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BEFORE THE ARIZONA CORPORATION COMMISSION

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ARIZONA CORP COMMISSION  
DOCKET CONTROL

Arizona Corporation Commission

DOCKETED

NOV 19 2013

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IN THE MATTER OF THE APPLICATION OF  
PAYSON WATER CO., INC. AN ARIZONA  
CORPORATION, FOR A DETERMINATION OF  
THE FAIR VALUE OF ITS UTILITY PLANT AND  
PROPERTY AND FOR INCREASES IN ITS  
WATER RATES AND CHARGES FOR UTILITY  
SERVICE BASED THEREON.

DOCKET NO. W-03514A-13-0111

IN THE MATTER OF THE APPLICATION OF  
PAYSON WATER CO., INC. FOR AUTHORITY  
TO ISSUE EVIDENCE OF INDEBTEDNESS IN  
AN AMOUNT NOT TO EXCEED \$1,238,000 IN  
CONNECTION WITH INFRASTRUCTURE  
IMPROVEMENTS TO THE UTILITY SYSTEM;  
AND ENCUMBER REAL PROPERTY AND  
PLANT AS SECURITY FOR SUCH  
INDEBTEDNESS.

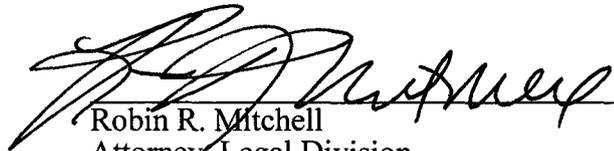
DOCKET NO. W-03514A-13-0142

**STAFF'S NOTICE OF FILING DIRECT  
TESTIMONY (PHASE 2)**

The Utilities Division ("Staff") of the Arizona Corporation Commission ("Commission") hereby files the Direct Testimony relating to financing and cost of capital of Staff witness John A. Cassidy in the above-referenced matter. On November 15, 2013, Staff filed a request for an extension of time to file John Cassidy's testimony. Staff's filing included the right day, but the wrong date. The filing should have stated "Wednesday, November 20, 2013." Staff contacted the five intervenors. Four of the intervenors, Messrs. Bremer, Shephard, Gehring and Burt indicated that they do not oppose Staff's request for an extension to November 20, 2013. A message was left for Ms. Reidhead and as of this filing, Staff has not received a return call.

25 ...  
26 ...  
27 ...  
28

1 RESPECTFULLY SUBMITTED this 20<sup>th</sup> day of November, 2013.

2  
3 

4 Robin R. Mitchell  
5 Attorney, Legal Division  
6 Arizona Corporation Commission  
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10 Original and thirteen (13) copies of the  
11 foregoing filed this 20<sup>th</sup> day of November,  
12 2013, with:

13 Docket Control  
14 Arizona Corporation Commission  
15 1200 West Washington Street  
16 Phoenix, Arizona 85007

17 Copy of the foregoing mailed and/or emailed  
18 this 20<sup>th</sup> day of November, 2013, to:

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29 

BEFORE THE ARIZONA CORPORATION COMMISSION

BOB STUMP  
Chairman  
GARY PIERCE  
Commissioner  
BRENDA BURNS  
Commissioner  
SUSAN BITTER SMITH  
Commissioner  
BOB BURNS  
Commissioner

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PLANT AS SECURITY FOR SUCH )  
INDEBTEDNESS. )

DOCKET NO. W-03514A-13-0142

DIRECT  
TESTIMONY

OF  
JOHN A. CASSIDY

PUBLIC UTILITIES ANALYST  
UTILITIES DIVISION  
ARIZONA CORPORATION COMMISSION

NOVEMBER 19, 2013

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**EXECUTIVE SUMMARY  
PAYSON WATER COMPANY  
DOCKET NO. W-03514A-13-0111, ET AL**

The direct testimony of Staff witness John A. Cassidy addresses the following issues:

Capital Structure – Staff recommends that the Commission adopt a capital structure for Payson Water Company (“Company”) for this proceeding consisting of 52.8 percent debt and 47.2 percent equity.

Cost of Equity – Staff recommends that the Commission adopt a 9.0 percent return on equity (“ROE”) for the Company. Staff’s estimated ROE for the Company is based on the 8.4 percent average of its discounted cash flow method (“DCF”) and capital asset pricing model (“CAPM”) cost of equity methodology estimates for the sample companies of 8.8 percent for the DCF and 8.0 percent for the CAPM. Staff’s recommended ROE includes an upward economic assessment adjustment of 60 basis points (0.6 percent).

Cost of Debt – Staff recommends that the Commission adopt a 4.2 percent cost of debt for the Company.

Overall Rate of Return – Staff recommends that the Commission adopt a 6.4 percent overall rate of return.

Mr. Bourassa’s Testimony – The Commission should reject the Company’s proposed 11.0 percent ROE for the following reasons:

Mr. Bourassa’s primary Future Growth DCF estimates rely exclusively on analysts’ forecasts of earnings per share growth. Effectively, Mr. Bourassa’s overall DCF estimate is weighted 75 percent by his Future Growth DCF estimates. Mr. Bourassa’s CAPM estimates are inflated due to use of a forecasted risk-free rate. Mr. Bourassa’s proposed ROE includes an upward 200 basis point small company risk premium adjustment.

1 **I. INTRODUCTION**

2 **Q. Please state your name, occupation, and business address.**

3 A. My name is John A. Cassidy. I am a Public Utilities Analyst employed by the Arizona  
4 Corporation Commission (“Commission”) in the Utilities Division (“Staff”). My business  
5 address is 1200 West Washington Street, Phoenix, Arizona 85007.

6  
7 **Q. Briefly describe your responsibilities as a Public Utilities Analyst.**

8 A. I am responsible for the examination of financial and statistical information included in  
9 utility rate applications and other financial matters, including studies to estimate the cost  
10 of capital component in rate filings used to determine the overall revenue requirement, and  
11 for preparing written reports, testimonies and schedules to present Staff’s  
12 recommendations to the Commission on these matters.

13  
14 **Q. Please describe your educational background and professional experience.**

15 A. I hold a Bachelor of Arts degree in History from Arizona State University, a Master of  
16 Library Science degree from the University of Arizona, and a Master of Business  
17 Administration degree with an emphasis in Finance from Arizona State University. While  
18 pursuing my MBA degree, I was inducted into Beta Gamma Sigma, the National Business  
19 Honor Society. I have passed the CPA exam, but opted not to pursue certification. I have  
20 worked professionally as a librarian, financial consultant and tax auditor and served as  
21 Staff’s cost of capital witness in rate case evidentiary proceedings in my current as well as  
22 in a past tenure as a Commission employee.

23  
24 **Q. What is the scope of your testimony in this case?**

25 A. My testimony provides Staff’s recommended capital structure, return on equity (“ROE”)  
26 and overall rate of return (“ROR”) for establishing the revenue requirements for Payson

1 Water Company ("Payson Water" or "Company") in the Company's pending water rate  
2 application.

3  
4 **Q. Please provide a brief description of Payson Water.**

5 A. Payson Water is an Arizona public service corporation engaged in providing water utility  
6 services in portions of Gila County, Arizona, pursuant to certificates of convenience and  
7 necessity granted by the Arizona Corporation Commission ("Commission"). During the  
8 test year ending December 31, 2012, the Company served approximately 1,114 water  
9 connections.

10  
11 *Summary of Testimony and Recommendations*

12 **Q. Briefly summarize how Staff's cost of capital testimony is organized.**

13 A. Staff's cost of capital testimony is presented in eleven sections. Section I is this  
14 introduction. Section II discusses the concept of weighted average cost of capital  
15 ("WACC"). Section III presents the concept of capital structure and presents Staff's  
16 recommended capital structure for Payson Water in this proceeding. Section IV presents  
17 Staff's cost of debt for Payson Water. Section V discusses the concepts of ROE and risk.  
18 Section VI presents the methods employed by Staff to estimate Payson Water's ROE.  
19 Section VII presents the findings of Staff's ROE analysis. Section VIII presents Staff's  
20 final cost of equity estimates for Payson Water. Section IX presents Staff's ROR  
21 recommendation. Finally, Section X presents Staff's comments on the direct testimony of  
22 the Company's witness, Mr. Thomas J. Bourassa.

23  
24 **Q. Have you prepared any exhibits to accompany your testimony?**

25 A. Yes. I prepared nine schedules (JAC-1 to JAC-9) which support Staff's cost of capital  
26 analysis. Additionally, Staff has prepared one exhibit (JAC-A).

1 **Q. What is Staff's recommended rate of return for Payson Water?**

2 A. Staff recommends a 6.4 percent overall ROR, as shown in Schedule JAC-1. Staff's ROR  
3 recommendation is based on the following: (1) a pro forma capital structure composed of  
4 52.8 percent debt and 47.2 percent equity, (2) the simple averaging of the cost of equity  
5 estimate for the sample companies of 8.8 percent from the discounted cash flow ("DCF")  
6 method and 8.0 percent from the capital asset pricing model ("CAPM"), plus the adoption  
7 of a 60 basis point upward economic assessment adjustment, and (3) a cost of debt of 4.2  
8 percent.

9  
10 *Payson Water's Proposed Overall Rate of Return*

11 **Q. Briefly summarize Payson Water's proposed capital structure, cost of debt, ROE and**  
12 **overall ROR for this proceeding.**

13 A. Table 1 summarizes the Company's proposed capital structure, cost of debt, ROE and  
14 overall ROR in this proceeding:

15  
16

	Weight	Cost	Weighted Cost
Long-term Debt	0.00%	0.00%	0.00%
Common Equity	100.00%	11.00%	11.00%
<b>Cost of Capital/ROR</b>			<b>11.00%</b>

17  
18 Payson Water is proposing an overall rate of return of 11.00 percent.

19  
20 **Q. As reflected in the above Company proposed capital structure, does Payson Water's**  
21 **proposed weighted cost of capital/ROR give consideration to the pending WIFA**  
22 **loan?**

23 A. No, it does not.

1 **II. THE WEIGHTED AVERAGE COST OF CAPITAL**

2 **Q. Briefly explain the cost of capital concept.**

3 A. The cost of capital is the opportunity cost of choosing one investment over others with  
4 equivalent risk. In other words, the cost of capital is the return that stakeholders expect  
5 for investing their financial resources in a determined business venture over another  
6 business venture.

7  
8 **Q. What is the overall cost of capital?**

9 A. The cost of capital to a company issuing a variety of securities (i.e., stock and  
10 indebtedness) is an average of the cost rates on all issued securities adjusted to reflect the  
11 relative amounts for each security in the company's entire capital structure. Thus, the  
12 overall cost of capital is the WACC.

13  
14 **Q. How is the WACC calculated?**

15 A. The WACC is calculated by adding the weighted expected returns of a firm's securities.  
16 The WACC formula is:

17 Equation 1.

18  
19 
$$\text{WACC} = \sum_{i=1}^n W_i * r_i$$
  
20

21 In this equation,  $W_i$  is the weight given to the  $i^{\text{th}}$  security (the proportion of the  $i^{\text{th}}$  security  
22 relative to the portfolio) and  $r_i$  is the expected return on the  $i^{\text{th}}$  security.

23  
24 **Q. Can you provide an example demonstrating application of Equation 1?**

25 A. Yes. For this example, assume that an entity has a capital structure composed of 60  
26 percent debt and 40 percent equity. Also, assume that the embedded cost of debt is 6.0

1 percent and the expected return on equity, i.e., the cost of equity, is 10.5 percent.

2 Calculation of the WACC is as follows:

3 
$$\text{WACC} = (60\% * 6.0\%) + (40\% * 10.5\%)$$

4 
$$\text{WACC} = 3.60\% + 4.20\%$$

5 
$$\text{WACC} = 7.80\%$$

6  
7 The weighted average cost of capital in this example is 7.80 percent. The entity in this  
8 example would need to earn an overall rate of return of 7.80 percent to cover its cost of  
9 capital.

10  
11 **III. CAPITAL STRUCTURE**

12 *Background*

13 **Q. Please explain the capital structure concept.**

14 A. The capital structure of a firm is the relative proportions of each type of security—short-  
15 term debt, long-term debt (including capital leases), preferred stock and common stock—  
16 that are used to finance the firm's assets.

17  
18 **Q. How is the capital structure expressed?**

19 A. The capital structure of a company is expressed as the percentage of each component of  
20 the capital structure (capital leases, short-term debt, long-term debt, preferred stock and  
21 common stock) relative to the entire capital structure.

22  
23 As an example, the capital structure for an entity that is financed by \$20,000 of short-term  
24 debt, \$85,000 of long-term debt (including capital leases), \$15,000 of preferred stock and  
25 \$80,000 of common stock is shown in Table 2.  
26

**Table 2**

Component			%
Short-Term Debt	\$20,000	(\$20,000/\$200,000)	10.0%
Long-Term Debt	\$85,000	(\$85,000/\$200,000)	42.5%
Preferred Stock	\$15,000	(\$15,000/\$200,000)	7.5%
Common Stock	\$80,000	(\$80,000/\$200,000)	40.0%
Total	\$200,000		100%

The capital structure in this example is composed of 10.0 percent short-term debt, 42.5 percent long-term debt, 7.5 percent preferred stock and 40.0 percent common stock.

*Payson Water's Capital Structure*

**Q. What capital structure does Payson Water propose?**

A. The Company proposes a capital structure composed of 0.00 percent debt and 100.00 percent common equity. Payson Water's proposed capital structure reflects the Company's actual capital structure as of the test year ending December 31, 2012.

**Q. How does Payson Water's proposed capital structure compare to the capital structures of publicly-traded water utilities?**

A. Schedule JAC-4 shows the capital structures of seven publicly-traded water companies ("sample water companies" or "sample water utilities") as of December 2012. The average capital structure for the sample water utilities is comprised of approximately 50.3 percent debt and 49.7 percent equity.

