – May 2018

2018 Leverage Formula Proxy Group

<u>Company</u>	<u>S&amp;P Bond Rating</u>	<u>Percent Regulated Revenue</u>	<u>V/L Market Capital (Millions)</u>	<u>Equity Ratio</u>	<u>Weighted Equity Ratio</u>	<u>Value Line Beta</u>	<u>Weighted Value Line Beta</u>
Atmos Energy	A	95.99%	\$9,100	52.59%	6.75%	0.70	0.09
NW Natural Gas	A+	96.16%	\$1,600	47.10%	1.06%	0.65	0.01
One Gas, Inc.	A	100.00%	\$3,500	55.71%	2.75%	0.70	0.03
P.S. Enterprise	BBB+	68.63%	\$24,000	50.43%	17.07%	0.70	0.24
SW Gas	BBB+	51.09%	\$3,200	47.07%	2.12%	0.75	0.03
Spire, Inc.	A-	95.36%	\$3,200	43.63%	1.97%	0.65	0.03
American States Water	A+	77.24%	\$1,900	58.22%	1.56%	0.75	0.02
American Water Works	A	88.11%	\$14,500	41.08%	8.40%	0.65	0.13
Aqua America	A+	99.43%	\$6,000	47.70%	4.04%	0.70	0.06
Cal. Water Service	A+	93.93%	\$1,800	46.22%	1.17%	0.75	0.02
Middlesex Water	A	88.28%	\$600	56.86%	0.48%	0.80	0.01
SJW Group	A	96.63%	\$1,100	50.39%	0.78%	0.70	0.01
York Water	A-	100.00%	\$400	56.71%	0.32%	0.80	0.00
<b>AVERAGE</b>	<b>A</b>	<b>88.53%</b>	<b>\$5,454</b>	<b>50.28%</b>	<b>48.48%</b>	<b>0.72</b>	<b>0.69</b>

## Sources:

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