NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION

May 19, 2020

Ms. Kimberley A. Campbell, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. W-218, Sub 526 – Application for General Rate Increase

Dear Ms. Campbell:

In connection with the above-referenced dockets, I transmit herewith for filing on behalf of the Public Staff the testimony and exhibit(s) of John R. Hinton, Director, Economic Research Division.

By copy of this letter, we are forwarding copies to all parties of record.

Sincerely,

/s/ Megan Jost
Staff Attorney
megan.jost@psncuc.nc.gov

MJ/cla

Attachment(s)

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Natural Gas (919) 733-4326
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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. W-218, SUB 526

In the Matter of:	
Application by Aqua North Carolina, Inc., 202 MacKenan Court, Cary, North Carolina, 27511, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All Service Areas in North Carolina	TESTIMONY OF JOHN R. HINTON PUBLIC STAFF – NORTH CAROLINA UTILITIES COMMISSION

AQUA NORTH CAROLINA, INC.

DOCKET NO. W-218 SUB 526

TESTIMONY OF JOHN R. HINTON

ON BEHALF OF THE PUBLIC STAFF

NORTH CAROLINA UTILITIES COMMISSION

MAY 19, 2020

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is John R. Hinton and my business address is 430 North Salisbury Street, Raleigh, North Carolina. I am the Director of the Economic Research Division of the Public Staff. My qualifications and experience are provided in Appendix A.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to present to the North Carolina Utilities Commission (Commission) the results of my analysis and my recommendations as to the fair rate of return to be used in establishing rates for water and sewer utility service provided by Aqua North Carolina, Inc. (Aqua or Company).

Q. WHAT IS THE CURRENTLY APPROVED COST OF CAPITAL FOR AQUA?

A. In the last Aqua general rate case, Docket No. W-218, Sub 497, the Commission approved an overall weighted cost of capital of 7.17% consisting of a capital structure with 50.00% long-term debt and 50.00% common equity, a cost rate of long-term debt of 4.63%, and a cost rate of common equity of 9.70%.

Q. WHAT IS THE COST OF CAPITAL REQUESTED BY AQUA IN THIS PROCEEDING?

A. Aqua has requested an overall weighted cost of capital of 7.18%. This applied for rate of return is based on a hypothetical capital structure as of September 30, 2019, that is comprised of 50.00% long-term debt, 50.00% common equity. The Company has requested a cost rate of long-term debt of 4.25%, and a cost rate for common equity of 10.10%.

Q. HOW DOES AQUA WITNESS D'ASCENDIS DEVELOP HIS RECOMMENDATION?

A. Aqua witness Dylan W. D'Ascendis utilizes three cost of equity methods: (1) Discounted Cash Flow (DCF); (2) the Risk Premium Model which relies on the Predictive Risk Premium method (PRPM) and the Total Market Approach RPM; and (3) Capital Asset Pricing Model (CAPM). He applies these methodologies to a proxy group of

six publically traded water companies. Witness D'Ascendis' first method relies on the DCF model which produces an 8.81% estimated cost of equity.

Witness D'Ascendis' risk premium model is based on two methods that yield a 10.12% estimated cost of equity, which is an average of his 10.84% PRPM result and the 9.39% risk premium result using an Adjusted Market Approach.

His third method incorporates the mean and medium results of his traditional and empirical capital asset pricing model (CAPM) and (ECAPM) applications that result in a 9.35% cost rate for common equity. The model incorporates a risk-free rate of return, beta coefficient, and the expected return on the market. To derive the expected return on the market, the witness relies on a historical arithmetic return on the S&P 500 of 11.89% and two forecast based returns on the S&P 500 of 13.83% and 14.52%. With these and other inputs, he estimated the cost of equity by averaging the mean and median with the CAPM and ECAPM results that produced his 9.35% estimated cost of equity.

His fourth approach applies the above three methods to a group of non-price regulated companies that he selected with the use of Value Line's beta coefficients along with the residual standard errors that resulted with a 11.29% estimated cost of equity.

His conclusion for the cost of equity using his four methods as applied to his utility and non-utility groups of companies is 9.80%. Given that witness D'Ascendis believes that Aqua's small size relative to his proxy groups is more risky, he increases the baseline cost of equity by 0.20% and he includes a flotation cost adjustment of seven basis points, which raises his recommended cost rate of common equity to 10.07%, which he rounds to 10.10%.

Q. WHAT IS THE OVERALL RATE OF RETURN RECOMMENDED BY THE PUBLIC STAFF?

A. The Public Staff recommends an overall rate of return of 6.56%, based on a hypothetical capital structure consisting of 50.00% long-term debt and 50.00% common equity. The recommended overall cost of capital is based on a recommended debt cost rate of 4.21% and an 8.90% cost rate for common equity. Relative to the Company's last rate case, the reduction in the Public Staff's recommended return on equity (ROE) represents a 30 basis point reduction from a 9.20% cost rate for common equity. Based on the Company's proposed rate base, capital structure, and cost of debt, the differences in the Company's 10.10% ROE and the Public Staff's 8.90% ROE lead to an approximate $ 1.9 million increase in Aqua's revenue requirements.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY STRUCTURED?

A. The remainder of my testimony is presented in the following six sections:

I. Legal and Economic Guidelines for Fair Rate of Return

II. Present Financial Market Conditions

III. Appropriate Capital Structure and Cost of Long-Term Debt

IV. The Cost of Common Equity Capital

V. Concerns with Company Witness D'Ascendis' Testimony

VI. Summary and Recommendations

I. LEGAL AND ECONOMIC GUIDELINES FOR FAIR RATE OF RETURN

Q. PLEASE BRIEFLY DESCRIBE THE ECONOMIC AND LEGAL FRAMEWORK OF YOUR ANALYSIS.

A. Public utilities possess certain characteristics of natural monopolies. For instance, it is more efficient for a single firm to provide a service such as water production and distribution or wastewater collection and treatment than for two or more firms offering the same service in the same area to do so. Therefore, regulatory bodies have assigned franchised territories to public utilities to provide services more efficiently and at a lower cost to consumers.

Q. WHAT IS THE ECONOMIC RELATIONSHIP BETWEEN RISK AND THE COST OF CAPITAL?

A. The cost of equity capital to a firm is equal to the rate of return investors expect to earn on the firm's securities given the securities' level of risk. An investment with a greater risk will require a higher expected return by investors. In Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944) (Hope), the United States Supreme Court stated:

> [T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

In Bluefield Waterworks & Impr. Co. v. Public Service Comm'n, 262 U.S. 679, 692-93 (1923) (Bluefield) the United States Supreme Court stated: A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties, but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and

economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions.

These two decisions recognize that utilities are competing for the capital of investors and provide legal guidelines as to how the allowed rate of return should be set. The decisions specifically speak to the standards or criteria of capital attraction, financial integrity, and comparable earnings. The Hope decision, in particular, recognizes that the cost of common equity is commensurate with risk relative to investments in other enterprises. In competitive capital markets, the required return on common equity will be the expected return foregone by not investing in alternative stocks of comparable risk. Thus, in order for the utility to attract capital, possess financial integrity, and exhibit comparable earnings, the return allowed on a utility's common equity should be that return required by investors for stocks with comparable risk. As such, the return requirements of debt and equity investors, which is shaped by expected risk and return, is paramount in attracting capital.

It is widely recognized that a public utility should be allowed a rate of return on capital, which will allow the utility, under prudent management, to attract capital under the criteria or standards referenced by the Hope and Bluefield decisions. If the allowed rate of return is set too high, consumers are burdened with excessive costs, current investors receive a windfall, and the utility has an incentive to overinvest. Likewise, customers will be charged prices that are greater than the true economic costs of providing these services and consumers will consume too few of these services from a point of view of efficient resource allocation. If the return is set too low, then the utility stockholders will suffer because a declining value of the underlying property will be reflected in a declining value of the utility's equity shares. This could happen because the utility would not be earning enough to maintain and expand its facilities to meet customer demand for service, cover its operating costs, and attract capital on reasonable terms. Lenders will shy away from the company because of the increased risk that the utility will default on its debt obligations. Because a public utility is capital intensive, the cost of capital is a very large part of its overall revenue requirement and is a crucial issue for a company and its ratepayers.

The Hope and Bluefield standards are embodied in N.C. Gen. Stat. § 62-133(b)(4), which requires that the allowed rate of return be sufficient to enable a utility by sound management:

> "…to produce a fair return for its shareholders, considering changing economic conditions and other factors, . . . to maintain its facilities and services in accordance with the reasonable requirements of its customers in the territory covered by its franchise, and to compete in the market for capital funds on terms that are reasonable and are fair to its customers and to its existing investors."

N.C. Gen. Stat. § 62-133(b)(4) (2017).

On April 12, 2013, the North Carolina Supreme Court decided State ex rel. Utils. Comm'n v. Cooper, 366 N.C. 484, 739 S.E. 2d 541 (2013) (Cooper). In that decision, the Supreme Court reversed and remanded the Commission's January 27, 2012 Order in Docket No. E-7, Sub 989, approving a stipulated return on equity of 10.50% for Duke Energy Carolinas, LLC. In its decision, the Supreme Court held: (1) that the 10.50% return on equity was not supported by the Commission's own independent findings and analysis as required by State ex rel. Utils. Comm'n v. Carolina Util. Customers Ass'n, 348 N.C. 452, 500 S.E.2d 693 (1998) (CUCA I), in cases involving non-unanimous stipulations, and (2) that the Commission must make findings of fact regarding the impact of changing economic conditions on consumers when determining the proper return on equity for a public utility. In Cooper, the Court's holding introduced a

new factor to be considered by the Commission regardless of whether there is a stipulation.

In considering this new element, the Commission is guided by ratemaking principles laid down by statute and interpreted by a body of North Carolina case law developed over many years. According to these principles, the test of a fair rate of return is a return on equity that will provide a utility, by sound management, the opportunity to: (1) produce a fair profit for its shareholders in view of current economic conditions, (2) maintain its facilities and service, and (3) compete in the marketplace for capital. State ex rel. Utils. Comm'n v. General Tel. Co., 281 N.C. 318, 370, 189 S.E.2d 705, 738 (1972). Rates should be set as low as reasonably possible consistent with constitutional constraints. State ex rel. Utils. Comm'n v. Pub. Staff-N. Carolina Utils. Comm'n, 323 N.C. 481, 490, 374 S.E.2d 361, 366 (1988). The exercise of subjective judgment is a necessary part of setting an appropriate return on equity. Id. Thus, in a particular case, the Commission must strike a balance that: (1) avoids setting a return so low that it impairs the utility's ability to attract capital, (2) avoids setting a return any higher than needed to raise capital on reasonable terms, and (3) considers the impact of changing economic conditions on consumers.

Q. WHAT IS A FAIR RATE OF RETURN?

A. The fair rate of return is simply a percentage, which, when multiplied by a utility's rate base investment will yield the dollars of net operating income that a utility should reasonably have the opportunity to earn. This dollar amount of net operating income is available to pay the interest cost on a utility's debt capital and a return to the common equity investor. The fair rate of return multiplied by the utility's rate base yields the dollars a utility needs to recover in order to earn the investors' required return on capital.

