MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

COST OF SERVICE

APPENDIX 2

Support for Staff
Cost of
Capital Recommendations

LAKE REGION WATER & SEWER COMPANY

CASE NO. WR-2013-0461

Jefferson City, Missouri
November 2013

Small Utility

Return on Equity (ROE)/Rate of Return (ROR)

Methodology

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Financial Analysis Small Water and Sewer Return on Equity (ROE) Determination

Although the Financial Analysis (FA) Department's small water and sewer (W&S) rate case procedure had been premised on adding a range of risk premiums to the FA Department's cost of equity estimate in the most recent Missouri-American rate case, the FA Department decided to revise its generic procedure to allow cost of equity estimates for small water and sewer companies to be more responsive, current and specific than its old procedure. The FA Department's new procedure is based on a fairly generic risk premium methodology. Staff will apply a "standard" risk premium to a reasonable estimate of the current cost of debt for the subject company to arrive at an estimated cost of equity. Because small water and sewer companies typically don't issue debt that is actively traded, the FA Department must rely on its estimate of the subject company's credit rating and then determine a recent average cost of utility debt for this rating based on data the FA Department receives from its current source for utility debt yields, BondsOnline. The Department then adds the "standard" risk premium to this current cost of debt to estimate the cost of common equity. These capital costs are then applied to the appropriate weights in the capital structure to estimate a fair and reasonable rate of return.

Recommended Formula:

Recommended Return on Common Equity = Reuters Public Utility Bond Yield average of the past three months from BondsOnline + 3-4% risk premium.

This formula is based on the bond yield risk premium method for estimating the cost of equity. According to the textbook *Analysis of Equity Investments: Valuation* (2002) by John D. Stowe, Thomas R. Robinson, Jerald E. Pinto and Dennis W. McLeavey (used as part of the curriculum in the Chartered Financial Analyst Program), a typical risk premium added to the yield-to-maturity (YTM) of a company's long-term debt is in the 3 to 4 percent range. For purposes of estimating the cost of common equity for Missouri's larger electric, gas and water utilities, FA Staff believes at least the low end of this risk premium range is appropriate considering publicly-traded utility stocks exhibit investment characteristics very similar to bonds. Consequently, the low end of the risk premium estimate will be considered for companies that are not privately held or are subsidiaries of publicly-traded parent companies. However, the high end of the risk premium estimate may be used for privately owned small water and sewer companies that are not considered to be marketable from an acquisition standpoint.

Estimated Bond Rating:

In order to estimate the cost of debt for the subject company (assuming there is no current reasonable yield on the subject company's cost of debt), the FA Department must estimate the credit rating of the subject company. The FA Department's estimate of the subject company's credit rating will be restricted to credit ratings within the range of 'AAA' to 'B'. Because most regulated small water and sewer companies in Missouri do not issue debt either directly or indirectly (through a parent company), they do not have a published credit rating. Therefore, in such cases the FA Department will use the May

27, 2009 Standard & Poor's ratings matrix as a guide to estimate the water and sewer utility's credit rating. This guide allows the FA Department to estimate a credit rating based on an assessment of the business and financial risks of the small water and sewer utility. Based on S&P data available for the water companies it rates, these companies have a financial risk profile ("FRP") no lower than "Aggressive" and business risk profiles ("BRP") of "Excellent."[1] Although S&P assigns an "Excellent" BRP to all of the water and sewer companies it rates, Staff believes that due to the fact that some small water and sewer companies have trouble receiving debt financing, this should be considered in assigning BRPs for purposes of estimating the cost of equity for small water and sewer companies. Staff will determine the BRP of a company by assessing the company's access or potential access to debt capital. If a company proves to Staff that they cannot obtain a loan or the company can obtain a loan but has to pledge personal assets in order to do so, then Staff would classify the company's BRP as "Satisfactory." If the company can obtain a commercial loan without having to pledge personal assets, then Staff would classify the company as having a "Strong" BRP. If a company or its parent can issue debt directly to capital providers, then Staff would classify the company as having an "Excellent" BRP. The FRP of a company will be estimated by determining the company's Debt/Capital ratio and comparing it to the following S&P's benchmark ratios:

Financial Risk Indicative Ratios (Corporates)

	Debt/Capital (%)
Minimal	less than 25
Modest	25-35
Intermediate	35-45
Significant	45-50
Aggressive	50-60
Highly Leveraged	greater than 60