*Staff's Capital Structure*

**Q. What is Staff's recommended capital structure for Payson Water?**

A. Staff recommends a pro forma capital structure composed of 52.8 percent debt and 47.2 percent equity. Staff's recommended pro forma capital structure reflects the Company's

1 actual capital structure as of the December 31, 2012, test-year end, adjusted to reflect  
2 inclusion of the combined \$1,179,650 WIFA loan debt requested by the Company in  
3 Phase I and Phase II of the financing portion of this consolidated rate/financing docket.<sup>1</sup>  
4

5 **IV. COST OF DEBT**

6 **Q. What is the cost of debt proposed by the Company in this proceeding?**

7 A. Payson Water proposes a cost of debt of 0.0 percent. This is due to the Company having a  
8 test year ending December 31, 2012 capital structure comprised of 100.0 percent equity.  
9

10 **Q. What cost of debt does Staff recommend for Payson Water in this proceeding?**

11 A. Staff recommends a cost of debt of 4.2 percent.  
12

13 **V. RETURN ON EQUITY**

14 *Background*

15 **Q. Please define the term “cost of equity capital.”**

16 A. The cost of equity is the rate of return that investors expect to earn on their investment in a  
17 business entity given its risk. In other words, the cost of equity to the entity is the  
18 investors’ expected rate of return on other investments of similar risk. As investors have a  
19 wide selection of stocks to choose from, they will choose stocks with similar risks but  
20 higher returns. Therefore, the market determines the entity’s cost of equity.  
21

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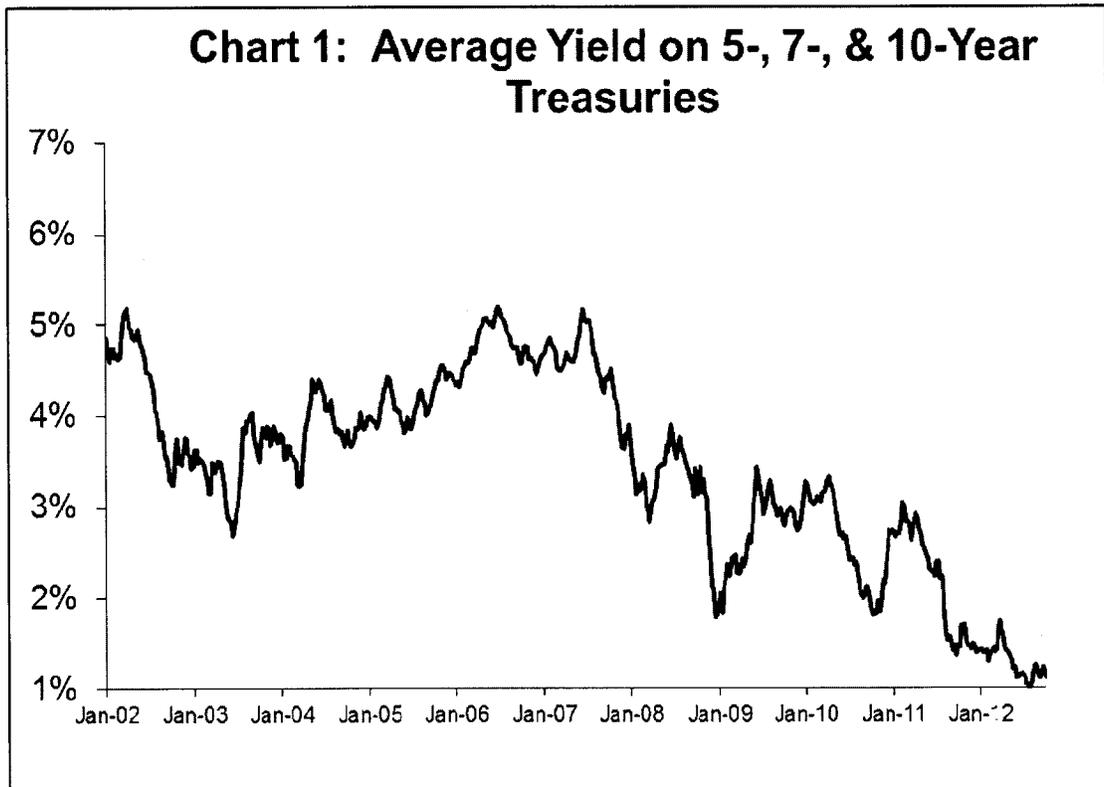
<sup>1</sup> The Company’s financing application initially requested Commission authorization for \$1,238,000 in WIFA loan debt. Pursuant to a Procedural Order, dated August 26, 2013, the financing and rate dockets were consolidated, and pursuant to a Stipulation for Procedural Order Bifurcating Proceeding and Establishing Case Schedule, the financing portion was divided into two parts. In Phase I, the Company requested authorization for \$275,000 in WIFA loan debt. In a Staff Report dated September 18, 2013, Staff recommended approval of the requested Phase I financing, and the debt was authorized by the Commission in Decision No. 74175, dated September 25, 2013. Payson Water subsequently revised its request for the Phase II portion, seeking authorization for \$904,650 in additional WIFA debt. In separate testimony to be filed jointly with this testimony, Staff recommends approval the Company’s requested Phase II debt. Thus the \$1,179,650 WIFA debt included in Staff’s recommended pro forma capital structure consists of the authorized Phase I debt (\$275,000) and the Staff recommended Phase II debt (\$904,650).

1 **Q. Is there a correlation between interest rates and the cost of equity?**

2 A. Yes, there is a positive correlation between interest rates and the cost of equity, as the two  
3 tend to move in the same direction. This relationship is reflected in the CAPM formula.  
4 The CAPM is a market-based model employed by Staff for estimating the cost of equity.  
5 The CAPM is further discussed in Section VI of this testimony.

6  
7 **Q. What has been the general trend of interest rates in recent years?**

8 A. A chronological chart of interest rates is a good tool to show interest rate history and  
9 identify trends. Chart 1 graphs intermediate U.S. treasury rates from January 4, 2002 to  
10 May 31, 2013.



1 As shown in Chart 1, intermediate-term interest rates trended downward from 2002 to  
2 mid-2003, trended upward through mid-2007, and have generally trended downward since  
3 that time.

4  
5 **Q. What has been the general trend in interest rates longer term?**

6 **A.** U.S. Treasury rates from January 1962- May 2013 are shown in Chart 2. The chart shows  
7 that interest rates trended upward through the mid-1980s and have trended downward  
8 since that time.



11  
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22  
23  
24  
Source: Federal Reserve

1 **Q. Do these trends suggest anything in terms of cost of equity?**

2 A. Yes. As previously noted, interest rates and the cost of equity tend to move in the same  
3 direction. Therefore, the cost of equity has declined over the past 25 years.

4  
5 **Q. Do actual returns represent the cost of equity?**

6 A. No. The cost of equity represents investors' *expected* returns and not realized returns.

7  
8 **Q. Is there any information available that leads to an understanding of the relationship**  
9 **between the equity returns required for a regulated water utility and those required**  
10 **in the market as a whole?**

11 A. Yes. A comparison of betas, a component of the CAPM discussed in Section VI, for the  
12 water utility industry and the market provide insight into this relationship. In theory, the  
13 market has a beta value of 1.0, with stocks bearing greater risk (less risk) than the market  
14 having beta values higher than (lower than) 1.0, respectively. Furthermore, in accordance  
15 with the CAPM, the cost of equity capital moves in the same direction as beta. Therefore,  
16 because the average beta value (0.71)<sup>2</sup> for a water utility is less than 1.0, the required  
17 return on equity for a regulated water utility is below that of the market as a whole.

18  
19 *Risk*

20 **Q. Please define risk in relation to cost of capital.**

21 A. Risk, as it relates to an investment, is the variability or uncertainty of the returns on a  
22 particular security. Investors are risk averse and require a greater potential return to invest  
23 in relatively greater risk opportunities, i.e., investors require compensation for taking on  
24 additional risk. Risk is generally separated into two components. Those components are  
25 market risk (systematic risk) and non-market risk (diversifiable risk or firm-specific risk).

---

<sup>2</sup> See Schedule JAC-7.

1 **Q. What is market risk?**

2 A. Market risk, or systematic risk, is the risk of an investment that cannot be reduced through  
3 diversification. Market risk stems from factors that affect all securities, such as  
4 recessions, war, inflation and high interest rates. Since these factors affect the entire  
5 market they cannot be eliminated through diversification. Market risk does not impact  
6 each security to the same degree. The degree to which a given security's return is affected  
7 by market fluctuations can be measured using Beta. Beta reflects the business risk and the  
8 financial risk of a security.

9  
10 **Q. Please define business risk.**

11 A. Business risk is the fluctuation of earnings inherent in a firm's operations and  
12 environment, such as competition and adverse economic conditions that may impair its  
13 ability to provide returns on investment. Companies in the same or similar line of  
14 business tend to experience the same fluctuations in business cycles.

15  
16 **Q. Please define financial risk.**

17 A. Financial risk is the fluctuation of earnings inherent in the use of debt financing that may  
18 impair a firm's ability to provide adequate returns; the higher the percentage of debt in a  
19 company's capital structure, the greater its exposure to financial risk.

20  
21 **Q. Do business risk and financial risk affect the cost of equity?**

22 A. Yes.

23  
24 **Q. Is a firm subject to any other risk?**

25 A. Yes. Firms are also subject to unsystematic or firm-specific risk. Examples of  
26 unsystematic risk include losses caused by labor problems, nationalization of assets, loss

1 of a big client or weather conditions. Investors can eliminate firm-specific risk by holding  
2 a diverse portfolio. Thus, it is not of concern to diversified investors.

3  
4 **Q. How does Payson Water's financial risk exposure compare to that of Staff's sample  
5 group of water companies?**

6 A. JAC-4 shows the capital structures of the seven sample water companies as of December  
7 2012, and Payson Water's pro forma adjusted capital structure as of the test year ending  
8 December 31, 2012. As shown, the sample water utilities were capitalized with  
9 approximately 50.3 percent debt and 49.7 percent equity, while Payson Water's pro forma  
10 capital structure consists of 52.8 percent debt and 47.2 percent equity. Thus, compared to  
11 Staff's sample companies, Payson Water has slightly more exposure to financial risk.

12  
13 **Q. Is firm-specific risk measured by beta?**

14 A. No. Firm-specific risk is not measured by beta.

15  
16 **Q. Is the cost of equity affected by firm-specific risk?**

17 A. No. Since firm-specific risk can be eliminated through diversification, it does not affect  
18 the cost of equity.

19  
20 **Q. Can investors expect additional returns for firm-specific risk?**

21 A. No. Investors who hold diversified portfolios can eliminate firm-specific risk and,  
22 consequently, do not require any additional return. Since investors who choose to be less  
23 than fully-diversified must compete in the market with fully-diversified investors, the  
24 former cannot expect to be compensated for unique risk.

25

1 **VI. ESTIMATING THE COST OF EQUITY**

2 *Introduction*

3 **Q. Did Staff directly estimate the cost of equity for Payson Water?**

4 A. No. Since Payson Water is not a publicly-traded company, Staff is unable to directly  
5 estimate its cost of equity due to the lack of firm-specific market data. Instead, Staff  
6 estimated the Company's cost of equity indirectly, using a representative sample group of  
7 publicly-traded water utilities as a proxy, taking the average of the sample group to reduce  
8 the sample error resulting from random fluctuations in the market at the time the  
9 information is gathered.

10  
11 **Q. What sample companies did Staff select as proxies for Payson Water?**

12 A. Staff's sample consists of the following seven publicly-traded water utilities: American  
13 States Water, California Water, Aqua America, Connecticut Water Service, Middlesex  
14 Water, SJW Corporation and York Water. Staff selected these companies because they  
15 are publicly-traded and receive the majority of their earnings from regulated operations.

16  
17 **Q. What models did Staff implement to estimate Payson Water's cost of equity?**

18 A. Staff used two market-based models to estimate the cost of equity for Payson Water: the  
19 DCF model and the CAPM.

20  
21 **Q. Please explain why Staff chose the DCF and CAPM models.**

22 A. Staff chose to use the DCF and CAPM models because they are widely-recognized  
23 market-based models and have been used extensively to estimate the cost of equity. An  
24 explanation of the DCF and CAPM models follows.

25

1 *Discounted Cash Flow Model Analysis*

2 **Q. Please provide a brief summary of the theory upon which the DCF method of**  
3 **estimating the cost of equity is based.**

4 A. The DCF method of stock valuation is based on the theory that the value of an investment  
5 is equal to the sum of the future cash flows generated from the aforementioned investment  
6 discounted to the present time. This method uses expected dividends, market price and  
7 dividend growth rate to calculate the cost of capital. Professor Myron Gordon pioneered  
8 the DCF method in the 1960s. The DCF method has become widely used to estimate the  
9 cost of equity for public utilities due to its theoretical merit and its simplicity. Staff used  
10 the financial information for the relevant seven sample companies in the DCF model and  
11 averaged the results to determine an estimated cost of equity for the sample companies.

12  
13 **Q. Does Staff use more than one version of the DCF?**

14 A. Yes. Staff uses two versions of the DCF model: the constant-growth DCF and the multi-  
15 stage or non-constant growth DCF. The constant-growth DCF assumes that an entity's  
16 dividends will grow indefinitely at the same rate. The multi-stage growth DCF model  
17 assumes the dividend growth rate will change at some point in the future.

18  
19 *The Constant-Growth DCF*

20 **Q. What is the mathematical formula used in Staff's constant-growth DCF analysis?**

21 A. The constant-growth DCF formula used in Staff's analysis is:  
22

Equation 2 :

$$K = \frac{D_1}{P_0} + g$$

where :      $K$      =   the cost of equity  
               $D_1$     =   the expected annual dividend  
               $P_0$     =   the current stock price  
               $g$      =   the expected infinite annual growth rate of dividends

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Equation 2 assumes that the entity has a constant earnings retention rate and that its earnings are expected to grow at a constant rate. According to Equation 2, a stock with a current market price of \$10 per share, an expected annual dividend of \$0.45 per share and an expected dividend growth rate of 3.0 percent per year has a cost of equity to the entity of 7.5 percent reflected by the sum of the dividend yield ( $\$0.45 / \$10 = 4.5$  percent) and the 3.0 percent annual dividend growth rate.

**Q. How did Staff calculate the expected dividend yield ( $D_1/P_0$ ) component of the constant-growth DCF formula?**

A. Staff calculated the expected yield component of the DCF formula by dividing the expected annual dividend ( $D_1$ ) by the spot stock price ( $P_0$ ) after the close of market on October 16, 2013, as reported by *MSN Money*.

**Q. Why did Staff use the October 16, 2013 spot price rather than a historical average stock price to calculate the dividend yield component of the DCF formula?**

A. The current, rather than historic, market price is used in order to be consistent with financial theory. In accordance with the Efficient Market Hypothesis, the current stock price is reflective of all available information on a stock, and as such reveals investors' expectations of future returns.