Q. HOW DID YOU DETERMINE THE FAIR RATE OF RETURN THAT YOU RECOMMEND IN THIS PROCEEDING?

A. To determine the fair rate of return, I performed a cost of capital study consisting of three steps. First, I determined the appropriate capital structure for ratemaking purposes, i.e., the proper proportions of each form of capital. Utilities normally finance assets with debt and common equity. Because each of these forms of capital have different costs, especially after income tax considerations, the relative amounts of each form employed to finance the assets can have a significant influence on the overall cost of capital, revenue requirements, and rates. Thus, the determination of the appropriate capital structure for ratemaking purposes is important to the utility and to ratepayers. Second, I determined the cost rate of each form of capital. The individual debt

issues have contractual agreements explicitly stating the cost of each issue. The embedded annual cost rate of debt is generally calculated with the annual interest cost divided by the debt outstanding. The cost of common equity is more difficult to determine because it is based on the investor's opportunity cost of capital. Third, by combining the appropriate capital structure ratios for ratemaking purposes with the associated cost rates, I calculate an overall weighted cost of capital or fair rate of return.

II. PRESENT FINANCIAL MARKET CONDITIONS

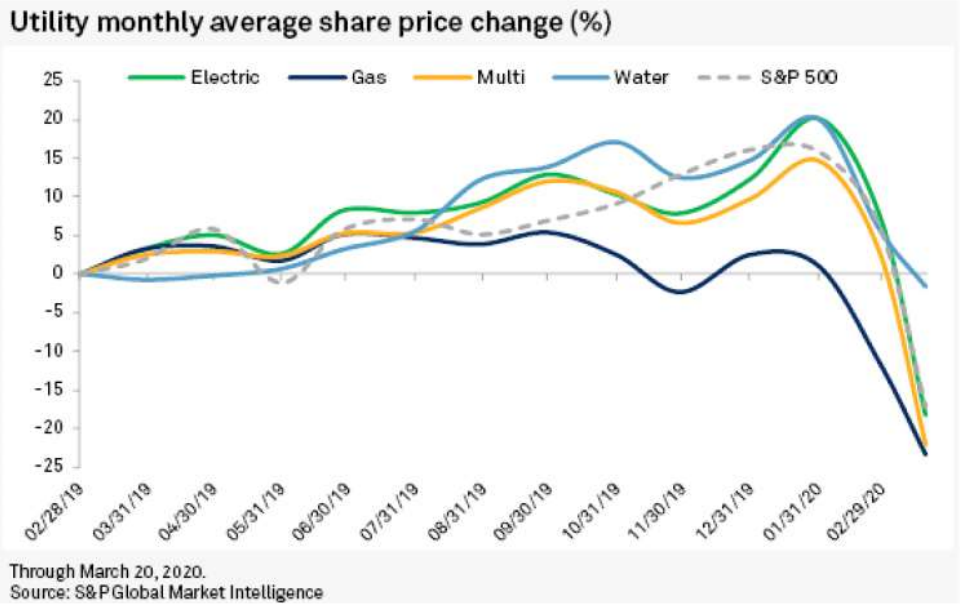
Q. CAN YOU BRIEFLY DESCRIBE CURRENT FINANCIAL MARKET CONDITIONS?

A. Yes. The cost of financing is much lower today than in the more inflationary period of the 1990s. More recently, the continued low rates of inflation and expectations of future low inflation rates have contributed to even lower interest rates. By the close of this proceeding, the Company will have received three rate increases over the last six years (Docket Nos. W-218, Sub 363, Sub 497, and the current proceeding). According to the April 2020 Mergent Bond Record, Moody's index yields on long-term "A" rated public utility bonds have fallen 87 basis points to 3.50% from 4.37% at December 18, 2018, the date the Commission issued its final order in Docket No. W-218, Sub 497. Relative to the filing of the cost of capital

settlement on January 17, 2014, in Docket No. W-218, Sub 363, yields on Moody's A-rated utility bonds are 113 basis points lower than the average 4.63% yield observed during January 2014 as illustrated in Hinton Exhibit 1.

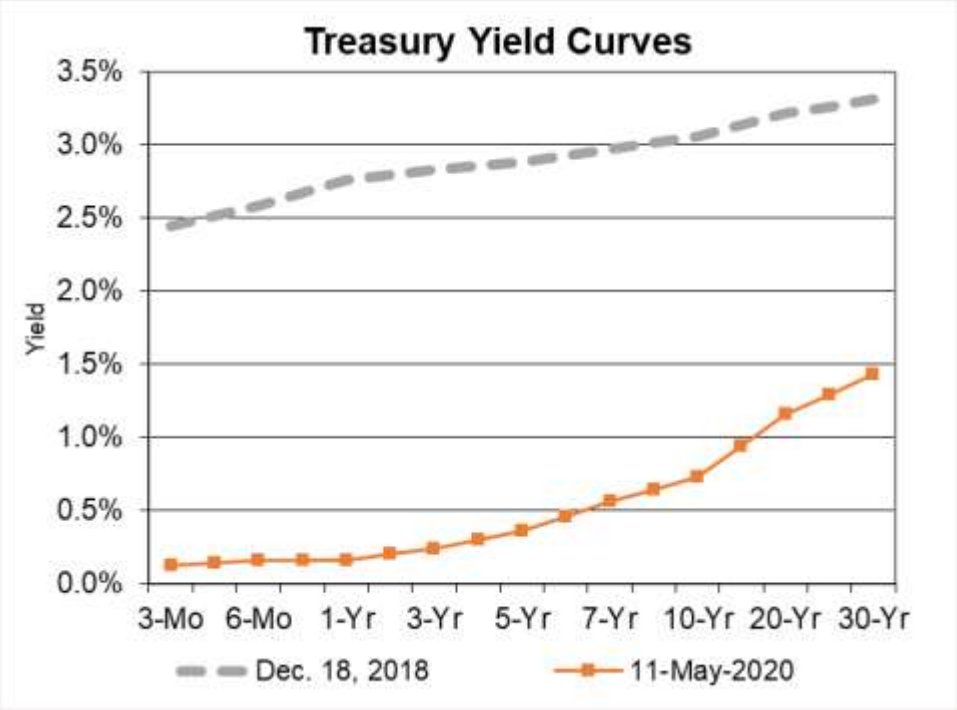
Recent decreases in interest rates and the stock market are also due to concerns over the coronavirus pandemic. However, water utility stocks have survived the stock market crash relatively well. The stability with the common stock prices of water utilities was noted in the March 23, 2020 S&P Global Report entitled, "Despite volatility, water utility valuation premiums persist." As of March 20, 2020, these concerns have also led to a 33% drop in the Dow Jones Industrial Average as reported by S&P Global Market Intelligence. The report noted that the Dow Jones Utility Index has lost 27% of its value; however, water utilities had only lost 14% of their value over the same period. Furthermore, the report identified the lower Beta coefficients with water utilities' stocks and that these stocks have historically been considered largely recession-resistant.

Shown below is a graph from the report with the complete publication in Exhibit 2:



Q. HOW HAVE INTEREST RATES CHANGED SINCE THE COMPANY'S LAST RATE CASE?

A. The below graph shows the lower treasury yields that, on average, are over 200 basis points lower for almost all durations since the issuance of the Commission's final order in Aqua's 2018 rate case in Docket No. W-218, Sub 497.



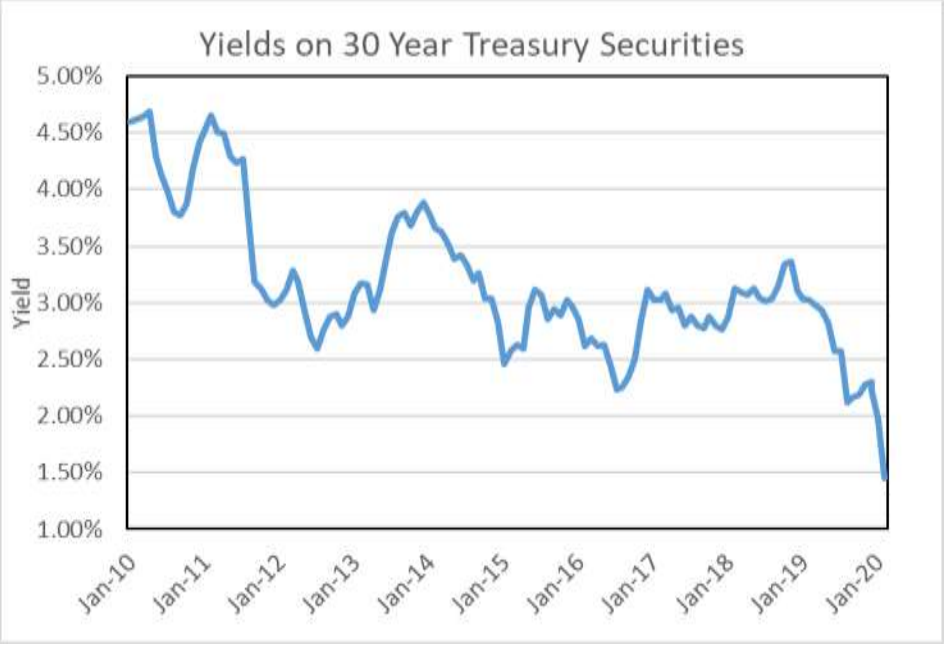
The lower interest rates, especially for longer-term securities, and the stable inflationary environment of today indicate that borrowers are paying less for the time value of money. This is significant since utility stocks and utility capital costs are highly interest rate-sensitive relative to most industries within the securities markets. Furthermore, given that investors often view purchases of the common stocks of utilities as substitutes for fixed income investments, the reductions in interest rates observed over the past ten or more years has generally followed the decreases in investor required rates of return on common equity.

Q. WITH RECENT DECREASES IN INTEREST RATES, DO YOU RELY ON INTEREST RATE PREDICTIONS IN YOUR INVESTIGATION?

A. No. I do not rely on interest rate forecasts to determine the cost of equity. Rather, I believe that relying on current interest rates, especially in relation to yields on long-term bonds, is more appropriate for ratemaking. It is reasonable to expect that investors are pricing bonds in the marketplace that are based on expectations on the domestic and international demand and supply of capital, future interest rates, future inflation rates, and other factors. While I have a healthy respect for forecasting, I am aware of the risk of relying on predictions of rising interest rates to determine utility rates. An example of this is in the testimony of Company witness Pauline M. Ahern in the 2013 Aqua rate case in Docket W-218, Sub 363. In that proceeding, witness Ahern identified several interest rate forecasts by Blue Chip Financial Forecasts of 30-year Treasury Bonds yields that were predicted to rise to 4.3% in 2015, 4.7% in 2016, 5.2% in 2017, and 5.5% for 2020 through 2024[1]. As illustrated in the graph below, these forecasts significantly over-estimated actual interest rates for 30-year Treasury Bonds. Similar over-estimated forecasts can be identified in witness D'Ascendis' Rebuttal

[1] Docket W-218 Sub 363, T. Vol. 2, page 171, lines 8-9.

