DOCKET NO. W-354, SUB 344

TESTIMONY OF CALVIN C. CRAIG, III
ON BEHALF OF THE PUBLIC STAFF
NORTH CAROLINA UTILITIES COMMISSION

October 14, 2015

1 Q.   PLEASE STATE YOUR NAME, POSITION, AND BUSINESS

2   ADDRESS FOR THE RECORD.

3 A.   My name is Calvin C Craig, III. I am a Financial Analyst in the

4   Economic Research Division of the Public Staff of the North

5   Carolina Utilities Commission (Public Staff), representing the using

6   and consuming public. My business address is 430 North Salisbury

7   Street, Raleigh, North Carolina 27603.

8 Q.   PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND AND

9   RELEVANT EMPLOYMENT EXPERIENCE.

10 A.   I received a Bachelor of Science degree in Industrial Relations from

11   the University of North Carolina at Chapel Hill in 1985, an MBA

12   degree from East Carolina University in 1993, and a Juris Doctor

13   degree from North Carolina Central University in 2006.   Since

14   joining the Public Staff in November 1995, I have been involved

15   with natural gas expansion projects, have conducted rate of return

16   studies, and have filed affidavits assessing financial viability and a

17   fair rate of return in numerous water and wastewater utility rate

18   cases.

1   Q.   **WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**

2   **PROCEEDING?**

3   A.   The purpose of my testimony in this proceeding is to address the

4   fair rate of return 8.20%, specifically the return on equity

5   component of 9.75%, agreed to in the Stipulation between Carolina

6   Water Service, Inc. of North Carolina (CWSNC or Company), a

7   wholly owned subsidiary of Utilities, Inc., and the Public Staff and to

8   provide support for the Public Staff's position that the return on

9   equity component is just and reasonable for use as a basis for

10   adjusting the water and sewer rates of the Company's system

11   involved in this docket.

12   Q.   **HOW IS YOUR TESTIMONY STRUCTURED?**

13   A.   My testimony is presented in the following five sections:

14   I.   Legal and Economic Guidelines for Fair Rate of Return

15   II.   Present Financial Market Conditions

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

17   IV.   The Cost of Common Equity

18   V.   Overall Recommended Cost of Capital

I. LEGAL AND ECONOMIC GUIDELINES FOR FAIR RATE OF RETURN

1

2 **Q.   ARE THERE ANY LEGAL AND ECONOMIC GUIDELINES TO**

3 **FOLLOW WHEN DETERMINING THE COST OF CAPITAL TO A**

4 **PUBLIC UTILITY?**

5 A.   Yes. In <u>Federal Power Comm'n v. Hope Natural Gas Co.</u>, 320 U.S.

6   591 (1944), the U.S. Supreme Court stated:

7   [T]he return to the equity owner should be

8   commensurate with returns on investments in other

9   enterprises having corresponding risks. That return,

10   moreover, should be sufficient to assure confidence in

11   the financial integrity of the enterprise, so as to

12   maintain its credit and to attract capital. Id. at 603.

13   In <u>Bluefield Water Works & Improvement Co. v. Public Serv.</u>

14   <u>Comm'n of West Virginia</u>, 262 U.S. 679 (1923), the U S. Supreme

15   Court stated:

16   A public utility is entitled to such rates as will permit it

17   to earn a return on the value of the property which it

18   employs for the convenience of the public equal to

19   that generally being made at the same time and in the

20   same general part of the country on investments in

1   other business undertakings which are attended by

2   corresponding risks and uncertainties; but it has no

3   constitutional right to profits such as are realized or

4   anticipated in highly profitable enterprises or

5   speculative ventures. The return should be

6   reasonably sufficient to assure confidence in the

7   financial soundness of the utility and should be

8   adequate, under efficient and economical

9   management, to maintain and support its credit and

10   enable it to raise the money necessary for the proper

11   discharge of its public duties. A rate of return may be

12   reasonable at one time and become too high or too

13   low by changes affecting opportunities for investment,

14   the money market and business conditions generally.

15   Id. at 692-93.

16   These two decisions recognize that utilities are competing for the

17   capital of investors and provide legal guidelines as to how the

18   allowed rate of return should be set. The decisions specifically

19   speak to the standards or criteria of capital attraction, financial

20   integrity, and comparable earnings. The Hope decision, in

21   particular, recognizes that the cost of common equity is

22   commensurate with risk relative to investments in other enterprises.