1 **Q. How did Staff estimate the dividend growth (g) component of the constant-growth**  
2 **DCF model represented by Equation 2?**

3 A. The dividend growth component used by Staff is determined by the average of six  
4 different estimation methods, as shown in Schedule JAC-8. Staff calculated historical and  
5 projected growth estimates on dividend-per-share (“DPS”),<sup>3</sup> earnings-per-share (“EPS”)<sup>4</sup>  
6 and sustainable growth bases.

7  
8 **Q. Why did Staff examine EPS growth to estimate the dividend growth component of**  
9 **the constant-growth DCF model?**

10 A. Historic and projected EPS growth are used because dividends are related to earnings.  
11 Dividend distributions may exceed earnings in the short run, but cannot continue  
12 indefinitely. In the long term, dividend distributions are dependent on earnings.

13  
14 **Q. How did Staff estimate historical DPS growth?**

15 A. Staff estimated historical DPS growth by calculating a compound annual DPS growth rate  
16 for each of its sample companies over the 10-year period, 2002-2012. As shown in  
17 Schedule JAC-5, the average historical DPS growth rate for the sample was 3.6 percent.

18  
19 **Q. How did Staff estimate projected DPS growth?**

20 A. Staff calculated an average of the projected DPS growth rates for the sample water utilities  
21 from *Value Line* through the period 2016-2018. The average projected DPS growth rate is  
22 5.5 percent, as shown in Schedule JAC-5.

23

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<sup>3</sup> Derived from information provided by *Value Line*.

<sup>4</sup> Derived from information provided by *Value Line*.

1 **Q. How did Staff estimate historical EPS growth rate?**

2 A. Staff estimated historical EPS growth by calculating a compound annual EPS growth rate  
3 for each of its sample companies over the 10-year period 2002-2012. As shown in  
4 Schedule JAC-5, the average historical EPS growth rate for the sample was 5.1 percent.

5  
6 **Q. How did Staff estimate projected EPS growth?**

7 A. Staff calculated an average of the projected EPS growth rates for the sample water utilities  
8 from *Value Line* through the period 2016-2018. The average projected EPS growth rate is  
9 5.6 percent, as shown in Schedule JAC-5.

10

11 **Q. How does Staff calculate its historical and projected sustainable growth rates?**

12 A. Historical and projected sustainable growth rates are calculated by adding their respective  
13 retention growth rate terms (br) to their respective stock financing growth rate terms (vs),  
14 as shown in Schedule JAC-6.

15

16 **Q. What is retention growth?**

17 A. Retention growth is the growth in dividends due to the retention of earnings. The  
18 retention growth concept is based on the theory that dividend growth cannot be achieved  
19 unless the company retains and reinvests some of its earnings. The retention growth is  
20 used in Staff's calculation of sustainable growth shown in Schedule JAC-6.

21

22 **Q. What is the formula for the retention growth rate?**

23 A. The retention growth rate is the product of the retention ratio and the book/accounting  
24 return on equity. The retention growth rate formula is:

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Equation 3 :

$$\text{Retention Growth Rate} = br$$

where :  $b$  = the retention ratio (1 – dividend payout ratio)  
 $r$  = the accounting/book return on common equity

**Q. How did Staff calculate the average historical retention growth rate (br) for the sample water utilities?**

A. Staff calculated the mean of the 10-year average historical retention rate for each sample company over the period 2002-2012. As shown in Schedule JAC-6, the historical average retention (br) growth rate for the sample is 2.7 percent.

**Q. How did Staff estimate its projected retention growth rate (br) for the sample water utilities?**

A. Staff used the *Value Line* retention growth projections for the sample water utilities for the period 2016-2018. As shown in Schedule JAC-6, the projected average retention growth rate for the sample companies is 3.8 percent.

**Q. When can retention growth provide a reasonable estimate of future dividend growth?**

A. The retention growth rate is a reasonable estimate of future dividend growth when the retention ratio is reasonably constant and the entity’s market price to book value (“market-to-book ratio”) is expected to be 1.0. The average retention ratio has been reasonably constant in recent years. However, the market-to-book ratio for the sample water utilities is 2.2, notably higher than 1.0, as shown in Schedule JAC-7.

1 **Q. Is there any financial implication of a market-to-book ratio greater than 1.0?**

2 A. Yes. A market-to-book ratio greater than 1.0 implies that investors expect an entity to  
3 earn an accounting/book return on its equity that exceeds its cost of equity. The  
4 relationship between required returns and expected cash flows is readily observed in the  
5 fixed securities market. For example, assume an entity contemplating issuance of bonds  
6 with a face value of \$10 million at either 6 percent or 8 percent and, thus, paying annual  
7 interest of \$600,000 or \$800,000, respectively. Regardless of investors' required return on  
8 similar bonds, investors will be willing to pay more for the bonds if issued at 8 percent  
9 than if the bonds are issued at 6 percent. For example, if the current interest rate required  
10 by investors is 6 percent, then they would bid \$10 million for the 6 percent bonds and  
11 more than \$10 million for the 8 percent bonds. Similarly, if equity investors require a 9  
12 percent return and expect an entity to earn accounting/book returns of 13 percent, the  
13 market will bid up the price of the entity's stock to provide the required return of 9  
14 percent.

15  
16 **Q. How has Staff generally recognized a market-to-book ratio exceeding 1.0 in its cost of  
17 equity analyses in recent years?**

18 A. Staff has assumed that investors expect the market-to-book ratio to remain greater than  
19 1.0. Given that assumption, Staff has added a stock financing growth rate (vs) term to the  
20 retention ratio (br) term to calculate its historical and projected sustainable growth rates.

21  
22 **Q. Do the historical and projected sustainable growth rates Staff uses to develop its  
23 DCF cost of equity in this case continue to include a stock financing growth rate  
24 term?**

25 A. Yes.

26

1 **Q. What is stock financing growth?**

2 A. Stock financing growth is the growth in an entity's dividends due to the sale of stock by  
3 that entity. Stock financing growth is a concept derived by Myron Gordon and discussed  
4 in his book *The Cost of Capital to a Public Utility*.<sup>5</sup> Stock financing growth is the product  
5 of the fraction of the funds raised from the sale of stock that accrues to existing  
6 shareholders ( $v$ ) and the fraction resulting from dividing the funds raised from the sale of  
7 stock by the existing common equity ( $s$ ).

8  
9 **Q. What is the mathematical formula for the stock financing growth rate?**

10 A. The mathematical formula for stock financing growth is:

Equation 4:

$$\text{Stock Financing Growth} = vs$$

where:  $v$  = Fraction of the funds raised from the sale of stock that accrues  
to existing shareholders  
 $s$  = Funds raised from the sale of stock as a fraction of the existing  
common equity

11  
12 **Q. How is the variable  $v$  presented above calculated?**

13 A. Variable  $v$  is calculated as follows:

Equation 5:

$$v = 1 - \left( \frac{\text{book value}}{\text{market value}} \right)$$

14  
15 For example, assume that a share of stock has a \$30 book value and is selling for \$45.  
16 Then, to find the value of  $v$ , the formula is applied:

---

<sup>5</sup> Gordon, Myron J. *The Cost of Capital to a Public Utility*. MSU Public Utilities Studies, Michigan, 1974. pp 31-35.

$$v = 1 - \left( \frac{30}{45} \right)$$

1  
2 In this example,  $v$  is equal to 0.33.

3  
4 **Q. How is the variable  $s$  presented above calculated?**

5 A. Variable  $s$  is calculated as follows:

6 Equation 6:

7

$$s = \frac{\text{Funds raised from the issuance of stock}}{\text{Total existing common equity before the issuance}}$$

8

9  
10 For example, assume that an entity has \$150 in existing equity, and it sells \$30 of stock.

11 Then, to find the value of  $s$ , the formula is applied:

12

$$s = \left( \frac{30}{150} \right)$$

13 In this example,  $s$  is equal to 20.0 percent.

14  
15 **Q. What is the  $vs$  term when the market-to-book ratio is equal to 1.0?**

16 A. A market-to-book ratio of 1.0 reflects that investors expect an entity to earn a  
17 book/accounting return on their equity investment equal to the cost of equity. When the  
18 market-to-book ratio is equal to 1.0, none of the funds raised from the sale of stock by the  
19 entity accrues to the benefit of existing shareholders, i.e., the term  $v$  is equal to zero (0.0).  
20 Consequently, the  $vs$  term is also equal to zero (0.0). When stock financing growth is  
21 zero, dividend growth depends solely on the  $br$  term.  
22

1 **Q. What is the effect of the  $v$ s term when the market-to-book ratio is greater than 1.0?**

2 A. A market-to-book ratio greater than 1.0 reflects that investors expect an entity to earn a  
3 book/accounting return on their equity investment greater than the cost of equity.  
4 Equation 5 shows that, when the market-to-book ratio is greater than 1.0, the  $v$  term is also  
5 greater than zero. The excess by which new shares are issued and sold over book value  
6 per share of outstanding stock is a contribution that accrues to existing stockholders in the  
7 form of a higher book value. The resulting higher book value leads to higher expected  
8 earnings and dividends. Continued growth from the  $v$ s term is dependent upon the  
9 continued issuance and sale of additional shares at a price that exceeds book value per  
10 share.

11  
12 **Q. What  $v$ s estimate did Staff calculate from its analysis of the sample water utilities?**

13 A. Staff estimated an average stock financing growth of 2.4 percent for the sample water  
14 utilities, as shown in Schedule JAC-6.

15  
16 **Q. What would occur if an entity had a market-to-book ratio greater than 1.0 as a result  
17 of investors expecting earnings to exceed its cost of equity, and subsequently  
18 experienced newly-authorized rates equal only to its cost of equity?**

19 A. Holding all other factors constant, one would expect market forces to move the company's  
20 stock price lower, closer to a market-to-book ratio of 1.0, to reflect investor expectations  
21 of reduced expected future cash flows.

22

1 **Q. If the average market-to-book ratio of Staff's sample water utilities were to fall to 1.0**  
2 **due to authorized ROEs equaling their cost of equity, would inclusion of the  $v_s$  term**  
3 **be necessary to Staff's constant-growth DCF analysis?**

4 A. No. As discussed above, when the market-to-book ratio is equal to 1.0, none of the funds  
5 raised from the sale of stock by the entity accrues to the benefit of existing shareholders  
6 because the  $v$  term equals to zero and, consequently, the  $v_s$  term also equals zero. When  
7 the market-to-book ratio equals 1.0, dividend growth depends solely on the  $br$  term.  
8 Staff's inclusion of the  $v_s$  term assumes that the market-to-book ratio continues to exceed  
9 1.0 and that the water utilities will continue to issue and sell stock at prices above book  
10 value with the effect of benefitting existing shareholders.

11  
12 **Q. What are Staff's historical and projected sustainable growth rates?**

13 A. Staff's estimated historical sustainable growth rate is 5.1 percent based on an analysis of  
14 earnings retention for the sample water companies. Staff's projected sustainable growth  
15 rate is 6.2 percent based on retention growth projected by *Value Line*. Schedule JAC-6  
16 presents Staff's estimates of the sustainable growth rate.

17  
18 **Q. What is Staff's expected infinite annual growth rate in dividends?**

19 A. Staff's expected dividend growth rate ( $g$ ) is 5.2 percent, which is the average of historical  
20 and projected DPS, EPS, and sustainable growth estimates. Staff's calculation of the  
21 expected infinite annual growth rate in dividends is shown in Schedule JAC-8.

22  
23 **Q. What is Staff's constant-growth DCF estimate for the sample utilities?**

24 A. Staff's constant-growth DCF estimate is 8.2 percent, as shown in Schedule JAC-3.  
25

1 *The Multi-Stage DCF*

2 **Q. Why did Staff implement the multi-stage DCF model to estimate Payson Water's**  
3 **cost of equity?**

4 A. Staff generally uses the multi-stage DCF model to consider the assumption that dividends  
5 may not grow at a constant rate. The multi-stage DCF uses two stages of growth; the first  
6 stage (near-term) having a duration of four years, followed by a second stage (long-term)  
7 of constant growth.

8  
9 **Q. What is the mathematical formula for the multi-stage DCF?**

10 A. The multi-stage DCF formula is shown in the following equation:

Equation 7 :

$$P_0 = \sum_{t=1}^n \frac{D_t}{(1+K)^t} + \frac{D_n(1+g_n)}{K-g_n} \left[ \frac{1}{(1+K)} \right]^n$$

Where :  $P_0$  = current stock price  
 $D_t$  = dividends expected during stage 1  
 $K$  = cost of equity  
 $n$  = years of non - constant growth  
 $D_n$  = dividend expected in year n  
 $g_n$  = constant rate of growth expected after year n

11  
12 **Q. What steps did Staff take to implement its multi-stage DCF cost of equity model?**

13 A. First, Staff projected future dividends for each of the sample water utilities using near-  
14 term and long-term growth rates. Second, Staff calculated the rate (cost of equity) which  
15 equates the present value of the forecasted dividends to the current stock price for each of  
16 the sample water utilities. Lastly, Staff calculated an overall sample average cost of  
17 equity estimate.

1 **Q. How did Staff calculate near-term (stage-1) growth?**

2 A. The stage-1 growth rate is based on *Value Line*'s projected dividends for the next twelve  
3 months, when available, and on the average dividend growth (g) rate of 5.2 percent,  
4 calculated in Staff's constant DCF analysis for the remainder of the stage.

5  
6 **Q. How did Staff estimate long-term (stage-2) growth?**

7 A. Staff calculated the stage-2 growth rate using the arithmetic mean rate of growth in Gross  
8 Domestic Product ("GDP") from 1929 to 2012.<sup>6</sup> Using the GDP growth rate assumes that  
9 the water utility industry is expected to grow at the same rate as the overall economy.

10

11 **Q. What is the historical GDP growth rate that Staff used to estimate stage-2 growth?**

12 A. Staff used 6.5 percent to estimate the stage-2 growth rate.

13

14 **Q. What is Staff's multi-stage DCF estimate for the sample utilities?**

15 A. Staff's multi-stage DCF estimate is 9.4 percent, as shown in Schedule JAC-3.

16

17 **Q. What is Staff's overall DCF estimate for the sample utilities?**

18 A. Staff's overall DCF estimate is 8.8 percent. Staff calculated the overall DCF estimate by  
19 averaging the constant growth DCF (8.2%) and multi-stage DCF (9.4%) estimates, as  
20 shown in Schedule JAC-3.

21

22 *Capital Asset Pricing Model*

23 **Q. Please describe the CAPM.**

24 A. The CAPM is used to determine the prices of securities in a competitive market. The  
25 CAPM model describes the relationship between a security's investment risk and its

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<sup>6</sup> www.bea.doc.gov.