Exhibit No. 12, in the Company's 2018 rate case where the Blue Chip Consensus Forecasts predicted the 30-year Treasury Bonds would rise to 3.70% by the fourth quarter of 2019. According to the Federal Reserve, the highest observed yield on 30-year Treasury Bonds for the fourth quarter of 2019 is 2.43%, a forecast error of 127 basis points. In my opinion, these types of errors make these forecasts inappropriate for ratemaking. As such, I tend to place more weight with current market determined interest rates. Shown below are historical yields on 30-year treasury bonds:



[2] Docket W-218 Sub 497, T. Vol. 6, Official Exhibits, page 467.

III. APPROPRIATE CAPITAL STRUCTURE AND COST OF LONG-TERM DEBT

Q. WHY IS THE APPROPRIATE CAPITAL STRUCTURE IMPORTANT FOR RATEMAKING PURPOSES?

A. For companies that do not have monopoly power, the price that an individual company charges for its products or services is set in a competitive market, and that price is generally not influenced by the company's capital structure. However, the capital structure that is determined to be appropriate for a regulated public utility has a direct bearing on the fair rate of return, revenue requirement, and therefore, the prices charged to captive ratepayers.

Q. PLEASE EXPLAIN THE TERM CAPITAL STRUCTURE AND HOW THE CAPITAL STRUCTURE APPROVED FOR RATEMAKING PURPOSES AFFECTS RATES.

A. The capital structure is simply a representation of how a utility's assets are financed. It is the relative proportions or ratios of debt and common equity to the total of these forms of capital, which have different costs. Common equity is far more expensive than debt for ratemaking purposes for two reasons. First, as mentioned earlier, there are income tax considerations. Interest on debt is deductible for purposes of calculating income taxes. The cost of common equity, on the other hand, must be "grossed up" to allow

the utility sufficient revenue to pay income taxes and to earn its cost of common equity on a net or after-tax basis. Therefore, the amount of revenue the utility must collect from ratepayers to meet income tax obligations is directly related to both the common equity ratio in the capital structure and the cost of common equity. A second reason for this cost difference is that the cost of common equity must be set at a marginal or current cost rate. Conversely, the cost of debt is set at an embedded rate because the utility is incurring costs that are previously established in contracts with security holders.

Because the Commission has the duty to promote economic utility service, it must decide whether or not a utility's requested capital structure is appropriate for ratemaking purposes. An example of the cost difference can be seen in the Company's filing. Based upon the Company's requested capital cost rates, each dollar of its common equity and long-term debt supporting the retail rate base has the following approximate annual costs (including income tax and regulatory fee) to ratepayers:

(1) Each $1 of common equity costs a ratepayer approximately 12 cents per year.

(2) Each $1 of long-term debt costs a ratepayer approximately 4 cents per year.

Q. WHAT CAPITAL STRUCTURE HAS THE COMPANY REQUESTED IN THIS CASE?

A. The Company's application requests to use a hypothetical capital structure of 50.00% long-term debt and 50.00% common equity.

Q. DO YOU SUPPORT THE CAPITAL STRUCTURE PROPOSED BY THE COMPANY IN THIS CASE?

A. Yes. I have reviewed the Company's recorded balances of common equity and long-term debt as of March 31, 2020, that are comprised of 52.77% equity and 47.23% debt. However, the balance of common equity contains an acquisition premium $14,069,166 from the purchase of Heater Utilities, which if removed from the balance of common equity would lower the percent of common equity to 49.94% and increase the percent of long-term debt to 50.06%. Given that the Company's proposed capital structure is reasonable, I believe that the proposed hypothetical capital structure comprised of 50% common equity and 50% long-term debt is reasonable and appropriate for ratemaking.

Q. WHAT IS YOUR RECOMMENDED COST OF LONG-TERM DEBT?

A. I recommend the use of the Company's updated cost of debt of 4.21% as of March 31, 2020. Since the filing of the W-1, Item 3b in the 2018 rate case Docket No. W-218 Sub 497, the Company has

refinanced much of its long-term debt and lowered its embedded cost by approximately 40 basis points. Unlike Carolina Water Service of North Carolina (CWSNC), Aqua has two loans that are associated with the rehabilitation of water infrastructure that was enabled through the State Revolving Fund Program authorized by the Safe Drinking Water Act. However, these loans were issued in 2013; as such, the Public Staff urges the Company to continue to investigate this source of funding, which is at cost rates that are typically lower than that available in the market. My recommended capital structure and cost of debt is as follows:

AQUA

as of March 31, 2020

	Ratio	Cost Rate
Long-Term Debt	50.00%	4.21%
Common Equity	50.00%	
Total	100.00%	

IV. THE COST OF COMMON EQUITY CAPITAL

Q. HOW DID YOU DEFINE THE COST OF COMMON EQUITY?

A. The cost of equity capital for a firm is the expected rate of return on common equity that investors require in order to induce them to purchase shares of the firm's common stock. The return is expected given that when the investor buys a share of the firm's common stock, he does not know with certainty what his returns will be in the future.

A: DCF METHOD

Q. HOW DID YOU DETERMINE THE COST OF COMMON EQUITY CAPITAL FOR THE COMPANY?

A. I used the discounted cash flow (DCF) model and the Risk Premium model to determine the cost of equity for the Company.

Q. PLEASE DESCRIBE YOUR DCF ANALYSIS.

A. The discounted cash flow model is a method of evaluating the expected cash flows from an investment by giving appropriate consideration to the time value of money. The DCF model is based on the theory that the price of the investment will equal the discounted cash flows of returns. The return to an equity investor comes in the form of expected future dividends and price appreciation. However, as the new price will again be the sum of the discounted cash flows, price appreciation is ignored, and

attention focused on the expected stream of dividends. Mathematically, this relationship may be expressed as follows:

Let D_1 = expected dividends per share over the next twelve months;

g = expected growth rate of dividends;

k = cost of equity capital; and

P = price of stock or present value of the future income stream.

Then,

$$P = \frac{D_1}{1+k} + \frac{D_1(1+g)}{(1+k)^2} + \frac{D_1(1+g)^2}{(1+k)^3} + \ldots + \frac{D_1(1+g)^{t-1}}{(1+k)^t}$$

This equation represents the amount an investor would be willing to pay for a share of common stock with a dividend stream over the future periods. Using the formula for a sum of an infinite geometric series, this equation may be reduced to:

$$P = \frac{D_1}{k-g}$$

Solving for k yields the DCF equation:

$$k = \frac{D_1 + g}{P}$$

Therefore, the rate of return on equity capital required by investors is the sum of the dividend yield (D_1/P) plus the expected long-term growth rate in dividends (g).

Q. DID YOU APPLY THE DCF METHOD DIRECTLY TO AQUA?

A. No, Aqua common equity is not publicly traded; rather it is a wholly owned subsidiary of Essential Utilities, Inc. (formally named Aqua America, Inc.). Thus to estimate the investor required rate of return, I applied the DCF method to a risk-comparable investments comprised of a group water utilities followed by Value Line Investment Survey (Value Line). The standard edition of Value Line covers eight water companies. From there, I excluded Consolidated Water Co. because of its significant overseas operations.

Q. WHAT MEASURES OF RISK DID YOU REVIEW TO DETERMINE THE COMPARABILITY OF INVESTING IN WATER UTILITIES?

A. I reviewed standard risk measures that are widely available to investors that are considered by most investors when making investment decisions. The beta coefficient is a measure of the sensitivity of a stock's price to overall fluctuations in the market. The Value Line Investment Survey beta coefficient describes the relationship of a company's stock price with the New York Stock Exchange Composite. A beta value of less than 1.0 means that the stock's price is less volatile than the movement in the market; conversely, a beta value greater than 1.0 indicates that the stock price is more volatile than the market.

I reviewed the Value Line Safety Rank, which is defined as a measure of the total risk of a stock. The Safety Rank is calculated by averaging two variables: (1) the stock's index of price stability, and (2) the Financial Strength rating of the company. In addition, I reviewed the S&P Common Stock Rating. The stock rating system takes into consideration two important factors in the determination of a stock's rating: the stability and growth of earnings and dividends. However, the stock rating does not consider a company's balance sheet or other factors. The stock rating system has seven grades, with A+ being the highest rating possible.

I also reviewed Moody's and S&P's Bond Rating, which are assessments of the creditworthiness of a company. Credit rating agencies focus on the creditworthiness of the particular bond issuer, which includes a detailed and thorough review of the potential areas of business risk and financial risk of the company. These and other risk measures for the comparable group are shown in my Exhibit 3 and are further explained in Appendix B.

Q. HOW DID YOU DETERMINE THE DIVIDEND YIELD COMPONENT OF THE DCF?

A. I calculated the dividend yield by using the Value Line estimate of dividends to be declared over the next 12 months divided by the price of the stock as reported in the Value Line Summary and Index sections for each week of the 13-week period of February 14, 2020 through May 8, 2020. A 13-week averaging period tends to smooth out short-term variations in the stock prices. This process resulted in an average dividend yield of 1.7% for the comparable group of water utilities.

Q. HOW DID YOU DETERMINE THE EXPECTED GROWTH RATE COMPONENT OF THE DCF?

A. I employed the growth rates of the comparable group in earnings per share (EPS), dividend per share (DPS), and book value per share (BPS) as reported in Value Line over the past ten and five years. I also employed the forecasts of the growth rates of the comparable group in EPS, DPS, and BPS, as reported in Value Line. The historical and forecast growth rates are prepared by analysts of an independent advisory service that is widely available to investors and should also provide an estimate of investor expectations. I include both historical known growth rates and forecast growth rates because it is reasonable to expect that investors consider both sets of data in deriving their expectations.

Finally, I incorporated the consensus of various analysts' forecasts of five-year EPS growth rate projections, as reported in Yahoo Finance. The dividend yields and growth rates for each of the companies, is shown in my Exhibit 4.

Q. WHAT IS YOUR CONCLUSION REGARDING THE COST OF COMMON EQUITY TO THE COMPANY BASED ON THE DCF METHOD?

A. Based upon the DCF analysis for the comparable group of water utilities, I determined that a reasonable expected dividend yield is 1.7% with an expected growth rate of 6.40% to 7.40%, which yields an estimated range of 8.10% to 9.10%. In making that determination, I gave significant weight to the DCF results with the forecasted EPS growth rates from Value Line and Yahoo Consensus EPS estimates that produced a 9.0% and 9.2% result. My estimate for the lower end of the range is based on the average DCF result using both historical and forecast growth rate data. As such, I believe that 8.60% cost of common equity for Aqua, which is the center point estimate of my DCF results, is most reasonable.

B: REGRESSION ANALYSIS METHOD

Q. PLEASE DESCRIBE YOUR RISK PREMIUM ANALYSIS.

A. The equity risk premium method can be defined as the difference between the expected return on a common stock and the expected

return on a debt security. The differential between the two rates of return is indicative of the return investors require in order to compensate them for the additional risk involved with an investment in the Company's common stock over an investment in the Company's bonds that involves less risk.