1   In competitive capital markets, the required return on common

2   equity will be the expected return foregone by not investing in

3   alternative investments of comparable risk. For the utility to attract

4   capital, possess financial integrity, and exhibit comparable

5   earnings, the return allowed on a utility's common equity should be

6   that return required by investors for stocks with comparable risk.

7   It is widely recognized that a public utility should be allowed a rate

8   of return on capital which, under prudent management, will allow

9   the utility to meet the criteria or standards referenced by the <u>Hope</u>

10   and <u>Bluefield</u> decisions. If the allowed rate of return is set too high,

11   consumers are burdened with excessive costs, current investors

12   receive a windfall, and the utility has an incentive to overinvest. If

13   the return is set too low, and the utility is not able to attract capital

14   on reasonable terms to invest in capital improvements for its

15   service area, and its future service obligations may be impaired.

16   Because a public utility is capital intensive, the cost of capital is a

17   very large part of its overall revenue requirement and is a crucial

18   issue for a company and its ratepayers.

19   Q.   WHAT IS A FAIR RATE OF RETURN?

20   A.   The fair rate of return is simply a percentage, which, when

21   multiplied by a utility's rate base investment, will yield the dollars of

1   net operating income a utility should have the opportunity to earn.

2   This dollar amount of net operating income is available to pay the

3   interest cost on a utility's debt and a return to the common equity

4   investor. The fair rate of return multiplied by the utility's rate base

5   yields the dollars a utility needs to recover in order to earn for

6   investors the cost of capital.

7 Q. **HOW DID YOU DETERMINE THE FAIR RATE OF RETURN THAT**

8   **YOU RECOMMEND IN THIS PROCEEDING?**

9 A. To determine the fair rate of return that I recommend, I performed a

10   cost of capital study consisting of three steps. First, I determined

11   the appropriate capital structure for ratemaking purposes, i.e., the

12   proper proportions of each form of financial capital. Utilities

13   normally finance assets with debt and common equity. Because

14   each of these forms of capital have different costs, especially after

15   income tax considerations, the relative amounts of each form

16   employed to finance the assets can have a significant influence on

17   the overall cost of capital, revenue requirements, and rates. Thus,

18   the determination of the appropriate capital structure for ratemaking

19   purposes is important to the utility and to ratepayers.

20   Second, I determined the cost rate of each form of financial capital.

21   The individual debt issues have contractual agreements explicitly

1   stating the cost of each issue. The embedded annual cost of debt

2   may be calculated by simply considering these agreements and the

3   utility's books and records. The cost of common equity is more

4   difficult to determine, however, because it reflects common equity

5   investors' expectations. Various economic and financial models or

6   methods are available to measure the cost of common equity.

7   Third, by combining the appropriate capital structure ratios for

8   ratemaking purposes with the associated cost rates, I calculated an

9   overall weighted cost of capital or fair rate of return to the utility.

10   II. PRESENT FINANCIAL MARKET CONDITIONS

11 Q.   CAN YOU BRIEFLY DESCRIBE CURRENT FINANCIAL MARKET

12   CONDITIONS?

13 A.   Yes. After dropping several hundred basis points since 2009, the

14   cost of financing has remained relatively stable over the past three

15   years. According to the issue of Credit Trends by Moody's Investors

16   Service, Inc., yields on long-term "A" rated public utility bonds are

17   4.55% for the month-ending July, 2015; as compared to 4.28%

18   average yield for 2014, 4.48% for 2013, and 4.13% for 2012 as

19   shown in Exhibit CCC-1.

20   The economic outlook for national economy and for North Carolina

21   continues to show improvement as indicated by the second quarter

1   2015 US annualized gross domestic product (GDP) growth of 3.7

2   percent and a 1.0 percent growth in personal income for the nation

3   and for NC as of the first quarter of 2015. Dr. Michael Walden[1] of

4   North Carolina State University predicts that the positive economic

5   trends will continue throughout 2015.

6 Q. **HOW DO THESE LOWER INTEREST RATES AFFECT THE**

7   **FINANCING COSTS OF A COMPANY?**

8 A. In simple terms, the current lower interest rates and stable

9   inflationary environment of today, relative to the early 1990's,

10   indicate that borrowers are paying less for the time value of money.