1 market rate of return. Under the CAPM, an investor requires the expected return of a  
2 security to equal the rate on a risk-free security plus a risk premium. If the investor's  
3 expected return does not meet or beat the required return, the investment is not  
4 economically justified. The model also assumes that investors will sufficiently diversify  
5 their investments to eliminate any non-systematic or unique risk.<sup>7</sup> In 1990, Professors  
6 Harry Markowitz, William Sharpe, and Merton Miller earned the Nobel Prize in  
7 Economic Sciences for their contribution to the development of the CAPM.

8  
9 **Q. Did Staff use the same sample water utilities in its CAPM and DCF cost of equity**  
10 **estimation analyses?**

11 A. Yes. Staff's CAPM cost of equity estimation analysis uses the same sample water  
12 companies as its DCF cost of equity estimation analysis.

13  
14 **Q. What is the mathematical formula for the CAPM?**

15 A. The mathematical formula for the CAPM is:  
16

Equation 8:

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

where:  $R_f$  = risk free rate  
 $R_m$  = return on market  
 $\beta$  = beta  
 $R_m - R_f$  = market risk premium  
 $K$  = expected return

17  

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<sup>7</sup> The CAPM makes the following assumptions: 1) single holding period; 2) perfect and competitive securities market; 3) no transaction costs; 4) no restrictions on short selling or borrowing; 5) the existence of a risk-free rate; and 6) homogeneous expectations.

1           The equation shows that the expected return ( $K$ ) on a risky asset is equal to the risk-free  
2           interest rate ( $R_f$ ) plus the product of the market risk premium ( $R_m - R_f$ ) multiplied by beta  
3           ( $\beta$ ) where beta represents the riskiness of the investment relative to the market.

4  
5           **Q.     What is the risk-free rate?**

6           A.     The risk-free rate is the rate of return of an investment free of default risk.

7  
8           **Q.     What does Staff use as surrogates to represent estimations of the risk-free rates of**  
9           **interest in its historical and current market risk premium CAPM methods?**

10          A.     Staff uses separate parameters as surrogates for the estimations of the risk-free rates of  
11          interest for the historical market risk premium CAPM cost of equity estimation and the  
12          current market risk premium CAPM cost of equity estimation. Staff uses the average of  
13          three (5-, 7-, and 10-year) intermediate-term U.S. Treasury securities' spot rates in its  
14          historical market risk premium CAPM cost of equity estimation, and the 30-year U.S.  
15          Treasury bond spot rate in its current market risk premium CAPM cost of equity  
16          estimation. Rates on U.S. Treasuries are largely verifiable and readily available.

17  
18          **Q.     What does beta measure?**

19          A.     Beta is a measure of a security's price volatility, or systematic risk, relative to the market  
20          as a whole. Since systematic risk cannot be diversified away, it is the only risk that is  
21          relevant when estimating a security's required return. Using a baseline market beta  
22          coefficient of 1.0, a security having a beta value less than 1.0 will be less volatile (i.e., less  
23          risky) than the market. A security with a beta value greater than 1.0 will be more volatile  
24          (i.e., more risky) than the market.

25

1 **Q. How did Staff estimate Payson Water's beta?**

2 A. Staff used the average of the *Value Line* betas for the sample water utilities as a proxy for  
3 the Company's beta. Schedule JAC-7 shows the *Value Line* betas for each of the sample  
4 water utilities. The 0.71 average beta coefficient for the sample water utilities is Staff's  
5 estimated beta value for Payson Water. A security with a beta value of 0.71 has less  
6 volatility than the market.

7  
8 **Q. What is the market risk premium ( $R_m - R_f$ )?**

9 A. The market risk premium is the expected return on the market, minus the risk-free rate.  
10 Simplified, it is the return an investor expects as compensation for market risk.

11  
12 **Q. What did Staff use for the market risk premium?**

13 A. Staff uses separate calculations for the market risk premium in its historical and current  
14 market risk premium CAPM methods.

15  
16 **Q. How did Staff calculate an estimate for the market risk premium in its historical  
17 market risk premium CAPM method?**

18 A. Staff uses the intermediate-term government bond income returns published in the  
19 Ibbotson Associates' *Stocks, Bonds, Bills, and Inflation 2013 Classic Yearbook* to  
20 calculate the historical market risk premium. Ibbotson Associates calculates the historical  
21 risk premium by averaging the historical arithmetic differences between the S&P 500 and  
22 the intermediate-term government bond income returns for the period 1926-2012. Staff's  
23 historical market risk premium estimate is 7.2 percent, as shown in Schedule JAC-3.

24

1 **Q. How did Staff calculate an estimate for the market risk premium in its current**  
2 **market risk premium CAPM method?**

3 A. Staff solves equation 8 above to arrive at a market risk premium using a DCF-derived  
4 expected return (K) of 10.88 (2.1 + 8.78<sup>8</sup>) percent using the expected dividend yield (2.1  
5 percent over the next twelve months) and the annual per share growth rate (8.78 percent)  
6 that *Value Line* projects over the next three to five years for all dividend-paying stocks  
7 under its review<sup>9</sup> along with the current long-term risk-free rate (30-year Treasury note at  
8 3.72 percent) and the market's average beta of 1.0. Staff calculated the current market  
9 risk premium as 7.16 percent,<sup>10</sup> as shown in Schedule JAC-3.

10  
11 **Q. What is the result of Staff's historical market risk premium CAPM and current**  
12 **market risk premium CAPM cost of equity estimations for the sample utilities?**

13 A. Staff's cost of equity estimates are 7.2 percent using the historical market risk premium  
14 CAPM and 8.8 percent using the current market risk premium CAPM.

15  
16 **Q. What is Staff's overall CAPM estimate for the sample utilities?**

17 A. Staff's overall CAPM cost of equity estimate is 8.0 percent which is the average of the  
18 historical market risk premium CAPM (7.2 percent) and the current market risk premium  
19 CAPM (8.8 percent) estimates, as shown in Schedule JAC-3.

20

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<sup>8</sup> The three to five year price appreciation is 40%.  $1.40^{0.25} - 1 = 8.78\%$ .

<sup>9</sup> October 18, 2013 issue date.

<sup>10</sup>  $10.88\% = 3.72\% + (1) (7.16\%)$ .

1 **VII. SUMMARY OF STAFF'S COST OF EQUITY ANALYSIS**

2 **Q. What is the result of Staff's constant-growth DCF analysis to estimate the cost of**  
3 **equity for the sample water utilities?**

4 **A.** Schedule JAC-3 shows the result of Staff's constant-growth DCF analysis. The result of  
5 Staff's constant-growth DCF analysis is as follows:

6  
7  $k = 3.0\% + 5.2\%$

8  
9  $k = 8.2\%$

10  
11 Staff's constant-growth DCF estimate of the cost of equity for the sample water utilities is  
12 8.2 percent.

13  
14 **Q. What is the result of Staff's multi-stage DCF analysis to estimate of the cost of equity**  
15 **for the sample utilities?**

16 **A.** Schedule JAC-9 shows the result of Staff's multi-stage DCF analysis. The result of  
17 Staff's multi-stage DCF analysis is:

18

19	<b>Company</b>	<b>Equity Cost</b>
20		<b>Estimate (k)</b>
21	American States Water	9.2%
22	California Water	9.6%
23	Aqua America	8.8%
24	Connecticut Water	9.6%
25	Middlesex Water	10.1%
26	SJW Corp	9.0%
27	York Water	<u>9.2%</u>
28		
29	<b>Average</b>	<b>9.4%</b>

30

1 Staff's multi-stage DCF estimate of the cost of equity for the sample water utilities is 9.4  
2 percent.

3  
4 **Q. What is Staff's overall DCF estimate of the cost of equity for the sample utilities?**

5 A. Staff's overall DCF estimate of the cost of equity for the sample utilities is 8.8 percent.  
6 Staff calculated an overall DCF cost of equity estimate by averaging Staff's constant  
7 growth DCF (8.2 percent) and Staff's multi-stage DCF (9.4 percent) estimates, as shown  
8 in Schedule JAC-3.

9  
10 **Q. What is the result of Staff's historical market risk premium CAPM analysis to  
11 estimate of the cost of equity for the sample utilities?**

12 A. Schedule JAC-3 shows the result of Staff's CAPM analysis using the historical risk  
13 premium estimate. The result is as follows:

14  
15 
$$k = 2.1\% + 0.71 * 7.2\%$$

16 
$$k = 7.2\%$$

17  
18 Staff's CAPM estimate (using the historical market risk premium) of the cost of equity to  
19 the sample water utilities is 7.2 percent.

20  
21 **Q. What is the result of Staff's current market risk premium CAPM analysis to  
22 estimate the cost of equity for the sample utilities?**

23 A. Schedule JAC-3 shows the result of Staff's CAPM analysis using the current market risk  
24 premium estimate. The result is:

25 
$$k = 3.7\% + 0.71 * 7.2\%$$

26

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k = 8.8%

Staff's CAPM estimate (using the current market risk premium) of the cost of equity to the sample water utilities is 8.8 percent.

**Q. What is Staff's overall CAPM estimate of the cost of equity for the sample utilities?**

A. Staff's overall CAPM estimate for the sample utilities is 8.0 percent. Staff's overall CAPM estimate is the average of the historical market risk premium CAPM (7.2 percent) and the current market risk premium CAPM (8.8 percent) estimates, as shown in Schedule JAC-3.

**Q. Please summarize the results of Staff's cost of equity analysis for the sample utilities.**

A. The following table shows the results of Staff's cost of equity analysis:

**Table 2**

Method	Estimate
Average DCF Estimate	8.8%
Average CAPM Estimate	8.0%
<b>Overall Average</b>	<b>8.4%</b>

Staff's average estimate of the cost of equity to the sample water utilities is 8.4 percent.

**VIII. FINAL COST OF EQUITY ESTIMATES FOR PAYSON WATER**

**Q. Please compare Payson Water's capital structure to that of Staff's seven sample companies.**

A. The average capital structure for the sample water utilities is composed of 50.3 percent debt and 49.7 percent equity, as shown in Schedule JAC-4. In contrast, Payson Water's

1 Staff recommended pro forma capital structure is composed of 52.8 percent debt and 47.2  
2 percent equity. Since this pro forma capital structure is more highly leveraged than that of  
3 the average sample water utility, Payson Water's stockholders bear incrementally greater  
4 financial risk than do equity shareholders of the sample utilities.

5  
6 **Q. In view of Payson Water's additional exposure to financial risk, does Staff**  
7 **recommend that an upward financial risk adjustment be made to the Company's**  
8 **cost of equity in this proceeding?**

9 A. No. Staff considers a capital structure comprised of between 60 percent debt and 40  
10 percent equity to be reasonably balanced and economical, and recommends an upward  
11 financial risk adjustment only when the subject utility's debt component exceeds 60  
12 percent. Because the debt component of Staff's recommended pro forma capital structure  
13 for the Company does not meet this condition, Staff does not recommend that an upward  
14 financial risk adjustment be made to the cost of equity.

15  
16 **Q. Did Staff consider factors other than the results of its technical models in its cost of**  
17 **equity analysis?**

18 A. Yes. In consideration of the relatively uncertain status of the economy and the market that  
19 currently exists, Staff is proposing an upward economic assessment adjustment to the cost  
20 of equity. In this case, Staff recommends a 60 basis point (0.6 percent) upward economic  
21 assessment adjustment, as shown in Schedule JAC-3.

22  
23 **Q. What is Staff's ROE estimate for Payson Water?**

24 A. Staff determined an ROE estimate of 8.4 percent for Payson Water based on cost of equity  
25 estimates for the sample companies of 8.8 percent for the DCF and 8.0 percent for the  
26 CAPM. Staff recommends adoption of a 60 basis point upward economic assessment

1 adjustment, resulting in a 9.0 percent Staff-recommended cost of equity, as shown in  
2 Schedule JAC-3.

3  
4 **IX. RATE OF RETURN RECOMMENDATION**

5 **Q. What overall rate of return did Staff determine for Payson Water?**

6 A. Staff determined a 6.4 percent ROR for the Company, as shown in Schedule JAC-1 and  
7 the following table:

8  
9 **Table 3**

10

	<b>Weight</b>	<b>Cost</b>	<b>Weighted Cost</b>
Long-term Debt	52.8%	4.2%	2.2%
Common Equity	47.2%	9.0%	<u>4.2%</u>
<b>Overall ROR</b>			<b><u>6.4%</u></b>

11

12 **X. STAFF RESPONSE TO COMPANY'S COST OF CAPITAL WITNESS MR.**  
13 **THOMAS J. BOURASSA**

14 **Q. Please summarize Mr. Bourassa's analyses and recommendations.**

15 A. Mr. Bourassa recommends an 11.00 percent ROE based on estimates derived from two  
16 constant growth DCF analyses, two CAPM analyses, and two Build-up risk premium  
17 models designed as a check for reasonableness to his DCF and CAPM results, using a  
18 proxy sample of six publicly-traded water companies. He proposes a capital structure  
19 consisting of 0.00 percent debt and 100.00 percent equity; his proposed cost of debt is  
20 0.00 percent. Mr. Bourassa's recommended ROE includes a downward 90 basis point (0.9  
21 percent) financial risk adjustment and an upward 200 basis point (2.0 percent) small  
22 company risk premium. His overall recommended rate of return for the Company is 11.00  
23 percent.  
24

1 For purposes of his constant growth DCF analyses, Mr. Bourassa gives a 50 percent  
2 weight to the estimates derived from his Future Growth DCF model and a 50 percent  
3 weight to the estimates derived from his Past and Future Growth DCF Model. In his  
4 primary Future Growth DCF model, Mr. Bourassa relies exclusively on analysts' forecasts  
5 of EPS growth to estimate the dividend growth ( $g$ ) component (See TJB Schedule D-4.6).  
6 In his Past and Future Growth DCF model, Mr. Bourassa estimates his dividend growth  
7 ( $g$ ) rate by giving 50 percent weight to historical measures of growth in annual share price,  
8 BVPS, EPS and DPS over a five-year period, and 50 percent weight to the dividend  
9 growth rate obtained from his primary Future Growth DCF model (See TJB Schedule D-  
10 4.4). Thus, for purposes of the overall dividend growth ( $g$ ) rate used in his constant  
11 growth DCF analyses, Mr. Bourassa effectively gives a 75 percent weight to the results  
12 obtained from analysts forecasts' for EPS growth and only a 25 percent weight to the  
13 results obtained from historical measures of dividend growth (See TJB Schedule D-4.8).