S&Ps Business and Financial Risk Profile Matrix states that the ratings indicated in each cell of the matrix are the midpoints of a range of likely rating possibilities. This range would ordinarily span one notch above and below the indicated rating. For example, an "Aggressive" FRP and a "Strong" BRP is indicative of a 'BB' rating according to the matrix. The 'BB' rating is the midpoint, meaning the suggested range would be 'BB+' to 'BB-'. Staff will determine which indicative rating to use by evaluating the Debt/Capital ratio. For example, an "Aggressive" FRP has a Debt/Capital ratio of 50%-60% according to the financial risk indicative ratios. Staff would divide the 50%-60% into thirds to represent 3 notches in the range. Therefore, using an "Aggressive" FRP and a "Strong"

[1] "Excellent" is considered to be the least risky of all of S&P's business risk profiles.
[2] S&P RatingsDirect, May 27, 2009, "Criteria Methodology: Business Risk/Financial Risk Matrix Expanded" (Attachment A).

BRP as an example, the midpoint of ‘BB’ may be represented by a Debt/Capital ratio of 53.33%-56.66%, ‘BB+’ may be represented by a Debt/Capital ratio of 50.00%-53.32% and ‘BB-’ may be represented by a Debt/Capital ratio of 56.67% - 60%.

Capital Structure Determination:

In situations in which a small water and sewer utility has debt capital in excess of 75%, the FA Department believes it is appropriate to use a hypothetical capital structure that limits debt to 75% of total capital. Although it could be argued that Staff should also use a hypothetical capital structure if a company’s capital structure is not cost efficient due to a high equity ratio, the FA Department decided not to limit the amount of equity in the capital structure. If a company shows that its capital structure consists of more than 75% debt, then a hypothetical capital structure of 75% debt and 25% equity will be assumed. For all situations wherein a small water and sewer company has debt capital less than 75%, the company’s actual capital structure will be used in determining the company’s ROR. Assuming the company’s current cost of debt is reasonable for a hypothetical capital structure of 75% debt and 25% equity, Staff may use this current cost of debt. If the company’s current cost of debt is unreasonable due to over use of leverage, Staff may use a hypothetical cost of debt.

The FA Department will rely on the company’s financial statements to estimate the ratemaking capital structure if these financial statements provide an accurate and reliable representation of the capital that supports the company’s investment in the utility’s assets. However, if a company’s rate base is not consistent with the carrying value of the assets in the financial statements, Staff will impute the rate base number as plant and subtract the amount of debt from rate base to estimate the amount of equity in the capital structure.

Cost of Common Equity:

The Department recognizes that the estimation of the cost of common equity for a utility is not an exact science. Therefore, the Department will recommend a reasonable ROE range based on the specific circumstances of each case. For example, absent specific circumstances, the Department usually recommends an ROE range of no more than 100 basis points in major rate cases. Staff may recommend the higher end of its range if the company is privately held and not marketable. Staff may recommend the low end of its range if the water and sewer operations are owned by a larger parent company that is publicly-traded or the company is considered to be marketable from an acquisition perspective.

Disclaimer:

This procedure may be subject to change at any time based on Staff’s research on other approaches to address small water and sewer ROE recommendations and the availability of additional and/or better resources that may allow for improvement to the determination of appropriate rates of return for small water and sewer.

Examples:

75.00% to 100% Equity: According to Table 1 in the May 27, 2009 S&P report, this is indicative of a “Minimal” FRP. Depending on the BRP, the benchmark credit rating could be anywhere from ‘AAA’ to ‘A-’.

65.00% to 74.99% Equity: According to Table 1 in the May 27, 2009 S&P report, this is indicative of a “Modest” FRP. Depending on the BRP, the benchmark credit rating could be anywhere from ‘AA’ to ‘BBB+’.

55.00% to 64.99% Equity: According to Table 1 in the May 27, 2009 S&P report, this is indicative of a “Intermediate” FRP. Depending on the BRP, the benchmark credit rating could be anywhere from ‘A’ to ‘BBB’.

50.00% to 54.99% Equity: According to Table 1 in the May 27, 2009 S&P report, this is indicative of a “Significant” FRP. Depending on the BRP, the benchmark credit rating could be anywhere from ‘A-’ to ‘BB+’.

40.00% to 49.99% Equity: According to Table 1 in the May 27, 2009 S&P report, this is indicative of a “Aggressive” FRP. Depending on the BRP, the benchmark credit rating could be anywhere from ‘BBB’ to ‘BB-’.