In order to quantify the risk premium, I need estimates of the cost of equity and the cost of debt at contemporaneous points in time. This method relies on approved returns on common equity for water utility companies from various public utility commissions that are published by the Regulatory Research Associates, Inc. (RRA), within SNL Global Market Intelligence. In order to estimate the relationship with a representative cost of debt capital, I have regressed the average annual allowed equity returns with the average Moody's A-rated yields for Public Utility bonds from 2006 through 2020. The regression analysis, which incorporates years of historical data is combined with recent monthly yields to provide an estimate of the current cost of common equity.

Q. WHAT ARE THE STRENGTHS OF USING ALLOWED RETURNS?

A. The use of allowed returns as the basis for the expected equity return has strengths over other approaches that involve models that subtract a cost rate of debt from the estimated equity return. One strength of my approach is that authorized returns on equity are

generally arrived at through lengthy investigations by various parties with opposing views on the rate of return required by investors. Thus, it is reasonable to conclude that the approved allowed returns are good estimates for the cost of equity.

Q. WHAT WERE THE RESULTS OF YOUR RISK PREMIUM ANALYSIS?

A. The summary data of risk premiums shown on my Exhibit 5, page 1 of 2 indicates that the average risk premium is 5.05%, with a maximum premium of 5.97% and minimum premium of 3.73%, which when combined with the average of the last six months of A-rated bond yields produces yields with an average cost of equity of 8.40%, a maximum cost of equity of 9.32%, and a minimum cost of equity of 7.08%. However, to better estimate the current cost of equity, I employ a statistical regression in order to quantify the relationship of allowed equity returns and bond costs. My Exhibit 5, page 2 of 2, displays a regression analysis of the data that indicates a significant statistical relationship of the allowed equity returns and bond costs, such that a one percent decrease in the bond cost corresponds to an increase of approximately 30 basis points in the equity risk premium.[3] While various studies on the cost of equity capital have differed on the level of the negative relationship of

[3] The regression indicated a significant statistical relationship of ROE=0.08599 + 0.26148, with an adjusted R^2=0.7732.

interest rates and risk premiums, there has been agreement that as interest rates fall, there is an increase in the premium.[4] Applying this relationship to the current utility bond cost of 3.35%[5] resulted in a current estimate of the cost of equity of 9.40%.

Q. GIVEN YOUR STUDY ON THE COST OF EQUITY, WHAT IS YOUR RECOMMENDED COST OF EQUITY?

A. Based on all of the results of my DCF model that indicate a cost of equity of 8.60% and Risk Premium model that indicates a cost of equity of 9.40%. The average of those two results is 9.00%, which I maintain, is reasonable estimate of the investor required rate of return on common equity for Aqua.

Q. TO WHAT EXTENT DOES YOUR RECOMMENDED RATE OF RETURN ON COMMON EQUITY TAKE INTO CONSIDERATION THE IMPACT OF A WATER/SEWER SYSTEM IMPROVEMENT MECHANISM PURSUANT TO N.C. GEN. STAT. § 62-133.12 ON THE COMPANY'S FINANCIAL RISK?

A. In my opinion, the water and sewer improvement charge mechanisms (WSIC and SSIC) provide the ability for enhanced cost recovery of the eligible capital improvements reducing regulatory lag through incremental and timely rate increases. I

[4] Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, "The Risk Premium Approach to Measuring a Utility's Cost of Equity." Financial Management, Spring 1985, pp. 33-45.

[5] The 3.71% current bond yield was determined using the most recent ten-month average yield-to-maturity rate of Moody's A-rated Utility Bond Yields.

believe these mechanisms are seen by debt and equity investors as supportive regulations that mitigate business and regulatory risk. As such, I believe that these mechanisms are noteworthy and are supportive of my recommendation.

Q. DO YOU BELIEVE THAT THE COMMISSION SHOULD RECOGNIZE THE REDUCTION IN INVESTMENT RISK FROM THE CONSUMPTION ADJUSTMENT MECHANISM (CAM)?

A. Yes. I believe that the enhanced protection from decreasing customer revenue will stabilize earnings, which should contribute to a reduction in perceived business risk and investment risk. Consumption adjustment mechanisms are relatively new to the water utility industry; however, similar mechanisms have been employed in the natural gas industry. In North Carolina, Piedmont Natural Gas Company, Inc.'s Consumption Utilization Tracker program was first approved in Docket No. G-9, Sub 499, and later renamed Margin Decoupling Tracker (MDT), and Public Service Company of North Carolina, Inc. has a similar program which has worked to help stabilize the Company's earnings.

However, in those rate case proceedings where the trackers were approved, there was no explicit recognition of the decrease in the Company's business risk in those proceedings or subsequent proceedings, indicating that any direct benefit to customers was

lost. This was, in part, due to the fact that similar trackers were in operation with various other LDCs, and an argument could be made the risk reduction was somewhat captured in the market prices of the Company's common stock. However, it is my understanding that only two companies in witness D'Ascendis' and my groups of water utilities have subsidiaries with a CAM - California Water Service Company and American Water Works.

I believe that some recognition of the reduction in business risk introduced through the mechanism is reasonable to be enacted in this proceeding. However, quantifying this benefit is difficult. In a prior California Public Utilities Commission (CPUC) order, 91-10-042, the CPUC equated the mechanism with having the effect of a 20 basis point reduction in ROE due to reduced business risk relating to the request of certain small and medium sized (Class C and D) water utilities. In recognition of the subjective nature involved, I believe that a 10 basis point reduction in the cost rate for common equity provides a minimal degree of sharing in the benefits of the CAM. Assuming a CAM is approved by the Commission, my recommended cost of common equity for Aqua would be reduced by 10 basis points to 8.90%.

Q. WHAT OTHER EVIDENCE DID YOU CONSIDER IN YOUR ASSESSMENT OF THE REASONABLENESS OF YOUR RECOMMENDED RETURN?

A. In regard to reasonableness assessment with financial risk, I considered the pre-tax interest coverage ratio produced by my cost of capital recommendation. Based on the recommended capital structure, cost of debt, and equity return of 8.90%, the pre-tax interest coverage ratio is approximately 3.7 times. This level of coverage is higher than observed in the recent CWSNC rate case, which is primarily due to Aqua's lower cost rate of debt. This level of pre-tax interest coverage and funds flow coverage should allow Aqua to qualify for a single "A" bond rating.

Q. TO WHAT EXTENT DOES YOUR RECOMMENDED RATE OF RETURN ON EQUITY TAKE INTO CONSIDERATION THE IMPACT OF CHANGING ECONOMIC CONDITIONS ON AQUA'S CUSTOMERS?

A. I am aware of no clear numerical basis for quantifying the impact of changing economic conditions on customers in determining an appropriate return on equity in setting rates for a public utility. Rather, the impact of changing economic conditions nationwide is inherent in the methods and data used in my study to determine the cost of equity for utilities that are comparable to Aqua. I have reviewed certain information on the economic conditions in the

areas served by Aqua, specifically, the 2014, 2015, 2016, 2017, and 2018 data on total personal income from the Bureau of Economic Analysis (BEA) and the Development Tier Designations published by the North Carolina Department of Commerce for the counties in which Aqua's systems are located.

The BEA data indicates that from 2017 to 2018, total personal income by county grew at a compound annual growth rate (CAGR) of 5.0 %, which is slightly lower than the rate of 5.5% for the whole state and from 2014 to 2018, total personal income by county grew by 18.0 %, which is slightly lower than the rate of 20.3% for the entire state.

The North Carolina Department of Commerce annually ranks the state's 100 counties based on economic well-being and assigns each a Tier designation. The most distressed counties are rated a "1" and the most prosperous counties are rated a "3." The rankings examine several economic measures such as household income, poverty rates, unemployment rates, population growth, and per capita property tax base. The 40 most distressed counties are designated as Tier 1, the next 40 as Tier 2, and the 20 least distressed as Tier 3. This yields an average county Tier ranking of 1.8 for the state. For the years 2016 through 2020, the average Tier ranking was 2.1 for the counties in the areas served by Aqua and in

each year, the average was higher than the state average. Both these economic measures indicate that Aqua's service areas has experienced stable economic conditions until the recent coronavirus pandemic.

Q. WHAT HAS BEEN THE IMPACT OF THE CORONA VIRUS PANDEMIC ON THE UNEMPLOYMENT RATES IN THE COUNTIES IN AQUA'S SERVICE TERRITORY?

A. While it is too early to tell its full impacts, the coronavirus pandemic has led to an increase in unemployment throughout the state of North Carolina. The North Carolina Department of Commerce issued a press release on April 29, 2020, which stated that the unemployment rate increased in 97 of the state's 100 counties during March 2020. The release indicated that the statewide unemployment rate for March 2020 was 4.2%. The March 2020 unemployment rate for the counties in Aqua's service territory was slightly higher than the state's unemployment rate at 4.4%. While the unemployment data for April 2020 is expected to worsen with rates of 10% or more, it is my expectation that the current slowdown in North Carolina's economy will abate as we enter into phases two and three of Governor Roy Cooper's plan and that the economy will improve by the end of the third quarter and into the fourth quarter.

As discussed above, it is the Commission's duty to set rates as low as reasonably possible consistent within constitutional constraints. This duty exists regardless of the customers' ability to pay. Moreover, the rate of return on common equity is only one component of the rate established by the Commission. N.C. Gen. Stat. § 62-133 sets out an intricate formula for the Commission to follow in determining a utility's overall revenue requirement. It is the combination of rate base, expenses, capital structure, cost rates for debt and equity capital, and capital structure that determines how much customers pay for utility service and how much investors receive in return for their investment. The Commission must exercise its best judgment in balancing the interests of both groups. My analysis indicates that my recommended rate of return on equity will allow the Company to properly maintain its facilities, provide adequate service to its customers, attract capital on terms that are fair and reasonable to its customers and investors, and will result in rates that are just and reasonable.