14  
15 For purposes of his CAPM analyses, Mr. Bourassa presents estimates based upon both  
16 historical and current market risk premia. In both, however, he uses a 3.9 percent  
17 forecasted risk free ( $R_f$ ) rate based, in part, upon estimates from Value Line and Blue Chip  
18 Consensus Forecasts for the 30-year long-term Treasury yield covering the period, 2013-  
19 2015 (See TJB Schedule D-4.10).

20  
21 **Q. Does Staff have any comments on Mr. Bourassa's sole reliance on analysts' forecasts**  
22 **of EPS growth rates to estimate dividend growth rate ( $g$ ) in his Future Growth DCF**  
23 **analysis?**

24 **A.** Yes. Exclusive reliance on analysts' forecasts of earnings growth to forecast DPS is  
25 inappropriate because it assumes that investors do not look at other relevant information  
26 such as historical dividend and earnings growth. Generally, analysts' forecasts are known

1 to be overly optimistic. Sole use of analysts' forecasts to calculate the expected dividend  
2 growth rate, (g), serves to inflate that component of the DCF model and, consequently, the  
3 estimated cost of equity. The appropriate growth rate to use in the DCF model is the  
4 dividend growth rate expected by *investors*, not by analysts. Investors are assumed to be  
5 rational, and as such will want to take into consideration all relevant available information  
6 prior to making an investment decision. Therefore, it is reasonable to assume that  
7 investors would consider both historical measures of past growth, as well as analysts'  
8 forecasts of future growth.  
9

10 **Q. In the narrative of his direct testimony, does Mr. Bourassa state that he relies**  
11 **exclusively on analysts' forecasts of EPS growth to estimate the expected dividend**  
12 **growth rate (g) in his Future Growth DCF model?**

13 A. No. Mr. Bourassa appears reluctant to acknowledge doing so, stating only that "I have  
14 used analyst growth forecasts, where available,"<sup>11</sup> and that "I use analysts' forecasts of  
15 growth as a primary estimate of growth."<sup>12</sup> Analysts make forecasts of a variety of  
16 different financial/investment growth parameters, but it is only when referring to TJB  
17 Schedule D-4.6 that one learns Mr. Bourassa has relied exclusively on analysts' forecasts  
18 of EPS growth to estimate the dividend growth (g) rate in his Future Growth DCF model.  
19

---

<sup>11</sup> Direct testimony of Mr. Thomas J. Bourassa, page 33, lines 16-17.

<sup>12</sup> Direct testimony of Mr. Thomas J. Bourassa, page 34, lines 4-5.

1 **Q. Does Staff have evidence to support its assertion that exclusive reliance on analysts'**  
2 **forecasts of earnings growth in the DCF model would result in inflated cost of equity**  
3 **estimates?**

4 A. Yes. Experts in the financial community have commented on the optimism in analysts'  
5 forecasts of future earnings.<sup>13</sup> A study cited by David Dreman in his book *Contrarian*  
6 *Investment Strategies: The Next Generation* found that *Value Line* analysts were  
7 optimistic in their forecasts by 9 percent annually, on average for the 1987 – 1989 period.  
8 Another study conducted by David Dreman found that between 1982 and 1997, analysts  
9 overestimated the growth of earnings of companies in the S&P 500 by 188 percent.

10  
11 Burton Malkiel, of Princeton University, conducted a study of the 1- and 5-year earnings  
12 forecasts made by some of the most respected names in the investment business. His  
13 results showed that when compared with actual earnings growth rates, the 5-year forecasts  
14 made by professional analysts were far less accurate than estimates derived from several  
15 naïve forecasting models, such as the long-run growth rate in national income. In the  
16 following excerpt from his book, *A Random Walk Down Wall Street*, Professor Malkiel  
17 discusses the results of his study:

18  
19 When confronted with the poor record of their five-year growth  
20 estimates, *the security analysts honestly, if sheepishly, admitted*  
21 *that five years ahead is really too far in advance to make reliable*  
22 *projections.* They protested that although long-term projections  
23 are admittedly important, they really ought to be judged on their  
24 ability to project earnings changes one year ahead. Believe it or  
25 not, it turned out that their one-year forecasts were even worse than  
26 their five-year projections.

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<sup>13</sup> See Seigel, Jeremy J. *Stocks for the Long Run*. 2002. McGraw-Hill. New York. p. 100. Dreman, David. *Contrarian Investment Strategies: The Next Generation*. 1998. Simon & Schuster. New York. pp. 97-98. Malkiel, Burton G. *A Random Walk Down Wall Street*. 2003. W.W. Norton & Co. New York. p. 175. Testimony of Professors Myron J. Gordon and Lawrence I. Gould, consultant to the Trial Staff (Common Carrier Bureau), FCC Docket 79-63, p. 95.

1           The analysts fought back gamely. They complained that it was  
2           unfair to judge their performance on a wide cross section of  
3           industries, because earnings for high-tech firms and various  
4           “cyclical” companies are notoriously hard to forecast. “*Try us on*  
5           *utilities,*” *one analyst confidently asserted. At the time they were*  
6           *considered among the most stable group of companies because of*  
7           *government regulation. So we tried it and they didn’t like it. Even*  
8           *the forecasts for the stable utilities were far off the mark.*<sup>14</sup>  
9           (Emphasis added)

10  
11       **Q.     Are investors aware of the problems related to analysts’ forecasts?**

12       A.     Yes. In addition to books, there are numerous published articles appearing in *The Wall*  
13       *Street Journal* and other financial publications that cast doubt on the accuracy of research  
14       analysts’ forecasts.<sup>15</sup> Investors, being keenly aware of these inherent biases in forecasts,  
15       will use other methods to assess future growth.

16  
17       **Q.     Should DPS growth be considered in a DCF analysis?**

18       A.     Yes. As previously stated in section VI of this testimony, the current market price of a  
19       stock is equal to the present value of all expected future dividends, not future earnings.  
20       Professor Jeremy Siegel from the Wharton School of Finance stated:

21  
22           Note that the price of the stock is always equal to the present value  
23           of all future *dividends* and not the present value of future earnings.  
24           Earnings not paid to investors can have value only if they are paid  
25           as dividends or other cash disbursements at a later date. Valuing  
26           stock as the present discounted value of future earnings is  
27           manifestly wrong and greatly overstates the value of the firm.<sup>16</sup>

28  

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<sup>14</sup> Malkiel, Burton G. *A Random Walk Down Wall Street*. 2003. W.W. Norton & Co. New York. p. 175

<sup>15</sup> See Smith, Randall & Craig, Suzanne. “Big Firms Had Research Ploy: Quiet Payments Among Rivals.” *The Wall Street Journal*. April 30, 2003. Brown, Ken. “Analysts: Still Coming Up Rosy.” *The Wall Street Journal*. January 27, 2003. p. C1. Karmin, Craig. “Profit Forecasts Become Anybody’s Guess.” *The Wall Street Journal*. January 21, 2003. p. C1. Gasparino, Charles. “Merrill Lynch Investigation Widens.” *The Wall Street Journal*. April 11, 2002. p. C4. Elstein, Aaron. “Earnings Estimates Are All Over the Map.” *The Wall Street Journal*. August 2, 2001. p. C1. Dreman, David. “Don’t Count on those Earnings Forecasts.” *Forbes*. January 26, 1998. p. 110.

<sup>16</sup> Siegel, Jeremy J. *Stocks for the Long Run*. 2002. McGraw-Hill. New York. P. 93.

1 For valuation purposes, therefore, earnings paid out in the form of a dividend have  
2 paramount relevancy to investors. Additionally, unlike earnings, dividends cannot be  
3 manipulated or overstated. Thus, historical DPS growth should receive appropriate  
4 consideration when estimating the market cost of equity in the DCF model.

5  
6 **Q. How does Mr. Bourassa calculate the expected dividend growth (g) rate used in his  
7 Past and Future Growth DCF model?**

8 A. As shown in TJB Schedule D-4.4, Mr. Bourassa estimates the expected dividend growth  
9 (g) rate in his Past and Future Growth DCF model<sup>17</sup> by providing a 50 percent weight<sup>18</sup> to  
10 historical measures of growth in average annual share price, book value per share,  
11 earnings per share and dividends per share for his sample companies over a five-year  
12 period<sup>19</sup> and a 50 percent weight<sup>20</sup> to the average of analysts' forecasts for EPS growth  
13 derived from his Future Growth DCF model.

14  
15 **Q. For purposes of his overall DCF estimate, what percentage weight does Mr. Bourassa  
16 allocate to the dividend growth (g) component derived from analysts' forecasts of  
17 EPS growth in his Future Growth DCF model?**

18 A. Effectively, for purposes of his overall DCF estimate Mr. Bourassa allocates a 75 percent  
19 weight to the results derived from analysts' forecasts of EPS growth in his Future Growth  
20 DCF Model. As noted above, TJB Schedule D-4.4 presents the results of Mr. Bourassa's  
21 Past and Future Growth DCF model, which provides for an equal weighting (i.e., 50  
22 percent) between historical and projected measures of dividend growth. However, as  
23 shown in TJB Schedule D-4.8, for purposes of his overall dividend growth (g) estimate,<sup>21</sup>

---

<sup>17</sup> TJB Schedule D-4.4, Column 7.

<sup>18</sup> TJB Schedule D-4.4, Column 5.

<sup>19</sup> In TJB Schedule D-4.5, Mr. Bourassa presents this same dividend growth information over a ten-year period, but elects not to use it for purposes of calculating his DCF estimated cost of equity.

<sup>20</sup> TJB Schedule D-4.4, Column 6.

<sup>21</sup> TJB Schedule D-4.8, Column 3.

1 Mr. Bourassa combines the average of his Past and Future Growth DCF estimate<sup>22</sup> with  
2 his average Future Growth DCF estimate.<sup>23</sup> In so doing, Mr. Bourassa effectively gives a  
3 75 percent weight to the dividend growth (g) estimate derived from analysts' forecasts of  
4 EPS growth in his Future Growth DCF model and only a 25 percent weight to the  
5 dividend growth estimate derived from historical measures of growth in his Past and  
6 Future Growth DCF model.

7  
8 **Q. Does Staff have any comment on Mr. Bourassa's use of growth in average annual**  
9 **share price to estimate the expected dividend growth (g) component in his Past and**  
10 **Future Growth DCF model?**

11 A. Yes. In and of itself, share price appreciation is not a determinant of dividend growth, and  
12 for this reason Staff considers its use as a growth parameter to be inappropriate. However,  
13 as Mr. Bourassa has utilized it as a growth parameter by which to estimate dividend  
14 growth, Staff would point out that in both his five- and ten-year historical growth DCF  
15 analyses, share price growth has exceeded that of dividend growth. Specifically, in his  
16 five-year historical growth analysis (See TJB Schedule D-4.4), average share price growth  
17 (5.80%) exceeds average DPS growth (3.33%) by 77 percent ( $((.0580/.0333) - 1) = 77\%$ ),  
18 and in his ten-year historical growth analysis (See TJB Schedule D-4.5), average share  
19 price growth (6.88%) exceeds average DPS growth (3.08%) by 123 percent  
20 ( $((.0688/.0308) - 1) = 123\%$ ).  
21

---

<sup>22</sup> TJB Schedule D-4.8, Line 8.

<sup>23</sup> TJB Schedule D-4.8, Line 10.

1 **Q. As it relates to the cost of equity, what is the significance of Mr. Bourassa's sample**  
2 **water companies having experienced share price growth in excess of DPS growth**  
3 **over both the last five- and ten-year periods?**

4 A. Simply stated, it is an indication that the cost of equity for publicly-traded water utilities  
5 has fallen over each of the last 5- and 10-year periods. When the market price per share of  
6 common stock for a given firm rises faster than does the dividend paid on a per share  
7 basis, the dividend yield falls. As dividend yields fall, investors pay more for an  
8 equivalent unit of return on their investment, resulting in a lower cost of equity. Markets  
9 are efficient, and because prices for publicly traded stocks can rise only if investors are  
10 willing to bid up the share price, when share price growth exceeds DPS growth over a  
11 five- or ten-year period, the willingness of investors to continue to bid up share prices is  
12 reflective of investor expectations that market returns have fallen. Thus, Mr. Bourassa's  
13 use of share price growth increases his cost of equity estimate at a time when share price  
14 growth actually reflects a decrease in cost of equity. This incongruous outcome is the  
15 result of choosing an inappropriate parameter for dividend growth in the DCF model.

16  
17 **Q. Turning to Mr. Bourassa's CAPM analyses, does Staff agree with his use of a**  
18 **forecasted risk-free interest rate?**

19 A. No. The appropriate risk-free interest rate to be used is the current rate borne by investors  
20 in the market. Use of a forecasted risk-free rate serves to overstate the estimated market  
21 cost of equity.

22  
23 **Q. What risk-free rate does Mr. Bourassa use in his CAPM analyses?**

24 A. In both his historical- and current market risk premia CAPM analyses, Mr. Bourassa uses  
25 a forecasted risk-free rate ( $R_f$ ) based, in part, upon estimates from Value Line and Blue  
26 Chip Consensus Forecasts for the 30-year long-term Treasury yield covering the period

1           2013-2015. The forecasted rate used by Mr. Bourassa in his CAPM analyses is 3.9  
2           percent. At present, the current 30-year long-term Treasury yield is 3.72 percent, which  
3           suggests that he has overstated the risk-free rate in his CAPM analysis by 18 basis points.  
4

5           **Q. Does Staff have any comment regarding Mr. Bourassa's proposed 200 basis point**  
6           **upward small company risk premium adjustment?**

7           **A.** Yes. While Staff would agree with the general proposition that smaller companies are  
8           riskier than larger companies, empirical research has demonstrated that a small company  
9           risk premium adjustment to the cost of equity is unwarranted for regulated utilities.  
10          Annie Wong, of Western Connecticut State University, conducted a study on utility  
11          stocks to determine if the so-called size effect exists in the utility industry, and she writes  
12          as follows:

13                               The fact that the two samples show different, though weak, results  
14                               indicates that utility and industrial stocks do not share the same  
15                               characteristics. First, given firm size, utility stocks are consistently less  
16                               risky than industrial stocks. Second, industrial betas tend to decrease with  
17                               firm size but utility betas do not. These findings may be attributed to the  
18                               fact that all public utilities operate in an environment with regional  
19                               monopolistic power and regulated financial structure. As a result, the  
20                               business and financial risks are very similar among the utilities regardless  
21                               of their size. Therefore, utility betas would not necessarily be expected to  
22                               be related to firm size.  
23

24                               The object of this study is to examine if the size effect exists in the utility  
25                               industry. After controlling for equity values, there is some weak evidence  
26                               that firm size is a missing factor from the CAPM for the industrial but not  
27                               for the utility stocks. *This implies that although the size phenomenon has*  
28                               *been strongly documented for industrials, the findings suggest that there is*  
29                               *no need to adjust for the firm size in utility regulations. [emphasis*  
30                               *added].*<sup>24</sup>  
31  
32

33           To underscore this point, Paschall and Hawkins write as follows:

---

<sup>24</sup> Annie Wong, "Utility Stock and the Size Effect: An Empirical Analysis," *Journal of the Midwest Finance Association*, (1993), p.98.