25.00% to 39.99% Equity: According to Table 1 in the May 27, 2009 S&P report, this is indicative of a “Highly Leveraged” FRP. Depending on the BRP, the benchmark credit rating could be anywhere from ‘BB-’ to ‘B+’.

Case Example for WACC Recommendation

Test year of Dec. 31, 200X for this case indicates the following regarding capital structure:

XYZ Sewer Systems, Inc
12/31/200X

Common Stock	$47,056	40%
Debt	$70,584	60%
Total Capital	$117,640	100%

Most of the time the amount of common stock will be broken down by par value of common stock, other paid in capital and retained earnings. One should make sure to include all components of common equity in this balance.

Debt Issuance	Amount	Cost	Percent	Weighted Cost of Debt
N/P United Bank of Union	$44,007.08	6.25%	62.34%	3.90%
N/P Jane Doe Corp.	$23,276.92	5.50%	32.98%	1.81%
N/P Doe Construction, Inc.	$ 3,300.00	5.50%	4.68%	0.26%
	$70,584.00		**100.00%**	**5.97%**

As you can see, the weighted cost of debt is figured the same as the overall weighted cost of capital. Based on the S&P ratings matrix the company has an "Aggressive" FRP and based on the company's ability to obtain a commercial loan from United Bank of Union, the BRP is considered "Strong". Based on Staff's determination of an "Aggressive" FRP and a "Strong" BRP, XYZ Sewer Systems credit profile is indicative of a 'BB-' rating.

Now that we have an estimated credit rating we need to determine a current yield on debt of the same rating. Staff currently obtains such data through its subscription to BondsOnline. Because yields can fluctuate from month-to-month, Staff believes it is appropriate to use a 3-month average yield. Staff uses 30-year utility bond yields because it is assumed that utility stock investors' required returns are closely tied to required returns for long-term bond investments.

Although the following example is only based on the debt yield for one month, May 2011, simply use the same methodology for the other two months and average the 3 yields to determine the appropriate reference yield.

Based on the methodology discussed above, the risk premium would be added to the reference yield consistent with a 'BB-' rating for a 30-year bond, which is 4.29% + 3.71% = 8.00% (see table below). Because the company is a privately-owned enterprise that doesn't issue its own debt or its parent company doesn't issue debt, you add a 4% risk premium to arrive at a cost of equity recommendation of 12%.

Reuters Corporate Spreads for Utilities
May 2011 Average

Rating	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	30 yr
Aaa / AAA	13	20	22	27	29	36	39
Aa1 / AA+	22	28	32	37	69	74	79
Aa2 / AA	27	32	37	47	77	79	84
Aa3 / AA-	28	39	53	58	85	90	95
A1 / A+	32	42	56	77	93	103	114
A2 / A	37	47	62	87	104	109	116
A3 / A-	47	57	82	97	114	119	129
Baa1 / BBB+	77	82	97	122	119	124	159
Baa2 / BBB	95	102	122	142	149	154	179
Baa3 / BBB-	97	117	127	147	159	164	194
Ba1 / BB+	101	121	131	151	161	181	216
Ba2 / BB	121	146	161	191	201	231	271
Ba3 / BB-	131	156	166	196	231	351	371
B1 / B+	166	171	191	271	286	381	441
B2 / B	171	201	296	371	421	511	641
B3 / B-	191	346	471	571	621	676	761
Caa / CCC+	366	471	572	636	646	761	861
US Treasury Yield	0.19	0.56	0.94	1.84	2.51	3.17	4.29

XYZ Sewer Systems, Inc.
Cost of Capital as of 12/31/200X

Capital Component	Amount	%Capital	Cost	Weighted Cost
Common equity	$ 47,056	40.00%	12.00%	4.80%
Long-term debt	$ 70,584	60.00%	5.97%	3.58%
	$117,640	100.00%		8.38%

Weighted Cost of Capital as of June 30, 2013
for Lake Region Water & Sewer Company

Capital Component	Amount	Percentage of Capital	Embedded Cost	**13.89%**
Common Stock Equity	$658,891.50 *	25.00%	-----	3.47%
Long-Term Debt	$1,976,674.50 *	75.00%	5.00%	3.75%
Total Capital	$2,635,566.00	**100.00%**		**7.22%**

Sources:
Response to Staff DR Nos. 0021, 0064 and 0070

*The actual Long-Term Debt amount for Lake Region is $4,246,731.04. The numbers shown reflect a hypothetical capital structure.