V. CONCERNS WITH COMPANY WITNESS D'ASCENDIS' TESTIMONY

Q. DO YOU HAVE CONCERNS ABOUT COMPANY WITNESS D'ASCENDIS' TESTIMONY?

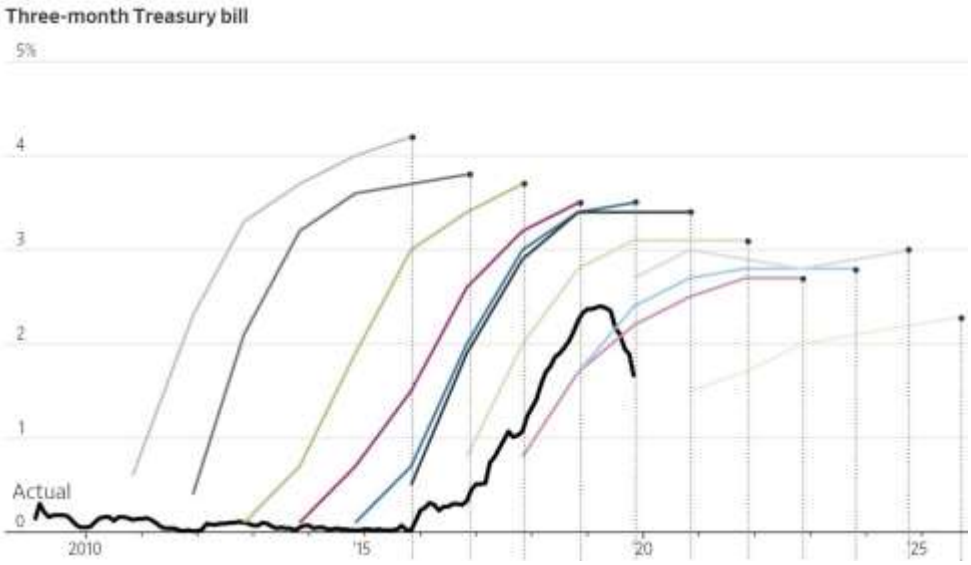
A. Yes. I have identified several areas of concern with his testimony.

Interest Rate Forecasts for Ratemaking

As noted above, I have concerns with forecast errors associated with the use of interest rate forecasts to determine the cost of equity. In this proceeding, Mr. D'Ascendis relies on the Blue Chip Consensus Forecasts of 30-year treasury yields for his risk-free rate of 2.64% in his CAPM analysis, as shown in his Exhibit 1, Schedule DWD-5. However, it is worth noting that the witness relied on a similar average of forecasts for 30-year yields in his predictive CAPM analysis in the 2018 rate case. The calculation of the 3.54% risk free rate is derived from eight individual point in time forecasts from the second quarter of 2018 through 2028; however, six of the eight point forecasts, which cover the period through the third quarter of 2019, have already transpired which allow one to review the accuracy of these forecasts. Since the filing of his 2018 rate case testimony, the highest daily yield observed during the third quarter of 2019 is 2.43%, the average was 2.23%, and the lowest yield was 1.95%. As observed in prior rate cases, interest rate forecasts have a tendency to over-estimate the future level of interest rates by a significant degree, which is why I maintain they are inappropriate for ratemaking.

These persistent forecasting errors were extensively discussed in a Wall Street Journal article published on Wednesday, December 18,

2019 entitled, “Economists Got it All Wrong. They are Trying to Figure Out Why.” The article notes that predictions of interest rates have consistently proved to be too high and that they have been casting around for an answer and a theory to explain their inability to make accurate predictions months ahead, let alone years ahead. The article provided a couple of possible explanations; however, it concludes that it might take the next decade to determine what really happened.



Sources: Blue Chip Economic Indicators (forecasts); Federal Reserve Bank of St. Louis.

Risk Adjustment for Small Size

Another concern with Mr. D’Ascendis’ testimony is his 20 basis point adjustment for the size of Aqua. I do not believe that it is appropriate to add a risk premium to the cost of equity due to the size of a regulated utility. Aqua is owned by Essential Utilities, Inc.

Essential Utilities has a significant influence over the balances of common equity and long-term debt of Aqua, and it determines, the amounts of dividend payments to the parent corporation and the frequency of those payments. My reasons for concern are as follows: first, from a regulatory policy perspective, ratepayers should not be required to pay higher rates because they are located in the franchise area of a utility of a size that is arbitrarily considered to be small. Further, if such adjustments were routinely allowed, an incentive would exist for large existing utilities to form subsidiaries when merging or even to form subsidiaries to obtain higher allowed returns. Lastly, Aqua operates in a franchise environment that insulates the Company from competition, and it operates with procedures in place that allow for rate adjustments for eligible capital improvements, cost increases, and other unusual circumstances that impact its earnings.

Aqua operates in the water and sewer industry, where expensive bottled water provides the only alternative to utility service. It is factually correct that rating agencies and investors add a risk factor for small companies with relatively limited capital resources; however, the inherent protection from competition removes this risk that would otherwise be a concern to investors.

I testified to these same concerns in the last CWSNC rate case in Docket No. W-354, Sub 360, where the Commission found that a size adjustment was not warranted. Similar arguments were made in a 1997 CWS System, Inc., rate case in Docket No. W-778, Sub 31, where witness Frank Hanley of AUS Consultants relied on similar cost of capital methods as witness D'Ascendis, as noted on pages 824 through 825 of the Commission's Eighty-Seventh Report of Orders and Decisions. In a 1994 CWSNC rate case, the Commission was not persuaded to accept an adjustment for small size and its elevated risk, as noted in on page 520 in its Eighty-Fourth Report of Orders and Decisions. The explicit consideration of the small size of a regulated utility was argued before this Commission in a rate case involving North Carolina Natural Gas, Inc. (NCNG) in Docket No. G-21, Sub 293. In an order dated December 6, 1991, the Commission disagreed with the Company witness who testified that the Company's small size warranted the selection of other small sized companies in his proxy group. The Commission stated on page 563 of its Eighty-First Report of Orders and Decisions:

> "Dr. Andrews selected a group of 16 companies, including NCNG, in his DCF model (and his CAPM) because they are all publicly traded, they are all small in size, and they are all principally in the local gas distribution business. He testified that these companies were the "best available* in terms of being comparable to NCNG. In contrasting his comparable group to those of

> witness Hinton, Dr. Andrews stated that it was better to have some similarity in size among the companies even if this meant some dissimilarity in financial attributes. The Commission disagrees. If a group of companies is to be screened for comparability in terms of investor expectations, financial attributes are far more relevant than size."

While there are published studies that address how the small size of a company relates to higher risks, Dr. Annie Wong[6] published a study that focuses on the size of regulated utilities and risk. Whereas, published journal articles generally rely on company size and return data for a multitude of privately held companies covered by the Center for Research in Security Prices[7]; any correlation with the smaller size of a company and higher stock returns is dominated by industrial firms, as Dr. Wong notes in her published article. Dr. Wong has tested the data for a size premium in utilities and concluded that, "Unlike industrial stocks, utility stocks do not exhibit a significant size premium. As explained, there are several reasons why such a size premium would not be attributable to utilities because they are regulated closely by state and federal agencies and commissions, and hence, their financial performance is monitored on an ongoing basis by both the state and federal governments."

[6] Annie Wong, "Utility Stocks and the Size Effect: An Empirical Analysis," Journal of the Midwest Finance Association, pp. 95-101, (1993).

[7] Center for Research in Security Prices, University of Chicago, Booth School of Business, Chicago, IL.

Lastly, Mr. D'Ascendis' performed a statistical analysis known as the coefficient of variation (CoV) to assess the added risk with smaller utility companies. I have reviewed his analysis and I am not persuaded that his analysis adequately supports his conclusion for a 20 basis point adjustment for Aqua's small size.

CAPITAL STRUCTURE OF A PARENT CORPORATION AS COMPARED TO THAT OF A REGULATED UTILITY

While I agree with Mr. D'Ascendis' testimony that the proposed 50.00% common equity is reasonable, I disagree with his comparison of the equity ratios of his Utility Proxy Group that is based on the parent corporation's or the holding company's common equity ratio shown on page 2 of his Schedule DWD-2. The schedule shows average common equity ratios over the period 2014 through 2018 that range from 54.75% to 56.41%, with an overall average equity ratio of 55.57%. While he notes that the Company has requested a lower equity ratio than his Utility Proxy Group, it is my opinion that this comparison is deficient, in that, it is better to contrast recent Commission approved common equity ratios for regulated water and wastewater utilities than to make comparisons with equity ratios of a corporate parent or a holding company. Often, parent corporations are invested in other non-regulated businesses that involve higher risks and higher rates of returns, as compared to the regulated operations of a water and

wastewater utility. Additional, the acquisition policies of large corporate utilities may result in equity ratios that may not be comparable to Aqua or Essential Utilities, Inc. As such, I believe a better comparison of financial risk in connection with an equity ratio is demonstrated in my Exhibit 6 which has the average annual approved common equity ratios for water and wastewater utilities of 50.81% for the years 2014 through 2019 as compiled by the Regulatory Research Associates of S&P Global Market Intelligence. Similarly, the average all of the individual rate case decisions is 51.04%. The data indicates that the average approved equity ratios of water and wastewater utilities are significantly less than the five-year average equity ratio of 55.57% identified on page 2 of witness D'Ascendis' Schedule DWD-2, and it is relatively close to the Company's proposed and Public Staff's recommended equity ratio of 50.00%.

Flotation Cost Adjustment

Q. DO YOU AGREE WITH MR. D'ASCENDIS' THAT FLOTATION COSTS ASSOCIATED WITH THE ISSUANCE OF COMMON EQUITY SHOULD BE RECOVERED EVEN IF THESE COSTS ARE OUTSIDE THE TEST YEAR OR IMMEDIATE FUTURE?

A. No. This Commission has previously concluded that without evidence in the record of plans to issue new common stock in the

immediate future, an allowance for flotation costs is not justified.[8] Additionally, in *State ex rel. Utilities Commission v. Public Staff*, 331 N.C. 215, 415 S.E.2d 354 (1992), the North Carolina Supreme Court reversed a Commission decision that included an increment for purported future financing costs for Duke Power on the grounds that the record contained no evidence that the company intended to issue stock in the immediate future. Furthermore, Essential Utilities, Inc., the parent Company of Aqua, has not incurred flotation costs during the test year that was associated with a public offering which was intended to fund necessary capital expenditures for utility services. As such, I do not believe any consideration of a flotation cost is warranted. Furthermore, it is my opinion that the immediate future is limited to the close of this evidentiary proceeding.

Q. HAVE THERE BEEN SIMILAR REQUESTS TO RECOVER ISSUANCES EXPENSES DUE TO HISTORICAL FLOTATION COSTS AND EXPECTED FLOTATION COSTS?

A. Yes. In a 1993 Dominion Energy North Carolina, Inc. rate case in Docket No. E-22, Sub 333, Company witness William Avera argued that the failure to collect past floatation costs warranted a 25 basis point adjustment to the cost rate for common equity. However, the Commission stated on page 319 in its Eighty-Third Report of Orders and Decisions:

[8] *Citizens Telephone Co*., 81 N.C.U.C. at 663.

> "The Commission rejects witness Avera's 25 basis point flotation cost adjustment to the cost of equity and finds no support for witness Carney's testimony that the Company has never collected past floatation costs."

Also, in a 2002 BellSouth rate case involving the pricing of Unbundled Network Elements (UNE), Bellsouth witness Dr. Billingsley included a flotation cost adjustment in his quarterly DCF model to account for the presumed 5% downward pressure on stock prices associated with the issuance of new common stock. However, the Commission stated on pages 145 and 146 in its Ninety-Third Report of Orders and Decisions:

> "Witness Billingsley included a flotation cost adjustment in his quarterly DCF model to account for the presumed 5% downward pressure on stock prices associated with the issuance of new common stock. Witness Hinton disagreed with this adjustment, and testified that since there was no evidence in the record that BellSouth expected a common stock issuance in the future, there was no basis for a flotation cost adjustment.
>
> This Commission has previously concluded that without evidence in the record of plans to issue new common stock in the near term, an allowance for flotation costs is not justified. Additionally, in State ex rel. Utilities Commission v. Public Staff, 331 N.C. 215, 415 S.E.2d 354 (1992), the North Carolina Supreme Court reversed a Commission decision that included an increment for purported future financing costs for Duke Power on the grounds that the record contained no evidence that the company intended to issue stock in the immediate future. For this same reason, the Commission did not accept witness Billingsley's recommended flotation cost adjustment in the First UNE Order.