1 A size premium does not automatically apply in every case. Each privately  
2 held company should be analyzed to determine if a size premium is  
3 appropriate in its particular case. There can be unusual circumstances  
4 where a small company has risk characteristics that make it far less risky  
5 than the average company, warranting the use of a very low equity risk  
6 premium. One possible example of this is a private water utility  
7 (monopoly situation, very low risk, near-guarantee of payments).<sup>25</sup>

8  
9 **Q. Does Staff have additional evidence to demonstrate that Mr. Bourassa's proposed**  
10 **small company risk premium adjustment is without merit?**

11 A. Yes, and from a source which Mr. Bourassa, himself, relies upon for purposes of his Risk  
12 Premium Build-Up cost of equity estimation methodology.<sup>26</sup> The 2012 *Duff & Phelps*  
13 Risk Premium Study includes a discussion of the size effect and the possible explanations  
14 for small companies having achieved historically higher returns than larger companies,  
15 and reads as follows:

16  
17 Traditionally, small companies are believed to have greater required rates  
18 of return than large companies because small companies are inherently  
19 riskier. It is not clear, however, whether this is due to size itself, or  
20 another factor closely related to size. The qualification that Banz noted in  
21 1981 remains pertinent today:

22  
23 *"It is not known whether size [as measured by market capitalization-ed.]*  
24 *per se is responsible for the effect or whether size is just a proxy for one or*  
25 *more true unknown factors correlated with size."*

26  
27 Practitioners know that small firms measured in terms of fundamental size  
28 measures such as assets or net income have risk characteristics that differ  
29 from those of large firms. For example, *potential competitors* (emphasis  
30 added) can more easily enter the "real" market (market for the goods  
31 and/or services offered to customers) of the small firm and "take" the  
32 value that the small firm has built. Large companies have more resources  
33 to better *adjust to competition* (emphasis added) and avoid distress in  
34 economic slowdowns. Small firms undertake less research and  
35 development and spend less on advertising than large firms, giving them

<sup>25</sup> Michael A. Paschall and George B. Hawkins, "Do Smaller Companies Warrant a Higher Discount Rate for Risk?: The 'Size Effect' Debate," *CCH Business Valuation Alert*, Vol. 1, Issue No. 2, December 1999.

<sup>26</sup> See Bourassa Direct, p.42, footnote 22. (In his testimony, Mr. Bourassa cites the *Duff & Phelps* 2013 Risk Premium Study)

1 less control over product demand and *potential competition* (emphasis  
2 added). Small firms have fewer resources to *fend off competition*  
3 (emphasis added) and redirect themselves after changes in the market  
4 occur. Smaller firms may have fewer analysts following them, and less  
5 information available about them. Smaller firms may have lesser access to  
6 capital, thinner management depth, greater dependency on a few large  
7 customers, and may be less liquid than their counterparts. Each of these  
8 characteristics would tend to increase the rate of return that an investor  
9 might demand for investing in stocks of small companies rather than  
10 investing in stocks of large companies.”<sup>27</sup>

11  
12 **Q. What is the significance of the above as it relates to Mr. Bourassa’s proposed 200**  
13 **basis point small company risk premium adjustment for Payson Water?**

14 A. It is clear evidence that there is no justification for such an adjustment, as the Company is  
15 not subject to competition from other water service providers. Upon being issued a  
16 Certificate of Convenience and Necessity (“CC&N”) by this Commission to provide  
17 potable water service to metered customers within its certificated service territory, Payson  
18 Water was granted natural monopoly status to be the exclusive provider within its service  
19 territory, thus immunizing the Company from market competition.

20  
21 **Q. Has the Commission previously ruled on the issue of firm size and whether it**  
22 **warrants a risk premium adjustment to the cost of equity?**

23 A. Yes. The Commission previously ruled in Decision No. 64282<sup>28</sup> for Arizona Water that  
24 firm size does not warrant recognition of a risk premium stating, “We do not agree with  
25 the Company’s proposal to assign a risk premium to Arizona Water based on its size  
26 relative to other publicly traded water utilities....” The Commission confirmed its  
27 previous ruling in Decision No. 64727<sup>29</sup> for Black Mountain Gas agreeing with Staff that  
28 “the ‘firm size phenomenon’ does not exist for regulated utilities, and that therefore there

---

<sup>27</sup> *Duff & Phelps* 2012 Risk Premium Study, p. 28.

<sup>28</sup> Dated December 28, 2001.

<sup>29</sup> Dated April 17, 2002.

1 is no need to adjust for risk for small firm size in utility regulation.” All companies have  
2 firm-specific risks. Therefore, the existence of unique risks for a company does not lead  
3 to the conclusion that its total risk is greater than other entities. Moreover, as previously  
4 discussed, investors cannot expect compensation for firm-specific risk since it can be  
5 eliminated through diversification.

6  
7 **Q. If the 200 basis point adjustment is removed, what would Mr. Bourassa’s ROE**  
8 **become?**

9 A. It would be 9.0 percent, the same as Staff recommends.

10  
11 **Q. Does this conclude your direct testimony?**

12 A. Yes, it does.

Payson Water Company Cost of Capital Calculation  
 Capital Structure  
 And Weighted Average Cost of Capital  
 Staff Recommended and Company Proposed

[A]	[B]	[C]	[D]
<u>Description</u>	<u>Weight (%)</u>	<u>Cost</u>	<u>Weighted Cost</u>
<b>Staff Recommended Structure</b>			
Debt	52.8%	4.2%	2.2%
Common Equity	47.2%	9.0%	<u>4.2%</u>
Weighted Average Cost of Capital			6.4%
<b>Company Proposed Structure</b>			
Debt	0.00%	0.00%	0.00%
Common Equity	100.00%	11.00%	11.00%
Weighted Average Cost of Capital			<u>11.00%</u>

[D] : [B] x [C]

Supporting Schedules: JAC-2, JAC-3 and JAC-4.

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Payson Water Company Cost of Capital Calculation  
Average Capital Structure of Sample Water Utilities

[A]	[B]	[C]	[D]
<u>Company</u>	<u>Debt</u>	<u>Common Equity</u>	<u>Total</u>
American States Water	43.3%	56.7%	100.0%
California Water	54.2%	45.8%	100.0%
Aqua America	55.2%	44.8%	100.0%
Connecticut Water	55.3%	44.7%	100.0%
Middlesex Water	43.1%	56.9%	100.0%
SJW Corp	56.2%	43.8%	100.0%
York Water	<u>45.0%</u>	<u>55.0%</u>	<u>100.0%</u>
 Average Sample Water Utilities	 <b>50.3%</b>	 <b>49.7%</b>	 <b>100.0%</b>
 Payson Water - Pro Forma Capital Structure	 <b>52.8%</b>	 <b>47.2%</b>	 <b>100.0%</b>

Source:

Sample Water Companies from Value Line

Payson Water Company Cost of Capital Calculation  
Growth in Earnings and Dividends  
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]
<u>Company</u>	Dividends Per Share 2002 to 2012 <u>DPS<sup>1</sup></u>	Dividends Per Share Projected <u>DPS<sup>1</sup></u>	Earnings Per Share 2002 to 2012 <u>EPS<sup>1</sup></u>	Earnings Per Share Projected <u>EPS<sup>1</sup></u>
American States Water	3.9%	8.4%	7.7%	3.8%
California Water	1.2%	7.4%	5.0%	5.8%
Aqua America	7.7%	9.7%	7.3%	10.7%
Connecticut Water	1.7%	2.9%	3.2%	3.3%
Middlesex Water	1.6%	1.6%	2.1%	5.0%
SJW Corp	4.4%	4.9%	4.2%	6.3%
York Water	4.4%	3.8%	6.1%	4.6%
<b>Average Sample Water Utilities</b>	<b>3.6%</b>	<b>5.5%</b>	<b>5.1%</b>	<b>5.6%</b>

<sup>1</sup> Value Line

Payson Water Company Cost of Capital Calculation  
Sustainable Growth  
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]
<u>Company</u>	Retention Growth 2002 to 2012 <u>br</u>	Retention Growth Projected <u>br</u>	Stock Financing Growth <u>vs</u>	Sustainable Growth 2002 to 2012 <u>br + vs</u>	Sustainable Growth Projected <u>br + vs</u>
American States Water	3.8%	5.2%	1.5%	5.4%	6.7%
California Water	2.4%	3.2%	1.5%	3.9%	4.7%
Aqua America	3.9%	5.3%	1.9%	5.8%	7.2%
Connecticut Water	2.0%	3.3%	3.9%	5.9%	7.2%
Middlesex Water	1.2%	2.8%	3.1%	4.3%	5.9%
SJW Corp	3.5%	3.8%	0.1%	3.6%	3.9%
York Water	<u>2.2%</u>	<u>2.8%</u>	<u>4.7%</u>	<u>6.8%</u>	<u>7.5%</u>
Average Sample Water Utilities	<b>2.7%</b>	<b>3.8%</b>	<b>2.4%</b>	<b>5.1%</b>	<b>6.2%</b>

[B]: Value Line

[C]: Value Line

[D]: Value Line, MSN Money, and Form 10-Ks filed with the Securities and Exchange Commission (<http://www.sec.gov/>)

[E]: [B]+[D]

[F]: [C]+[D]

Payson Water Company Cost of Capital Calculation  
Selected Financial Data of Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]	[G]
<u>Company</u>	<u>Symbol</u>	<u>Spot Price</u> <u>10/16/2013</u>	<u>Book Value</u>	<u>Mkt To</u> <u>Book</u>	<u>Value Line</u> <u>Beta</u> <u><math>\beta</math></u>	<u>Raw</u> <u>Beta</u> <u><math>\beta_{raw}</math></u>
American States Water	AWR	<b>27.22</b>	11.85	2.3	<b>0.70</b>	0.52
California Water	CWT	<b>20.00</b>	11.68	1.7	<b>0.65</b>	0.45
Aqua America	WTR	<b>24.49</b>	7.99	3.1	<b>0.60</b>	0.37
Connecticut Water	CTWS	<b>31.35</b>	14.00	2.2	<b>0.75</b>	0.60
Middlesex Water	MSEX	<b>21.01</b>	12.04	1.7	<b>0.70</b>	0.52
SJW Corp	SJW	<b>28.44</b>	15.27	1.9	<b>0.85</b>	0.75
York Water	YORW	<b>21.12</b>	8.18	<u>2.6</u>	<u>0.70</u>	<u>0.52</u>
Average				<b>2.2</b>	<b>0.71</b>	<b>0.53</b>

[C]: Msn Money

[D]: Value Line

[E]: [C] / [D]

[F]: Value Line

[G]:  $(-0.35 + [F]) / 0.67$

Payson Water Company Cost of Capital Calculation  
 Calculation of Expected Infinite Annual Growth in Dividends  
 Sample Water Utilities

[A]	[B]
<u>Description</u>	<u>g</u>
DPS Growth - Historical <sup>1</sup>	3.6%
DPS Growth - Projected <sup>1</sup>	5.5%
EPS Growth - Historical <sup>1</sup>	5.1%
EPS Growth - Projected <sup>1</sup>	5.6%
Sustainable Growth - Historical <sup>2</sup>	5.1%
<u>Sustainable Growth - Projected<sup>2</sup></u>	<u>6.2%</u>
 Average	 <b>5.2%</b>

<sup>1</sup> Schedule JAC-5

<sup>2</sup> Schedule JAC-6

Payson Water Company Cost of Capital Calculation  
Multi-Stage DCF Estimates  
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
<u>Company</u>	Current Mkt. Price ( $P_0$ ) <sup>1</sup> 10/16/2013	Projected Dividends <sup>2</sup> (Stage 1 growth) ( $D_t$ )				Stage 2 growth <sup>3</sup> ( $g_n$ )	Equity Cost Estimate ( $K$ ) <sup>4</sup>
		$d_1$	$d_2$	$d_3$	$d_4$		
American States Water	27.2	0.76	0.80	0.84	0.89	6.5%	9.2%
California Water	20.0	0.65	0.68	0.71	0.75	6.5%	9.6%
Aqua America	24.5	0.59	0.62	0.66	0.69	6.5%	8.8%
Connecticut Water	31.4	1.01	1.07	1.12	1.18	6.5%	9.6%
Middlesex Water	21.0	0.79	0.83	0.87	0.92	6.5%	10.1%
SJW Corp	28.4	0.73	0.77	0.81	0.85	6.5%	9.0%
York Water	21.1	0.58	0.61	0.64	0.68	6.5%	9.2%

$$P_0 = \sum_{t=1}^n \frac{D_t}{(1+K)^t} + \frac{D_n(1+g_n)}{K-g_n} \left[ \frac{1}{(1+K)} \right]^n$$

Average **9.4%**

Where :  $P_0$  = current stock price  
 $D_t$  = dividends expected during stage 1  
 $K$  = cost of equity  
 $n$  = years of non – constant growth  
 $D_n$  = dividend expected in year n  
 $g_n$  = constant rate of growth expected after year n

1 [B] see Schedule JAC-7

2 Derived from Value Line Information

3 Average annual growth in GDP 1929 - 2012 in current dollars.

4 Internal Rate of Return of Projected Dividends

**BEFORE THE ARIZONA CORPORATION COMMISSION**

BOB STUMP  
Chairman  
GARY PIERCE  
Commissioner  
BRENDA BURNS  
Commissioner  
SUSAN BITTER SMITH  
Commissioner  
BOB BURNS  
Commissioner

IN THE MATTER OF THE APPLICATION OF )  
PAYSON WATER CO. INC., AN ARIZONA )  
CORPORATION, FOR A DETERMINATION )  
OF THE FAIR VALUE OF ITS UTILITY PLANT )  
AND PROPERTY AND FOR INCREASES IN )  
ITS WATER RATES AND CHARGES FOR )  
UTILITY SERVICE BASED THEREON. )

DOCKET NO. W-03514A-13-0111

IN THE MATTER OF THE APPLICATION OF )  
PAYSON WATER CO. INC., FOR AUTHORITY )  
TO ISSUE EVIDENCE OF INDEBTEDNESS )  
IN AN AMOUNT NOT TO EXCEED \$1,238,000 )  
IN CONNECTION WITH INFRASTRUCTURE )  
IMPROVEMENTS TO THE UTILITY SYSTEM; )  
AND ENCUMBER REAL PROPERTY AND )  
PLANT AS SECURITY FOR SUCH )  
INDEBTEDNESS. )

DOCKET NO. W-03514A-13-0142

DIRECT  
TESTIMONY  
OF

JOHN A. CASSIDY

PUBLIC UTILITIES ANALYST  
UTILITIES DIVISION  
ARIZONA CORPORATION COMMISSION

NOVEMBER 19, 2013

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**EXECUTIVE SUMMARY**  
**PAYSON WATER COMPANY**  
**DOCKET NO. W-03514A-13-0111, ET AL.**

On April 22, 2013, Payson Water Company, Inc. ("Payson Water" or "Company") filed an application with the Arizona Corporation Commission ("Commission") seeking a permanent rate increase. On May 17, 2013, Payson Water filed a financing application requesting authority to borrow up to \$1,238,000 from the Water Infrastructure and Finance Authority ("WIFA") of Arizona to fund improvements to the Company's Mesa del Caballo ("MDC") water system. On June 3, 2013, Staff deemed the rate application sufficient. On August 15, 2013, the Company filed a motion to consolidate the rate case and financing applications and to expedite the processing of those applications.