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May 27, 2009

Criteria | Corporates | General:

Criteria Methodology: Business Risk/Financial Risk Matrix Expanded

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Criteria Methodology: Business Risk/Financial Risk Matrix Expanded

(Editor's Note: We are republishing this criteria following our periodic review completed on Dec. 8, 2010. In the original version of this article published on May 26, 2009, certain rating outcomes in the table 1 matrix were missated. A corrected version follows.

Table 1 supersedes tables 1, 2, and 3 in the following articles:

-- "Business And Financial Risks In The Global Telecommunication, Cable, And Satellite Broadcast Industry," published Jan. 27, 2009;

-- "Business And Financial Risks In The U.S. For-Profit Health Care Facilities Industry," published Jan. 21, 2009;

-- "Business And Financial Risks In The Health Care Equipment And Supply Industry," published Feb. 6, 2009;

-- "Methodology And Assumptions On Risks In The Packaging Industry," published Dec. 4, 2008;

-- "Business And Financial Risks In The Investor-Owned Utilities Industry," published Nov. 26, 2008;

-- "Business And Financial Risks In The Global Building Products And Materials Industry," published Nov. 19, 2008;

-- "Business And Financial Risks In The Commodity And Specialty Chemical Industry," published Nov. 20, 2008;

-- "Business And Financial Risks In The Oil And Gas Exploration And Production Industry," published Nov. 10, 2008;

-- "Business And Financial Risks In The U.S. Trucking Industry," published Nov. 4, 2008;

-- "Business And Financial Risks In The U.S. Gaming Industry," published Sept. 25, 2008;

-- "Business And Financial Risks In The Retail Industry," published Sept. 18, 2008; and

-- "Business And Financial Risks In The Restaurant Industry," published Dec. 4, 2008.

Table 1 also supersedes only table 1 in "Business And Financial Risks In The Global High Technology Industry," published Sept. 18, 2008.)

Standard & Poor's Ratings Services is refining its methodology for corporate ratings related to its business risk/financial risk matrix, which we published as part of "2008 Corporate Ratings Criteria" on April 15, 2008, on RatingsDirect at www.ratingsdirect.com and Standard & Poor's Web site at www.standardandpoors.com.

This article amends and supersedes the criteria as published in Corporate Ratings Criteria, page 21, and the articles listed in the "Related Articles" section at the end of this report.

This article is part of a broad series of measures announced last year to enhance our governance, analytics,

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dissemination of information, and investor education initiatives. These initiatives are aimed at augmenting our independence, strengthening the rating process, and increasing our transparency to better serve the global markets.

We introduced the business risk/financial risk matrix four years ago. The relationships depicted in the matrix represent an essential element of our corporate analytical methodology.

We are now expanding the matrix, by adding one category to both business and financial risks (see table 1). As a result, the matrix allows for greater differentiation regarding companies rated lower than investment grade (i.e., 'BB' and below).

Table 1

Business And Financial Risk Profile Matrix

Business Risk Profile	--Financial Risk Profile--					
	Minimal	**Modest**	**Intermediate**	**Significant**	**Aggressive**	**Highly Leveraged**
Excellent	AAA	AA	A	A-	BBB	--
Strong	AA	A	A-	BBB	BB	BB-
Satisfactory	A-	BBB+	BBB	BB+	BB-	B+
Fair	--	BBB-	BB+	BB	BB-	B
Weak	--	--	BB	BB-	B+	B-
Vulnerable	--	--	--	B+	B	CCC+

These rating outcomes are shown for guidance purposes only. Actual rating should be within one notch of indicated rating outcomes.

The rating outcomes refer to issuer credit ratings. The ratings indicated in each cell of the matrix are the midpoints of a range of likely rating possibilities. This range would ordinarily span one notch above and below the indicated rating.

Business Risk/Financial Risk Framework

Our corporate analytical methodology organizes the analytical process according to a common framework, and it divides the task into several categories so that all salient issues are considered. The first categories involve fundamental business analysis; the financial analysis categories follow.