> Based on the foregoing and all of the evidence presented, the Commission rejects witness Billingsley's 5% adjustment for flotation costs as being unsupported by the evidence. None of the witnesses for BellSouth indicated that a common stock issuance is expected in the immediate future."

Q. DO YOU AGREE WITH CONCERNS TO ADD BASIS POINTS TO THE DCF BASED COST OF EQUITY TO ACCOUNT FOR MARKET TO BOOK RATIOS SIGNIFICANTLY GREATER THAN 1.0?

A. No. Witness D'Ascendis Rebuttal Testimony filed in Aqua's last rate case in Docket No. W-218, Sub 497 argued that the fact that the market to book ratios of the water utility proxy group was approximately 2.10 times and that led to inaccuracies in the DCF model. Furthermore, one needs to de-leverage the implied cost of equity with the use of the Modigliani/Miller equation, which Mr. D'Ascendis testified would increase my recommended DCF result from a 8.70% cost of equity to 10.13%[9]. In my opinion, this argument presumes that the value of assets prescribed by regulated accounting methods and market valuation is in some degree of lock-step, which I do not accept. Secondly, FERC and the FCC have ruled in prior cost of capital investigations that claims that market-to-book valuations being greater than 1.0 leads the

[9] Docket No. W-218, Sub 497, T. Vol. 7, page 27, lines 14-16.

DCF model to understate of the cost of equity[10]. FERC found that during periods of falling interest rates, the cost of equity falls; however, the result is a tendency for utilities to earn more than their shareholders require and market values will exceed book values. FERC went on to say there is a similar tendency with rising interest rates and rising costs of equity in that, utilities will file frequent rate cases in order to protect their shareholders, and the result will be to maintain their market-to-book ratios during periods of rising equity costs. Furthermore, in 1988, the FERC noted that this argument "is an old one, and the problem of circularity inherent in that approach has been long and widely recognized".

VI. SUMMARY AND RECOMMENDATIONS

Q. WOULD YOU PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING THE COST OF CAPITAL?

A. Based upon the results of this study, it is my recommendation that the appropriate capital structure to employ for ratemaking purposes in this proceeding consists of 50.00% long-term debt and 50.00% common equity. The appropriate embedded cost of long-term debt associated with this capital structure is 4.21%, and the recommended cost of common equity of 8.90%. My recommended

[10] Federal Communications Commission Record 91-389, p. 7196 and Federal Register, Vol 53, No. 24, pages 3,347 and 3,348.

overall weighted cost of capital produced is 6.56%, as shown in my Exhibit 7.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

QUALIFICATIONS AND EXPERIENCE

JOHN ROBERT HINTON

I received a Bachelor of Science degree in Economics from the University of North Carolina at Wilmington in 1980 and a Master of Economics degree from North Carolina State University in 1983. I joined the Public Staff in May of 1985. I filed testimony on the long-range electrical forecast in Docket No. E-100, Sub 50. In 1986, 1989, and 1992, I developed the long-range forecasts of peak demand for electricity in North Carolina. I filed testimony on electricity weather normalization in Docket Nos. E-7, Sub 620, E-2, Sub 833, and E-7, Sub 989. I filed testimony on customer growth and the level of funding for nuclear decommissioning costs in Docket No. E-2, Sub 1023. I filed testimony on the level of funding for nuclear decommissioning costs in Docket Nos. E-7, Sub 1026 and E-7, Sub 1146 and Docket No. E-2, Sub 1219. I have filed testimony on the Integrated Resource Plans (IRPs) filed in Docket No. E-100, Subs 114 and 125, and I have reviewed numerous peak demand and energy sales forecasts and the resource expansion plans filed in electric utilities' annual IRPs and IRP updates.

I have been the lead analyst for the Public Staff in numerous avoided cost proceedings, filing testimony in Docket No. E-100, Subs 106, 136, 140,

148, and Sub 158. I have filed a Statement of Position in the arbitration case involving EPCOR and Progress Energy Carolinas in Docket No. E-2, Sub 966. I have filed testimony in avoided cost related to the cost recovery of energy efficiency programs and demand side management programs in Dockets Nos. E-7, Sub 1032, E-7, Sub 1130, E-2, Sub 1145, and E-2, Sub 1174.

I have filed testimony on the issuance of certificates of public convenience and necessity (CPCN) in Docket Nos. E-2, Sub 669, SP-132, Sub 0, E-7, Sub 790, E-7, Sub 791, and E-7, Sub 1134.

I filed testimony on the merger of Dominion Energy, Inc. and SCANA Corp. in Docket Nos. E-22, Sub 551, and G-5, Sub 585.

I have filed testimony on the issue of fair rate of return in Docket Nos. E-22, Sub 333; E-22, Sub 412; E-22, Sub 532, P-26, Sub 93; P-12, Sub 89; P-31, Sub 125; P-100, Sub 133b; P-100, Sub 133d (1997 and 2002); G-5, Sub 327; G-5, Sub 386; G-9, Sub 351; G-9, Sub 743; G-21, Sub 293; G-21, Sub 442; W-778, Sub 31; W-218, Sub 319, and W-218, Sub 497, W-354, Sub 360; W-354, Sub 364; and in several smaller water utility rate cases. I have filed testimony on credit metrics and the risk of a downgrade in Docket No. E-7, Sub 1146 and Docket No. E-7, Sub.1214.

I have filed testimony on the hedging of natural gas prices in Docket No. E-2, Subs 1001 and 1018. I have filed testimony on the expansion of natural gas in Docket No. G-5, Subs 337 and 372. I performed the financial analysis in the two audit reports on Mid-South Water Systems, Inc., Docket No. W-100, Sub 21. I testified in the application to transfer of the CPCN rom North Topsail Water and Sewer, Inc. to Utilities, Inc., in Docket No. W-1000, Sub 5. I have filed testimony on rainfall normalization with respect of water sales in Docket No. W-274, Sub 160.

With regard to the 1996 Safe Drinking Water Act, I was a member of the Small Systems Working Group that reported to the National Drinking Water Advisory Council of the U.S. Environmental Protection Agency. I have published an article in the National Regulatory Research Institute's Quarterly Bulletin entitled Evaluating Water Utility Financial Capacity.

RISK MEASURES

VALUE LINE SAFETY RANK

The Safety Rank is a measure of the total risk of a stock. It includes factors unique to the company's business such as its financial condition, management competence, etc. The Safety Rank is derived by averaging two variables: the stock's Price Stability Index, and the Financial Strength Rating of the company. The Safety Rank ranges from 1 (Highest) to 5 (Lowest).

VALUE LINE BETA (ß)

The Beta is derived from a regression analysis between weekly percent changes in the price of a stock and weekly percent price changes in the New York Stock Exchange Composite Index over a period of five years.

There has been a tendency over the years for high Beta stocks to become lower and for low Beta stocks to become higher. This tendency can be measured by studying Betas of stocks in five consecutive intervals. The Betas published in the Value Line Investment Survey are adjusted for this tendency and hence are likely to be better predictors of future Betas than those based exclusively on the experience of the past five years.

The New York Stock Exchange Composite Index is used as the basis for calculating the Beta because this index is a good proxy for the complete equity portfolio. Since Beta's significance derives primarily from its usefulness in portfolios rather than individual stocks, it is best constructed by relating to an overall market portfolio. The Value Line Index, because it weights all stocks equally, would not serve as well.

The security's return is regressed against the return on the New York Stock Exchange Composite Index over the past five years so that 259 observations of weekly price changes are used. Value Line adjusts its estimate of Beta ($ß_i$) for regression described by Blume (1971). The estimated Beta is adjusted as follows:

$$\text{Adjusted } ß_i = 0.35 + 0.67ß$$

VALUE LINE FINANCIAL STRENGTH RATING

The Financial Strength Ratings are primarily a measure of the relative financial strength of a company. The rating considers key variables such as coverage of debt, variability of return, stock price stability, and company size. The Financial Strength Ratings range from the highest at A++ to the lowest at C.

VALUE LINE PRICE STABILITY INDEX

The Price Stability Index is based upon a ranking of the standard deviation of weekly percent changes in the price of a stock over the last five years. The top 5% carry a Price Stability Index of 100; the next 5%, 95; and so on down to an Index of 5.

VALUE LINE EARNINGS PREDICTABILITY INDEX

The Earnings Predictability Index is a measure of the reliability of an earnings forecast. The most reliable forecasts tend to be those with the highest rating (100), the least reliable (5).

S&P BETA (ß)

The Beta is derived from a regression analysis between 60 months of price changes in a company's stock price (plus corresponding dividend yield) and the monthly price changes in the S&P 500 Index (plus corresponding dividend yield). Prices and dividends are adjusted for all subsequent stock splits and stock dividends.

S&P BOND RATING

The S&P Bond Ratings is an appraisal of the credit quality based on relevant risk factors. S&P reviews both the company's financial and business profiles. Shown below are the rankings:

AAA An extremely strong capacity to pay interest and repay principal.

AA+ A very strong capacity to pay interest and repay principal.
AA There is only a small degree of difference between "AAA" or "AA."
AA- debt issues.

A+ A strong capacity to pay interest and repay principal. These
A these ratings indicate the obligor is more susceptible to
A- changes in economic conditions than AAA" or "AA" debt issues.
BBB+ An adequate capacity to pay interest and repay principal.
BBB economic conditions or changing circumstances are more likely to
BBB- lead to a weakened capacity to pay interest and repay principal.

BB+ "BB" indicates less near-term vulnerability to default than other
BB speculative issues. However, these bonds face major ongoing
BB- uncertainties or exposure to adverse conditions that could lead to inadequate capacity to meet timely interest and principal payments.

S&P STOCK RANKING

The S&P Stock Rankings is an appraisal of the growth and stability of the company's earnings and dividends over the past 10 years. The final score for each stock is measured against a scoring matrix determined by an analysis of the scores of a large and representative sample of stocks. Shown below are the rankings:

A+	Highest
A	High
A-	Above average
B+	Average
B	Below Average
B-	Lower
C	Lowest
D	In Reorganization
NR	Not rated

MOODY'S BOND RATING

Moody's Bond Ratings assign a rating on the creditworthiness of an obligor. Such ratings reflect both the likelihood of default and any financial loss suffered in the event of a default. Shown below are the rankings:

Aaa Obligations rated Aaa are judged to be of the highest quality with minimal risk.

Aa Obligations rated Aa are judged to be of the high quality and are subject to low credit risk.