On September 5, 2013, the Company filed a "Stipulation for Procedural Order Bifurcating Proceeding and Establishing Case Schedule." This filing set forth an agreement between the Company and Staff wherein the processing of Payson Water's rate and financing applications in the proceeding would be bifurcated into two phases, with Phase I addressing only that portion of the Company's financing application related to the planned interconnection of the MDC system to the Town of Payson's water system via the Cragin Pipeline, and Phase II addressing both the Company's application for a rate increase and the remainder of the debt financing requested in the financing application. On September 18, 2013, a Staff Report was filed recommending conditional approval of the Company's proposed \$275,000 Phase I financing, and in Decision No. 74175 (dated October 25, 2013), the Commission approved the Company's proposed \$275,000 Phase I financing. Thus, Staff's recommendations contained herein will address only the Phase II portion of the requested financing of this consolidated proceeding.

On October 28, 2013, the Company revised its cost estimates for the proposed Phase II financing to a level of \$904,650. This revised Phase II figure, when combined with the \$275,000 debt authorized in Phase I, effectively lowers the Company's aggregate financing request to a level of \$1,179,650 ( $\$904,650 + \$275,000$ ), an amount less than the \$1,238,000 initially requested in PWC's financing application. The Utilities Division's Engineering Section has reviewed the Company's updated Phase II cost estimates and found them to be reasonable and appropriate.

Staff concludes that the Company's proposed Phase II capital improvement projects are appropriate and that the related \$904,650 cost estimate is reasonable.

Staff further concludes that issuance of the proposed debt financing for the purposes stated in the application is within the Company's corporate powers, is compatible with the public interest, is consistent with sound financial practices, and will not impair its ability to provide services.

Staff recommends:

1. Approval of the Company's request to borrow up to \$904,650 from WIFA for the purpose of making infrastructure improvements to the Company's MDC water system.
2. Authorizing Payson Water to encumber its real property and utility plant and system to secure such indebtedness for the purposes described in the application.
3. Authorizing Payson Water to engage in any transaction and to execute any documents necessary to effectuate the authorizations granted herein as may be appropriate.
4. Approval of a WIFA loan surcharge mechanism that may result in a surcharge of \$22.87 per month per MDC customer.
5. That the WIFA loan surcharge apply only to customers of the Company's MDC water system.
6. That the actual amount of the WIFA loan surcharge be calculated based upon the actual amount of the WIFA loan and the actual number of metered customers in the MDC system. That the Company file with the Commission a WIFA loan surcharge tariff application that would enable the Company to meet its principal, interest, debt reserve, and tax obligations on the proposed WIFA loan. That the Company make a WIFA loan surcharge filing within 60 days of the loan closing.
7. That the Company follow the same methodology presented in Schedule JAC-2 to calculate the additional revenue needed to meet its principal, interest, debt reserve, and tax obligations on the proposed WIFA loan using actual loan amounts and customer counts.
8. That approval of the loan and surcharge be rescinded if the Company has not drawn funds from the loan within one year of the date of the Decision issued in this proceeding.
9. That the Company file with Docket Control, as a compliance item in this Docket, a Schedule of its approved rates and charges within 30 days after the Decision in this matter is issued.
10. That the Company track and separately record, as a regulatory liability, the surcharge proceeds associated with the debt service reserve fund, that the regulatory liability be amortized over the 20-year life of the loan, and that the unamortized balance of the regulatory liability account be recognized as a reduction from rate base in future rate cases consistent with the treatment of the debt reserve fund in Decision No. 74175, dated October 25, 2013.

11. That the name of the regulatory liability account identify the source of the funds, for example, "WIFA Debt Reserve Funded By Customers" or similar name.
12. That the Company file a rate case no later than May 31, 2018 with a December 31, 2017 test year.
13. That the debt reserve portion of the surcharge and the related income taxes cease after five years.

1 **I. INTRODUCTION**

2 **Q. Please state your name, occupation, and business address.**

3 A. My name is John A. Cassidy. I am a Public Utilities Analyst employed by the Arizona  
4 Corporation Commission ("Commission") in the Utilities Division ("Staff"). My business  
5 address is 1200 West Washington Street, Phoenix, Arizona 85007.

6  
7 **Q. Briefly describe your responsibilities as a Public Utilities Analyst.**

8 A. I am responsible for the examination of financial and statistical information included in  
9 utility rate applications and other financial matters, including studies to estimate the cost  
10 of capital component in rate filings used to determine the overall revenue requirement, and  
11 for preparing written reports, testimonies and schedules to present Staff's  
12 recommendations to the Commission on these matters.

13  
14 **Q. Please describe your educational background and professional experience.**

15 A. I hold a Bachelor of Arts degree in History from Arizona State University, a Master of  
16 Library Science degree from the University of Arizona, and a Master of Business  
17 Administration degree with an emphasis in Finance from Arizona State University. While  
18 pursuing my MBA degree, I was inducted into Beta Gamma Sigma, the National Business  
19 Honor Society. I have passed the CPA exam, but opted not to pursue certification. I have  
20 worked professionally as a librarian, financial consultant and tax auditor and served as  
21 Staff's cost of capital witness in rate case evidentiary proceedings in my current as well as  
22 in a past tenure as a Commission employee.

23

1 **Q. What is the scope of your testimony in this case?**

2 A. My testimony will address Staff's financial analysis of Payson Water Company's  
3 ("Payson Water" or "Company") proposed Phase II financing and the formal  
4 recommendations based thereon.

5  
6 **Q. Have you prepared any exhibits to accompany your testimony?**

7 A. Yes. I have prepared two schedules (JAC-1 to JAC-2) which support Staff's financial  
8 analysis and recommendations.

9  
10 **Q. Please provide a brief description of Payson Water.**

11 A. Payson Water is an Arizona public service corporation engaged in providing water utility  
12 services in portions of Gila County, Arizona, pursuant to certificates of convenience and  
13 necessity granted by the Commission. During the December 31, 2012 test-year, the  
14 Company served approximately 1,114 water connections.

15  
16 **II. PROPOSED PHASE II FINANCING**

17 **Q. Did the Company file a financing application?**

18 A. Yes. On May 17, 2013, Payson Water filed a financing application requesting authority to  
19 borrow up to \$1,238,000 from the Water Infrastructure and Finance Authority ("WIFA")  
20 of Arizona.

21  
22 **Q. Was the financing application consolidated with the rate application?**

23 A. Yes, the financing application was consolidated with the rate application by Procedural  
24 Order, dated August 26, 2013.

25

1 **Q. What is the stated purpose of this \$1,238,000 loan?**

2 A. The purpose of the loan is to fund an interconnection of the Mesa del Caballo ("MDC")  
3 system to the C.C. Cragin Pipeline and associated Town of Payson water treatment plant.

4  
5 **Q. What current amount is the Phase II portion of the loan?**

6 A. The Phase II portion of the loan is now \$904,650. On October 28, 2013, the Company  
7 revised its cost estimates for the proposed Phase II financing to a level of \$904,650. In  
8 Decision No. 74175, dated October 25, 2013, the Commission approved the Company  
9 proposed \$275,000 Phase I financing. This revised Phase II figure, when combined with  
10 the \$275,000 debt authorized in Phase I, effectively lowers the Company's aggregate  
11 financing request to a level of \$1,179,650 (\$904,650 + \$275,000).

12  
13 **Q. Has Staff Engineering reviewed the Company's proposed Phase II construction plans  
14 and costs?**

15 A. Yes. Staff Engineering has reviewed the Company's updated Phase II cost estimates and  
16 found them to be reasonable and appropriate.

17  
18 **Q. Are the final details of the WIFA loan known at this time?**

19 A. No, the final details of the WIFA loan will not be known until after the Company has  
20 closed on the loan.<sup>1</sup> Therefore, Staff is recommending the approval of a surcharge  
21 mechanism which will assure that ratepayers only pay the funding associated with the  
22 actual loan draw.

23

---

<sup>1</sup> In the application, the Company states that WIFA has represented the subject financing will be made available at an interest rate not to exceed 4.2 percent for a term of 20 years.

1 **III. FINANCIAL ANALYSIS**

2 **Q. What is a debt service coverage (“DSC”) ratio?**

3 A. The DSC ratio is a commonly used financial metric employed to determine the number of  
4 times internally generated cash will cover required principal and interest payments on  
5 short-term and long-term debt. A DSC greater than 1.0 indicates that cash flow from  
6 operations is sufficient to cover debt obligations. A DSC less than 1.0 means that cash  
7 generated from operations is insufficient to meet ongoing debt service obligations, thus  
8 requiring another source of funds in order to avoid default.

9  
10 **Q. What minimum DSC ratio does WIFA require an Arizona water utility to maintain?**

11 A. WIFA requires a minimum DSC ratio of 1.2.

12  
13 **Q. What DSC ratio did Staff calculate for Payson Water?**

14 A. As shown in Schedule JAC-1, Column [C], Staff calculated a pro forma DSC of 1.29 for  
15 the Company. Staff’s pro forma DSC calculation reflects operational performance based  
16 upon Staff’s recommended rates in the rate portion of the consolidated docket. Staff’s pro  
17 forma DSC indicates that the rate increase recommended by Staff will provide sufficient  
18 cash flow from operations to cover all debt service obligations associated with the  
19 proposed financing and meet the 1.2 DSC required by WIFA.

20  
21 **Q. Does the pro forma DSC calculation made in Schedule JAC-1, Column [C], reflect**  
22 **debt service coverage on the combined Phase I (\$275,000) and Phase II (\$904,650)**  
23 **debt?**

24 A. Yes. The 1.29 DSC calculated in Column [C] assumes total WIFA debt outstanding of  
25 \$1,179,650 (\$275,000 + \$904,650). However, as discussed below, the funding required to  
26 service these two loan draws will be billed as separate surcharge.

1 **IV. SURCHARGE MECHANISM**

2 **Q. What is the surcharge mechanism and how is it implemented?**

3 A. The surcharge mechanism establishes the methodology for calculating the monthly  
4 surcharge amount to be assessed MDC customers. To collect the surcharge, the Company  
5 would submit a surcharge application to the Commission under this Docket, using the  
6 methodology Staff has defined in Schedule JAC-2, once Payson Water has closed on the  
7 loan and has drawn funds to begin construction of the plant.

8  
9 **Q. Why does Staff recommend that the Phase II WIFA loan surcharge apply only to  
10 customers of the MDC water system?**

11 A. Staff recommends that the Phase II WIFA loan surcharge apply only to MDC customers  
12 because the infrastructure improvements made possible by the proceeds from the Phase II  
13 WIFA loan will benefit customers served by the MDC system. Staff's recommendation in  
14 this regard conforms to that previously made by Staff in the Phase I portion of the  
15 financing docket.

16  
17 **Q. What costs does Staff recommend recovery of through the WIFA loan surcharge to  
18 be authorized?**

19 A. Staff recommends that the WIFA loan surcharge provide recovery of the debt principal,  
20 interest, income taxes, and debt reserve fund.

21  
22 **Q. Does Staff recommend that the debt reserve portion of the surcharge be recorded as  
23 a regulatory liability?**

24 A. Yes. Staff recommends that the Company track and separately record as a regulatory  
25 liability, the surcharge proceeds associated with the debt service reserve fund. Typically,  
26 Staff recommends that the Company's owners fund the debt service reserve fund because

1 the fund acts as a savings account for the owners and is not actually a fee, principal or  
2 interest. In this case, Staff is recommending that the debt service reserve fund be included  
3 in the surcharge to help the Company's cash flow. Since the Company's rate payers will  
4 be funding the debt reserve account through the surcharge, Staff believes that an offset to  
5 rate base through a regulatory liability is appropriate. This recommendation is consistent  
6 with the treatment of the debt reserve fund in Decision No. 74175, dated October 25,  
7 2013. Staff further recommends that the name of the regulatory liability account identify  
8 the source of the funds, for example, "WIFA Debt Reserve Funded By Customers" or  
9 similar name.

10  
11 **Q. Since Staff recommends this regulatory liability, what treatment does Staff**  
12 **recommend for it in the future?**

13 A. Staff recommends that the regulatory liability be amortized over the 20-year associated  
14 life of the loan. In the interim, however, Staff recommends that the unamortized portion  
15 of this regulatory liability account be recognized as a reduction from rate base in future  
16 rate cases.

17  
18 *Calculation of WIFA Loan Surcharge*

19 **Q. How is the WIFA loan surcharge calculated?**

20 A. To illustrate how the surcharge calculation is made, Schedule JAC-2 presents the  
21 calculation of an estimated surcharge for the proposed Phase II WIFA debt based upon  
22 preliminary loan details and customer counts. As shown in Schedule JAC-2, Staff  
23 calculated a Phase II surcharge of \$22.87<sup>2</sup> for a 5/8 x 3/4-Inch meter customer, based upon  
24 a WIFA loan principal of \$904,650. Staff recommends that the Company utilize the same  
25 methodology as that presented in Schedule JAC-2 to calculate the additional revenue

---

<sup>2</sup> This figure is based upon preliminary loan details and customer counts.