Our ratings analysis starts with the assessment of the business and competitive profile of the company. Two companies with identical financial metrics can be rated very differently, to the extent that their business challenges and prospects differ. The categories underlying our business and financial risk assessments are:

Business risk

- Country risk
- Industry risk
- Competitive position
- Profitability/Peer group comparisons

Financial risk

- Accounting
- Financial governance and policies/risk tolerance
- Cash flow adequacy

- Capital structure/asset protection
- Liquidity/short-term factors

We do not have any predetermined weights for these categories. The significance of specific factors varies from situation to situation.

Updated Matrix

We developed the matrix to make explicit the rating outcomes that are typical for various business risk/financial risk combinations. It illustrates the relationship of business and financial risk profiles to the issuer credit rating.

We tend to weight business risk slightly more than financial risk when differentiating among investment-grade ratings. Conversely, we place slightly more weight on financial risk for speculative-grade issuers (see table 1, again). There also is a subtle compounding effect when both business risk and financial risk are aligned at extremes (i.e., excellent/minimal and vulnerable/highly leveraged.)

The new, more granular version of the matrix represents a refinement--not any change in rating criteria or standards--and, consequently, holds no implications for any changes to existing ratings. However, the expanded matrix should enhance the transparency of the analytical process.

Financial Benchmarks

Table 2

Financial Risk Indicative Ratios (Corporates)

	FFO/Debt (%)	Debt/EBITDA (x)	Debt/Capital (%)
Minimal	greater than 60	less than 1.5	less than 25
Modest	45-60	1.5-2	25-35
Intermediate	30-45	2-3	35-45
Significant	20-30	3-4	45-50
Aggressive	12-20	4-5	50-60
Highly Leveraged	less than 12	greater than 5	greater than 60

How To Use The Matrix--And Its Limitations

The rating matrix indicative outcomes are what we typically observe--but are not meant to be precise indications or guarantees of future rating opinions. Positive and negative nuances in our analysis may lead to a notch higher or lower than the outcomes indicated in the various cells of the matrix.

In certain situations there may be specific, overarching risks that are outside the standard framework, e.g., a liquidity crisis, major litigation, or large acquisition. This often is the case regarding credits at the lowest end of the credit spectrum--i.e., the 'CCC' category and lower. These ratings, by definition, reflect some impending crisis or acute vulnerability, and the balanced approach that underlies the matrix framework just does not lend itself to such situations.

Similarly, some matrix cells are blank because the underlying combinations are highly unusual--and presumably would involve complicated factors and analysis.

The following hypothetical example illustrates how the tables can be used to better understand our rating process (see tables 1 and 2).

We believe that Company ABC has a satisfactory business risk profile, typical of a low investment-grade industrial issuer. If we believed its financial risk were intermediate, the expected rating outcome should be within one notch of 'BBB'. ABC's ratios of cash flow to debt (35%) and debt leverage (total debt to EBITDA of 2.5x) are indeed characteristic of intermediate financial risk.

It might be possible for Company ABC to be upgraded to the 'A' category by, for example, reducing its debt burden to the point that financial risk is viewed as minimal. Funds from operations (FFO) to debt of more than 60% and debt to EBITDA of only 1.5x would, in most cases, indicate minimal.

Conversely, ABC may choose to become more financially aggressive--perhaps it decides to reward shareholders by borrowing to repurchase its stock. It is possible that the company may fall into the 'BB' category if we view its financial risk as significant. FFO to debt of 20% and debt to EBITDA 4x would, in our view, typify the significant financial risk category.

Still, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees. They can vary in nonstandard cases: For example, if a company's financial measures exhibit very little volatility, benchmarks may be somewhat more relaxed.

Moreover, our assessment of financial risk is not as simplistic as looking at a few ratios. It encompasses:

- a view of accounting and disclosure practices;
- a view of corporate governance, financial policies, and risk tolerance;
- the degree of capital intensity, flexibility regarding capital expenditures and other cash needs, including acquisitions and shareholder distributions; and
- various aspects of liquidity--including the risk of refinancing near-term maturities.

The matrix addresses a company's standalone credit profile, and does not take account of external influences, which would pertain in the case of government-related entities or subsidiaries that in our view may benefit or suffer from affiliation with a stronger or weaker group. The matrix refers only to local-currency ratings, rather than foreign-currency ratings, which incorporate additional transfer and convertibility risks. Finally, the matrix does not apply to project finance or corporate securitizations.

Related Criteria And Research

Industrials' Business Risk/Financial Risk Matrix--A Fundamental Perspective On Corporate Ratings, April 7, 2005