A Obligations rated A are considered upper-medium-grade and are subject to low credit risk.

Baa Obligations rated Baa are subject to moderate credit-risk. They are considered medium-grade and are subject to substantial credit risk.

Ba Obligations rated Baa are subject to have speculative and are subject to substantial credit risk.

B Obligations rated B are considered speculative and are subject to high credit risk.

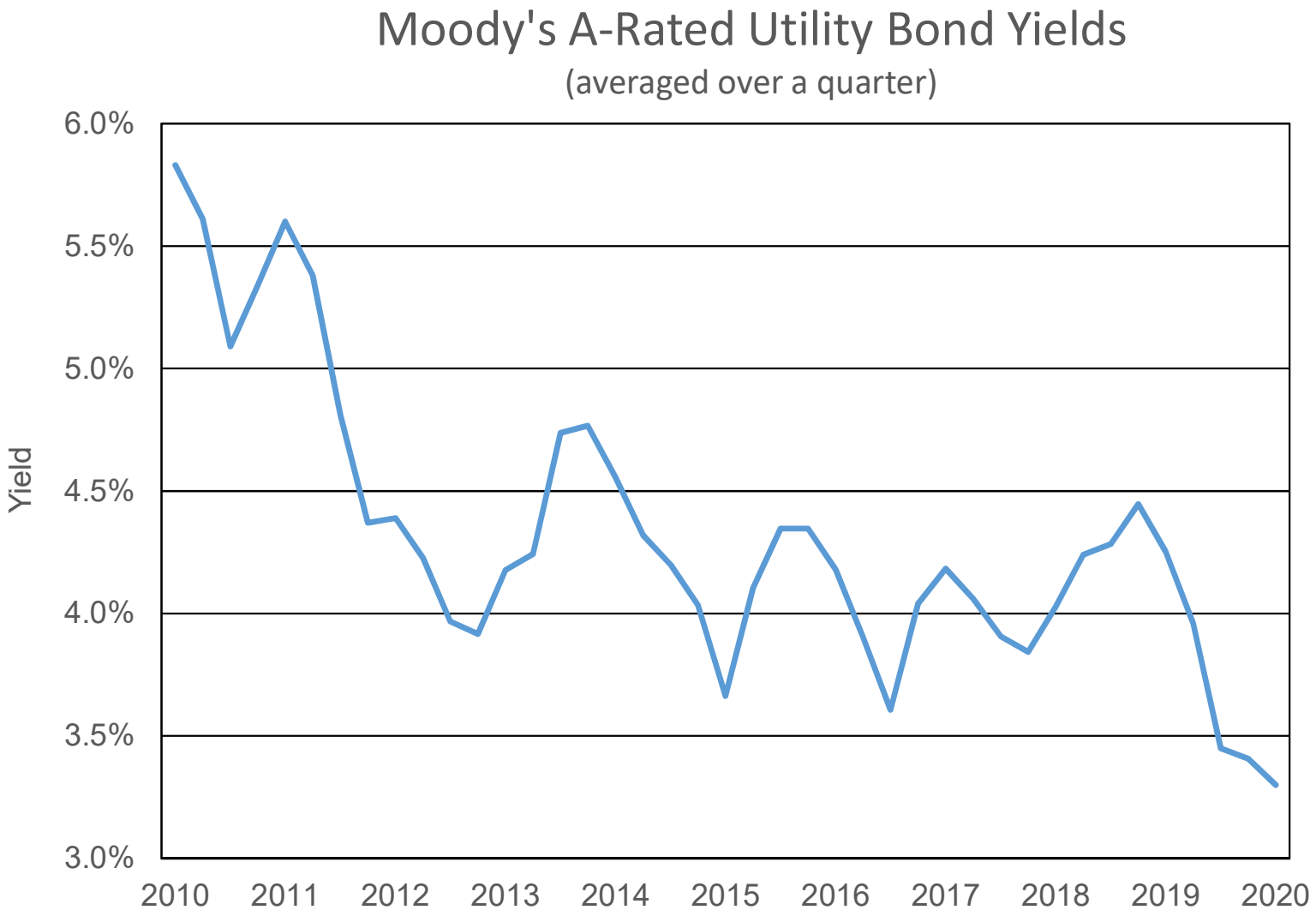
Caa Obligations rated Caa are judged to be of poor standing and are subject to very high credit risk.

Ca Obligations rated Ca are highly speculative and are likely in, or very near default with some prospect of recovery in principle and interest.

C Obligations rated C are the lowest-grade class of bonds and are typically in default, with little prospect of recovery in principle and interest.

Sources:

1. Value Line Investment Analyzer, Version 3.0.15a, New York, NY.
2. Standard & Poor's, Utility Compustat II, September 15, 1993, New York, NY.



Public Staff
Hinton Exhibit I

FINANCIAL FOCUS

Despite volatility, water utility valuation premiums persist

Monday, March 23, 2020 2:42 PM ET

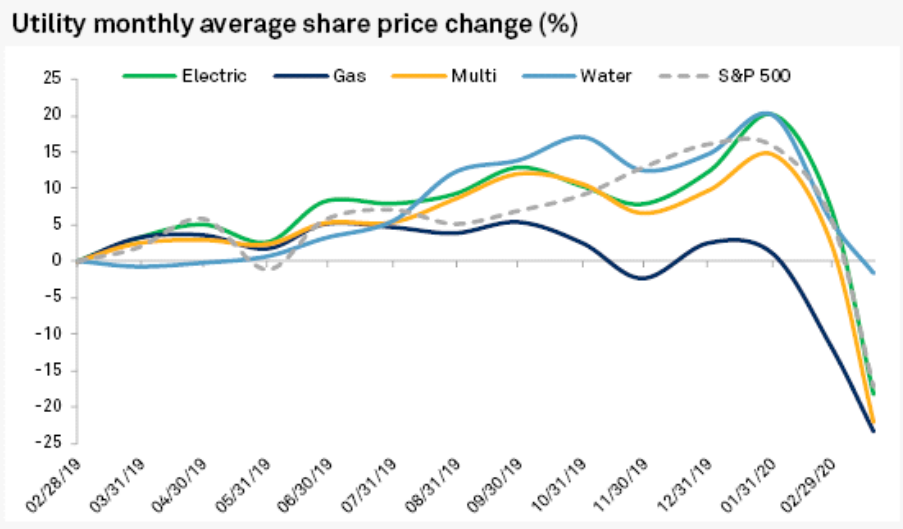
By Heike Doerr
Market Intelligence

As the stock markets have reacted negatively to the global coronavirus pandemic, water utility stocks have experienced increased volatility, while retaining their valuation premium compared to other utility subsectors.

Water utilities declined an average of 3.4% during the week of March 16 through March 20, while the broader utility group declined over 14%. Within the small water sector, individual stock performance varied widely, as California Water Service Group appreciated 15.8% while neighboring San Jose utility SJW Group declined by a similar amount.

On Friday, American Water Works Co. Inc. and Essential Utilities Inc. each declined 11-12%, in contract to mid-single-digit declines across the group. Earlier in the week, American States Water stood out in a sea of red trading, appreciating 18% to 20% on consecutive days with no fundamental news having surfaced.

Year-to-date, the Dow Jones Industrial Average has declined 32.8%, while the Dow Jones Utility Index has lost 26.5% of its value, through March 20. Water utilities have declined an average of 13.8% over the same time period and have been the top performers in March, across the 56 company group monitored by Regulatory Research Associates, led by American States Water and Cal Water.



Increased volatility

As measured by beta, the water utilities have the lowest volatility across the utility sectors, with an average water utility beta of 0.36. Beta is a measure of volatility that compares the risk of an individual stock in comparison to the wider risk of the entire market.

Electric utilities have an average beta of 0.43, similar to the multiutility group at 0.44, while the average beta for the natural gas utility group is quite higher at 0.62.

Betas for the group range from 0.16 for the smallest water utility Global Water Resources Inc. to 0.67 at Essential Utilities Inc., which recently completed its acquisition of Peoples Natural Gas, and mirrors the beta of the natural gas utility group.

Current valuation

Water utilities currently trade at price/earnings multiples of 27.6x and 25.5x for 2020 and 2021, respectively. This is approximately a 20% contractions from valuation levels in late February, when water utilities were trading at price/earnings multiples of 34.0x and 31.4x. Gas utility valuations have pulled back a similar amount, while electric and multiutility companies have seen valuation pullbacks close to 30%.

Electric utilities trade at P/E multiples of 14.4x and 13.6x, the multiutility group trades at 13.7x and 13x, and natural gas utilities trade at 15.8x and 15.1x for the comparable periods.

Water utilities have historically been considered largely recession-resistant, as residential customers, which comprise a large portion of water utility sales, do not tend to modify their water usage. Additionally, the group has a history of continuous dividend payments dating back decades. These eight utilities, and the many water utilities that have been acquired over the years, have not only been consistent dividend payers but also reliable sources of modest, dividend growth, favored by their strong retail shareholder base.

Water utility market data

Company	Ticker	Price 03/20/20 ($)	Market cap. ($M)	Avg. daily volume, LTM (millions)	Earnings per share ($)			Price/ earnings (x)		Dividend			Beta
					2019A	2020E	2021E	2020E	2021E	Rate ($)	Yield (%)	Payout (%)	
American States Water	AWR	86.00	3,170	0.232	2.08	2.28	2.34	37.7	36.8	1.22	1.42	58.6	0.26
American Water Works	AWK	100.69	18,222	1.043	3.62	3.86	4.23	26.1	23.8	2.00	1.99	55.3	0.27
Artesian Resources Corp.	ARTN.A	32.69	303	0.014	1.60	1.68	1.75	19.5	18.7	1.00	3.05	62.4	0.37
California Water Service Group	CWT	53.00	2,572	0.265	1.37	1.50	1.71	35.3	31.0	0.85	1.60	62.1	0.27
Essential Utilities	WTRG	34.92	8,554	1.437	1.48	1.46	1.65	23.9	21.2	0.94	2.68	63.4	0.67
Global Water Resources	GWRS	10.14	229	0.027	0.13	0.11	0.18	NM	NM	0.29	2.85	NA	0.16
Middlesex Water Co.	MSEX	56.86	991	0.065	1.99	2.05	2.19	27.7	26.0	1.03	1.80	51.6	0.41
SJW Group	SJW	52.67	1,501	0.118	2.00	2.32	2.51	22.7	21.0	1.28	2.43	64.0	0.47
The York Water Co.	YORW	36.93	481	0.032	1.11	NA	NA	NA	NA	0.72	1.95	64.9	0.34
Water utility average								**27.6**	**25.5**		**2.20**	**60.3**	**0.36**

As of March 20, 2020.
LTM = last-12-months; NA = not applicable; NM = not meaningful
Source: S&P Global Market Intelligence

Regulatory Research Associates is a group within S&P Global Market Intelligence.

For a complete, searchable listing of RRA's in-depth research and analysis, please go to the S&P Global Market Intelligence Energy Research Library.