1 needed to meet its principal, interest, debt reserve, and tax obligations on the proposed  
2 Phase II debt once the WIFA loan proceeds have been drawn down.

3  
4 **Q. Is there a separate WIFA loan surcharge associated with the \$275,000 Phase I debt**  
5 **previously authorized in this docket?**

6 A. Yes. Details of Staff's estimated Phase I WIFA loan surcharge calculation were presented  
7 in Schedule CSB-1 of the Staff Report filed by Ms. Crystal Brown, dated September 18,  
8 2013. As shown in Schedule CSB-1, Staff's estimated surcharge for the Phase I WIFA  
9 debt was calculated to be \$7.44 for a 5/8 x 3/4-inch meter customer, based upon a loan  
10 principal amount of \$275,000.

11  
12 **Q. Is Staff specifically recommending that Payson Water continue to utilize two**  
13 **separate financing surcharges, with the first surcharge addressing the funding of the**  
14 **initial \$275,000 Phase I loan and the second surcharge addressing the funding of the**  
15 **\$904,650 Phase II loan?**

16 A Staff is indifferent as to whether the Company bills one or two financing surcharges.  
17 However, since these two loan draws will have different initial repayment patterns, it may  
18 be easier to wait until Payson Water's next rate case before combining them into one  
19 surcharge.

20  
21 **V. CONCLUSIONS AND RECOMMENDATIONS**

22 **Q. What are Staff's conclusions regarding the Company's proposed \$904,650 Phase II**  
23 **financing?**

24 A. Staff's conclusions regarding Payson Water's proposed \$904,650 Phase II financing are as  
25 follows:  
26

- 1           1.     Staff concludes that the Company's proposed Phase II capital improvement  
2                     projects are appropriate and that the related \$904,650 cost estimate is reasonable.  
3  
4           2.     Staff further concludes that issuance of the proposed debt financing for the  
5                     purposes stated in the application is within the Company's corporate powers, is  
6                     compatible with the public interest, is consistent with sound financial practices and  
7                     will not impair its ability to provide services.  
8

9     **Q.     What are Staff's recommendations concerning the Phase II financing and surcharge**  
10           **mechanism?**

11     **A.     Staff's recommendations are as follows:**

- 12  
13           1.     Approval of the Company's request to borrow up to \$904,650 from WIFA for the  
14                     purpose of making infrastructure improvements to the Company's MDC water  
15                     system.  
16  
17           2.     Authorizing Payson Water to encumber its real property and utility plant and  
18                     system to secure such indebtedness for the purposes described in the application.  
19  
20           3.     Authorizing Payson Water to engage in any transaction and to execute any  
21                     documents necessary to effectuate the authorizations granted herein as may be  
22                     appropriate.  
23  
24           4.     Approval of a WIFA loan surcharge mechanism that may result in a surcharge of  
25                     approximately \$22.87 per month per MDC customer.  
26

- 1           5.     That the WIFA loan surcharge apply only to customers of the Company's MDC  
2           water system.
- 3
- 4           6.     That the actual amount of the WIFA loan surcharge be calculated based upon the  
5           actual amount of the WIFA loan and the actual number of metered customers in  
6           the MDC system. That the Company file with the Commission a WIFA loan  
7           surcharge tariff application that would enable the Company to meet its principal,  
8           interest, debt reserve, and tax obligations on the proposed WIFA loan. That the  
9           Company make a WIFA loan surcharge filing within 60 days of the loan closing.  
10
- 11          7.     That the Company follow the same methodology presented in Schedule JAC-2 to  
12          calculate the additional revenue needed to meet its principal, interest, debt reserve,  
13          and tax obligations on the proposed WIFA loan using actual loan amounts and  
14          customer counts.
- 15
- 16          8.     That approval of the loan and surcharge be rescinded if the Company has not  
17          drawn funds from the loan within one year of the date of the Decision issued in  
18          this proceeding.
- 19
- 20          9.     That the Company file with Docket Control, as a compliance item in this Docket, a  
21          Schedule of its approved rates and charges within 30 days after the Decision in this  
22          matter is issued.  
23
- 24          10.    That the Company track and separately record, as a regulatory liability, the  
25          surcharge proceeds associated with the debt service reserve fund, that the  
26          regulatory liability be amortized over the 20-year life of the loan, and that the

1 unamortized balance of the regulatory liability account be recognized as a  
2 reduction from rate base in future rate cases consistent with the treatment of the  
3 debt reserve fund in Decision No. 74175, dated October 25, 2013.

4  
5 11. That the name of the regulatory liability account identify the source of the funds,  
6 for example, "WIFA Debt Reserve Funded By Customers" or similar name.

7  
8 12. That the Company file a rate case no later than May 31, 2018 with a December 31,  
9 2017 test year.

10  
11 13. That the debt reserve portion of the surcharge and the related income taxes cease  
12 after five years.

13  
14 **Q. Does this conclude your Direct Testimony?**

15 **A. Yes, it does.**

**FINANCIAL ANALYSIS**

Selected Financial Information

	[A] <sup>1</sup> 12/31/2012		[B] <sup>2</sup> Pro Forma		Under Staff Recommended Rate For combined \$1,179,650 loan [C] <sup>3</sup> Pro Forma	
1 Operating Income	\$	(196,401)	\$	(182,479)	\$	27,209
2 Depreciation & Amort.		68,142		85,632		59,434
3 Income Tax Expense		0		0		26,292
4						
5 Interest Expense		0		48,810		48,810
6 Repayment of Principal		0		38,470		38,470
7						
8						
9						
10						
11 <b>DSC</b>						
12 [1+2+3] + [5+6]		#DIV/0!		-1.11		1.29
13						
14						
15						
16						
17 <b>Capital Structure</b>						
18						
19 Short-term Debt		0 0.0%		38,470 1.8% <sup>4</sup>		38,470 2.4% <sup>4</sup>
20						
21 Long-term Debt		0 0.0%		1,141,180 53.2%		1,141,180 72.1%
22						
23 Common Equity		963,559 100.0%		963,559 45.0%		403,655 25.5%
24						
25 Total Capital	\$	963,559 100.0%	\$	2,143,209 100.0%	\$	1,583,305 100.0%
26						
27						
28 <b>Capital Structure (inclusive of AIAC and Net CIAC)</b>						
29						
30 Short-term Debt		0 0.0%		38,470 1.7%		38,470 1.7%
31						
32 Long-term Debt		0 0.0%		1,141,180 49.9%		1,141,180 49.9%
33						
34 Common Equity		963,559 89.3%		963,559 42.1%		403,655 17.7%
35						
36 Advances in Aid of Construction ("AIAC")		0 0.0%		0 0.0%		0 0.0%
37						
38 Contributions in Aid of Construction ("CIAC") <sup>5</sup>		114,937 10.7%		143,766 6.3%		378,094 16.5%
39						
40 Total Capital (Inclusive of AIAC and CIAC)	\$	1,078,496 100.0%	\$	2,286,975 100.0%	\$	1,961,399 85.8%
41						
42						
43 <b>AIAC and CIAC Funding Ratio<sup>6</sup></b>		10.7%		6.3%		19.3%
44 (36+38)/(40)						
45						

46 <sup>1</sup> Column [A] is based on figures as reported in the financial statements accompanying the Company's financing application for the year ended December 31, 2012.  
47 <sup>2</sup> Column [B] is based on figures as reported in the financial statements accompanying the Company's rate application, for the year ended December 31, 2012, modified to reflect  
48 issuance of the proposed Phase I (\$275,000) and Phase II (\$904,650) debt financings, amortized for 20 years at an interest rate of 4.2 percent per annum.  
49 <sup>3</sup> Column [C] is based on figures as reported in the financial statements accompanying the Company's rate application, for the year ended December 31, 2012, as adjusted by Staff  
50 witness Crystal Brown, modified to reflect Staff's proposed rates and issuance of the proposed Phase I (\$275,000) and Phase II (\$904,650) debt financings, amortized for 20 years  
51 at an interest rate of 4.2 percent per annum.  
52 <sup>4</sup> Pro Forma Short-term Debt represents the first year principal repayment on the proposed loans.  
53 <sup>5</sup> Net CIAC balance (i.e. less: accumulated amortization of contributions).  
54 <sup>6</sup> Staff typically recommends that combined AIAC and Net CIAC funding not exceed 30 percent of total capital, inclusive of AIAC and Net CIAC, for private and investor owned utilities.

**WIFA LOAN SURCHARGE CALCULATION - EXAMPLE**

Loan Amount: **\$904,650**  
 Term: **20 Years**  
 Interest Rate Before Subsidy: **5.25%**  
 WIFA Subsidy Rate: **95%**  
 WIFA Interest rate: **4.99%** If interest rate is not found on TABLE A, use the next highest percentage

**Step 1 - Find the Annual Payment on Loan**

\$904,650 Total Amount of Loan  
0.0792 TABLE A, Conversion Factor Table, Column B  
 \$71,643.48 Annual Principle and Interest Payment

**Step 2 - Find the Annual Interest Payment on Loan**

\$904,650 Total Amount of Loan  
0.0493 TABLE A, Conversion Factor Table, Column C  
 \$44,618.76 Annual Interest Payment on Debt

**Step 3 - Find the Annual Principal Payment on Loan**

\$904,650 Total Amount of Loan  
0.0299 TABLE A, Conversion Factor Table, Column D  
 \$27,024.71 Annual Principal and Interest Payment

**Step 4 - Find the Gross Revenue Conversion Factor**

1.510416894 From Brown Direct, Schedule CSB-1, Col. B, Line 7

**Step 5 - Find the Incremental Income Tax Factor**

1.51042 minus 1 = 0.51042

**Step 6 - Find the Annual Income Tax Component of Surcharge Revenue**

0.51042 Incremental Income Tax Factor (from Step 5)  
\$27,024.71 Multiplied by: Annual Principal Payment on Loan (from Step 3)  
 \$13,793.87 Annual Income Tax Component of the Annual Surcharge Revenue

**Step 7 - Find the Debt Service Component of the Annual Surcharge Revenue**

\$44,618.76 Annual Interest Payment on Debt (from Step 2)  
\$27,024.71 Plus: Annual Principal Payment (from Step 3)  
 \$71,643.48 Debt Service Component of the Annual Surcharge Revenue

**Step 8 - Find the Annual Surcharge Revenue Requirement Needed for the Loan Including Reserve Fund**

\$13,793.87 Annual Income Tax Component of the Annual Surcharge Revenue (from Step 6)  
\$71,643.48 Plus: Debt Service Component of the Annual Surcharge Revenue (from Step 7)  
 \$14,328.70 Plus: Annual Reserve Fund Deposit [20% x Principal & Interest (From Step 1)]  
\$99,766.04 Total Annual Surcharge Revenue Requirement for the Loan

**Step 9 - Find the Equivalent Bills**

Equivalent Bills				
Col A	Col B	Col C	Col D	Col E
Meter Size	NARUC Multiplier	Number of Customers	Number of Months in Year	Equivalent Bills Col B x C x D
5/8" x 3/4" Meter	1	362	12	4,344
3/4" Meter	1.5	1	12	18
1" Meter	2.5	0	12	-
1 1/2" Meter	5	0	12	-
2" Meter	8	0	12	-
3" Meter	15	0	12	-
4" Meter	25	0	12	-
6" Meter	50	0	12	-
		<u>363</u>		<u>4,362</u>

**Step 10 - Find the Monthly Surcharge for the 5/8" x 3/4" Meter Size Customers**

\$99,766.04 Total Annual Surcharge Revenue Requirement for the Loan (from Step 8)  
4,362 Divided by: Total Number of Equivalent Bills  
 \$ 22.87 Monthly Surcharge for 3/4" Customers

**Step 11 - Find the Monthly Surcharge for the Remaining Meter Size Customers**

Equivalent Bills				
Col A	Col B	Col C	Col D	
Meter Size	NARUC Multiplier	5/8" x 3/4" Customers' Surcharge	Surcharge by Meter Size Col B x C	
5/8" x 3/4" Meter	1	\$ 22.87	\$	22.87
3/4" Meter	1.5	\$ 22.87	\$	34.31
1" Meter	2.5	\$ 22.87	\$	57.18
1 1/2" Meter	5	\$ 22.87	\$	114.36
2" Meter	8	\$ 22.87	\$	182.97
3" Meter	15	\$ 22.87	\$	343.07
4" Meter	25	\$ 22.87	\$	571.79
6" Meter	50	\$ 22.87	\$	1,143.58

**TABLE A**  
**Conversion Factor Table (Based on a 20-year Loan)<sup>1</sup>**

Line No.	Column A Annual Interest	Column B Annual Payment Conversion Factor	Column C Annual Interest Payment Conversion Factor	Column D Annual Principal Payment Conversion Factor
1	3.50%	0.0696	0.0344	0.0352
2	3.75%	0.0711	0.0369	0.0342
3	4.00%	0.0727	0.0394	0.0333
4	4.25%	0.0743	0.0419	0.0324
5	4.50%	0.0759	0.0444	0.0316
6	4.75%	0.0775	0.0468	0.0307
7	<b>5.00%</b>	<b>0.0792</b>	<b>0.0493</b>	<b>0.0299</b>
8	5.25%	0.0809	0.0518	0.0291
9	5.50%	0.0825	0.0543	0.0283
10	5.75%	0.0843	0.0568	0.0275
11	6.00%	0.0860	0.0593	0.0267
12	6.25%	0.0877	0.0618	0.0259
13	6.50%	0.0895	0.0643	0.0252
14	6.75%	0.0912	0.0668	0.0245
15	7.00%	0.0930	0.0692	0.0238
16	7.25%	0.0948	0.0717	0.0231
17	7.50%	0.0967	0.0742	0.0224
18	7.75%	0.0985	0.0767	0.0218
19	8.00%	0.1004	0.0792	0.0211

Notes:

<sup>1</sup> The above interest rate conversion factors are to be used in Steps 1,2 and 3, as presented in Schedule JAC-2 (Page 1 of 2), to calculate the total combined interest and principal payment on the loan, the annual interest payment, and the annual principal payment. If the actual interest rate on the loan is not found in TABLE A, use the next highest interest rate shown in Column A.