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Investment Risk Measures

Group of Water Utility Companies

		Value Line[1]					S&P[2]	S&P[2]	S&P[3]	Moody's[3]
	Company Name	Safety Rank	Beta	Price Stability	Earnings Predict.	Financial Strength	S&P[2] Beta	Quality Ranking	Bond Rating	Bond Rating
1	American States Water	2	0.60	85	85	A	-0.03	A	A+	NA
2	American Water Works	3	0.50	100	80	B+	0.25	A-	A	Baa1
3	California Water Service	3	0.60	80	65	B++	0.16	A-	A+	NA
4	Essential Utilties	2	0.60	95	55	A	0.53	A	A	Baa2
5	Middlesex Water	2	0.70	65	75	B++	0.28	A	A	NA
6	SJW Group	3	0.60	70	45	B+	0.29	B+	A-	NA
7	York Water	3	0.65	65	95	B+	0.29	A	A-	NA
	Average	2.6	0.61	80	71		0.25			

Source:

[1] Value Line Investment Survey, Standard Edition, April 10, 2020

[2.] S&P Global Market Intelligence, CFRA Stock Report, April 9, 2020 - April 14, 2020

[3.] S&P Global Market Ratings, downloaded on April 16, 2020.

DCF ANALYSIS
Group of Water Utility Companies

	Company Name	Yield[1]	Value Line[2] Historical EPS 10-Yr	DPS 10-Yr	BPS 10-Yr	EPS 5-Yr	DPS 5-Yr	BPS 5-Yr	Value Line[2] Forecast EPS 5-Yr	DPS 5-Yr	BPS 5-Yr	Yahoo Forecast[3] EPS 5-Yr
1	Amer. States Water	1.5	9.5	8.0	5.5	5.0	7.5	4.0	6.5	9.5	5.5	6.0
2	Amer. Water Works[4]	1.6	45.5	16.0	2.5	6.5	10.5	4.0	8.5	8.5	5.0	8.2
3	California Water	1.6	4.5	2.5	4.5	4.5	3.5	4.5	6.5	5.5	1.0	9.8
4	Essential Utilties	2.2	7.0	7.5	8.0	1.5	8.0	9.0	10.0	7.5	6.5	6.4
5	Middlesex Water	1.7	8.0	2.5	4.5	12.0	4.0	6.0	6.0	5.5	1.5	2.7
6	SJW Group	2.0	8.0	4.5	5.5	18.5	5.0	8.0	6.0	7.0	6.5	14.0
7	York Water Co.	1.6	5.5	3.5	4.5	6.5	4.0	4.0	7.0	5.5	4.5	4.9
	Average	1.7	7.1	6.4	5.0	7.8	6.1	5.6	7.2	7.0	4.4	7.4
	Estimated Cost of Equity		8.8	8.1	6.7	9.5	7.8	7.4	9.0	8.7	6.1	9.2

Sources:

1. Value Line Investment Survey, Summary and Index from February 14, 2019 to May 8, 2020.
2. Value Line Investment Survey, Standard Edition, April 10, 2020.
3. Yahoo Earnings Forecast as of May 13, 2020.
4. American Water Works 45.5% 10-year EPS Growth Rate is excluded from the analysis.

Public Staff
Hinton Exhibit 4

REGRESSION ANALYSIS OF ALLOWED RETURNS ON EQUITY FOR WATER UTILITIES

Year	[A] Water Utilities Approved Returns on Equity[1]	[B] Moody's A-Rated Bond Yields[2]	[C]=[A]-[B] Water Utility Risk Premium
2006	10.23%	6.07%	4.16%
2007	10.07%	6.05%	4.02%
2008	10.24%	6.51%	3.73%
2009	10.18%	6.04%	4.14%
2010	10.18%	5.47%	4.71%
2011	10.04%	5.04%	5.00%
2012	9.90%	4.13%	5.77%
2013	9.73%	4.48%	5.25%
2014	9.59%	4.28%	5.31%
2015	9.76%	4.12%	5.64%
2016	9.71%	3.93%	5.78%
2017	9.56%	4.00%	5.56%
2018	9.41%	4.25%	5.16%
2019	9.37%	3.77%	5.60%
2020	9.27%[3]	3.30%[4]	5.97%
		Average	5.05%
		Maximum	5.97%
		Minimun	3.73%

Sources:

[1] Regulatory Research Associates, Water Advisory, February 4, 2020.

[2] Moody's Credittrends.

[3.] S&P Global Market Intelligence, Water utility ROE declines due to unfavorable SC decision, May 11, 2020. The 9.27% is the average of 9.50% for CWSNC, 9.50% for SUEZ Water of Delaware, and the 8.80% for SUEZ Water of New York.

[4.] Average yield data for the first quarter 2020.

REGRESSION ANALYSIS OF ALLOWED RETURNS ON EQUITY FOR WATER UTILITIES

Regression Statistics	
Multiple R	0.90098817
R Square	0.81177969
Adjusted R Square	0.7973012
Standard Error	0.00149232
Observations	15

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.000124865	0.00012486	56.068	4.57863E-06
Residual	13	2.89513E-05	2.227E-06		
Total	14	0.000153816			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.08414377	0.001911108	44.0287953	1.55E-15
X Variable 1	0.29429372	0.039302798	7.48785665	4.58E-06

	A-Rated Public Utility Bond Yield
Oct-19	3.39%
Nov-19	3.43%
Dec-19	3.40%
Jan-20	3.29%
Feb-20	3.11%
Mar-20	3.50%
Average	3.35%

Predicted Cost of Equity **9.40%**

Note:
Predicted Cost of Equity of 9.40% = 0.084144 + 0.294294 x 3.35%.

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COMMISSION APPROVED COMMON EQUITY RATIOS

State	Utility	Docket No.	Order date	Equity Ratio
IA	Iowa American Water Co.	RPU-2013-0002	2/28/14	52.57%
NC	Carolina Water Service of NC	W-354,Sub 336.	3/10/14	50.27%
NC	Aqua North Carolina	W-218, Sub 363	5/2/14	50.00%
HI	Waikoloa Utilities	2011-0331	5/23/14	50.00%
NJ	Middlesex Water Co.	WR-13111059	6/18/14	50.71%
NY	SUEZ Water New York Inc.	13-W-0295	6/24/14	44.00%
NY	SUEZ Water Westchester	13-W-0564	6/24/14	47.00%
DE	Tidewater Utilities, Inc.	13-466	8/19/14	50.96%
NJ	Aqua New Jersey	WR-14010019	8/20/14	52.47%
OH	Aqua Ohio Water Co.	13-2124-WW-AIR	9/10/14	51.60%
NY	SUEZ Water New Rochelle, Inc.	13-W-0539	11/14/14	47.00%
			Average	**49.69%**
HI	Waikoloa Water	2012-0148	2/19/15	50.00%
ME	Maine Water	2014-00349	3/11/15	48.50%
IL	Aqua Illinois	14-0419	3/25/15	53.26%
HI	Kona Water Service	2013-0375	6/29/15	53.00%
NJ	SUEZ Toms River	WR-15020269	8/19/15	53.00%
NJ	Middlesex Water Co.	WR-15030391	8/19/15	51.36%
NJ	New Jersey American Water Co.	WR-15010035	9/11/15	52.00%
NC	Carolina Water Service of NC	W-354, Sub 344	12/7/15	51.00%
			Average	**51.52%**
VA	Aqua Virginia, Inc.	PUE-2014-00045	1/7/16	49.20%
DE	Artesian Water	14-132	1/19/16	50.54%
NV	Utilities, Inc. of Central Nevada	15-06063	1/25/16	49.45%
WV	West Virginia American Water Co.	15-0676-W-42T	2/24/16	45.84%
NC	CWS Systems, Inc.	W-778 Sub 91	2/24/16	51.00%
NJ	SUEZ New Jersey Inc.	WR-15101177	4/27/16	53.00%
NJ	Aqua New Jersey	WR16010089	8/9/16	52.86%
HI	Hawaii Water Service	2015-0230	9/12/16	53.00%
IL	Illinois American Water Co.	16-0093	12/13/16	49.80%
			Average	**50.52%**
NY	SUEZ Water New York	C-16-W-0130	1/27/17	46.00%
IA	Iowa American Water	D-RPU-2016-0002	2/27/17	52.04%
NY	New York American Water Co.	C-16-W-0259	5/18/17	46.00%
VA	Virginia-American Water	C-PUE-2015-00097	5/24/17	46.09%
NC	Carolina Water Service, Inc. of NC	W-354 Sub 356	11/8/17	52.00%
			Average	**48.43%**
IL	Aqua Illinois	D-17-0259	3/7/18	53.22%
CA	California American Water Co.	A17-04-003	3/22/18	55.39%
CA	California Water Service Co.	A17-04-006	3/22/18	53.40%
CA	Golden State Water Co.	A17-04-002	3/22/18	57.00%
CA	San Jose Water Co.	A17-04-001	3/22/18	53.28%
NJ	Middlesex Water Co.	D-WR-17-101049	3/24/18	52.75%
SC	Carolina Water Service, Inc.	D-2017-292-WS	5/2/18	51.89%
NY	SUEZ Water Owego-Nicols Inc.	C-17-W-0528	7/13/18	46.00%
IL	Utility Services of IL. Inc. Water	D-17-1106	9/24/18	52.15%
IL	Utility Services of IL. Inc. Water/Water	D-17-1106	9/24/18	52.15%
RI	Suez Water Rhode Island	D-R-4800	10/5/18	53.91%
NJ	New Jersey American Water	D-WR-17-090985	10/29/18	54.00%
MD	Aquarion Water Co. of Mass.	D.P.U. 17-90	10/31/18	47.04%
NJ	SUEZ Water New Jersey	D-WR-18050593	11/19/18	54.00%
NC	Aqua North Carolina	D-W-218, Sub 497	12/18/18	50.00%
CA	Suburban Water Systems	A-18-05-004	12/20/18	60.00%
VA	Massanutten Public Service Corp.	C-PUR-2017-00069	12/21/18	52.19%
			Average	**52.85%**
HI	Hawaii Water Service	D-2017-0350	1/7/19	53.40%
MD	Maryland American Water	C-9487	2/5/19	48.66%
WV	West Virginia American Water Co.	C-18-0573-W-42T	2/8/19	49.79%
NC	Carolina Water Service of NC	D-W-354, Sub 360	2/21/19	50.91%
NJ	Aqua New Jersey	WR-18121351	5/28/19	53.00%
KY	Kentucky American Water Co.	2018-00358	6/27/19	48.76%
			Average	**50.75%**
			Average of Annual Averages	**50.81%**
			Average Across Years	**51.04%**

Public Staff
Hinton Exhibit 7

Aqua North Carolina, Inc.
Cost of Capital as of March 31, 2020

Item	Ratios	Cost Rate	Weighted Cost Rate	Pre-Tax Cost ofCapital
Long-Term Debt	50.00%	4.21%	2.11%	2.11%
Common Equity	50.00%	8.90%	4.45%	5.82%
Total	100.00%		6.56%	9.92%
		Pre-Tax Interest Coverage		3.7