11   This finding is significant since utility stocks and utility costs of capital

12   are highly interest rate-sensitive relative to most industries within the

13   securities markets.

14 III. APPROPRIATE CAPITAL STRUCTURE AND COST OF LONG TERM
15   DEBT

16 Q. **WHY IS THE ISSUE OF THE APPROPRIATE CAPITAL**

17   **STRUCTURE IMPORTANT FOR RATEMAKING PURPOSES?**

18 A. For companies that do not have monopoly power, the price that an

19   individual company charges for its products or services is set in a

20   competitive market and that price is generally not influenced by the

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1 Bracken, David "Forecast: NC economic growth poised to accelerate over the remainder of 2015", The News & Observer, June 29, 2015.

1   company's capital structure. However, the capital structure that is

2   determined appropriate for a regulated public utility has a direct

3   bearing on the fair rate of return, revenue requirements, and,

4   therefore, the prices charged to captive ratepayers.

5 Q. PLEASE EXPLAIN THE TERM CAPITAL STRUCTURE AND

6   HOW THE CAPITAL STRUCTURE APPROVED FOR

7   RATEMAKING PURPOSES AFFECTS RATES.

8 A. The capital structure is simply a representation of how a utility's

9   assets are financed. It is the relative proportions or ratios of debt

10   and common equity to the total of these forms of capital. It is

11   important to note at this point that debt and common equity have

12   different costs. Common equity is far more expensive than debt for

13   ratemaking purposes for two reasons. First, and most important,

14   are income tax considerations. Interest on debt is deductible for

15   purposes of calculating income taxes. The cost of common equity

16   must be "grossed up" to allow the utility sufficient revenue to pay

17   income taxes and to earn its cost of common equity on a net or

18   after-tax basis. Therefore, the amount of revenue the utility must

19   collect from ratepayers to meet income tax obligations is directly

20   related to both the common equity ratio in the capital structure and

21   cost of common equity. A second reason for this cost difference is

22   that the cost of common equity must be set at a marginal or current

1   cost rate. Conversely, the cost of debt is set at an embedded rate,

2   because the utility is incurring only the costs previously established

3   in contracts with senior security holders.

4   Because the Commission has the duty to promote economical

5   utility service, it must decide whether or not a utility's requested

6   capital structure is appropriate for ratemaking purposes. Each

7   dollar of its common equity, and long term debt which supports the

8   retail rate base has the following approximate annual costs

9   (including income tax and regulatory fee expense) to CWSNC's

10 ratepayers:

11 (1)   Each $1 of common equity costs ratepayers 15 cents per

12   year.

13 (2)   Each $1 of long term debt costs ratepayers 7 cents per year.

14 Q. **WHAT IS YOUR RECOMMENDED CAPITAL STRUCTURE AND**

15   **RECOMMENDED EMBEDDED COST OF LONG TERM DEBT?**

16 A. The Company's application listed its capital structure as consisting

17   of 48.97% long-term debt and 51.03% common equity. In this

18   proceeding, through discovery, it was determined that the Company

19   was in position to update its capital structure to 48.61% long-term

20   debt and 51.39% common equity. As part of the overall Stipulation,

21   the Company agreed to a lower cost capital structure consisting of

1   49% long-term debt and 51% common equity. I recommend a

2   hypothetical capital structure for Utilities, Inc., which is the parent

3   company of Carolina Water Service, Inc. of North Carolina. The

4   recommended capital structure and embedded cost of long term

5   debt are as follows:

Component	Ratio	Cost Rate
Long Term Debt	49.00%	6.60%
Common Equity	51.00%	-
Total	100.00%	

6

7

8

9

10   III. THE COST OF COMMON EQUITY

11 Q. **HOW DID YOU DETERMINE THE COST OF COMMON EQUITY**

12   **CAPITAL FOR THE COMPANY?**

13 A. I have employed the discounted cash flow (DCF) model for water

14   and local natural gas distribution companies (LDCs), the risk

15   premium method using a regression analysis of allowed returns for

16   LDCs and the comparable earnings analysis on a comparable

17   group of water utilities.

18 Q. **WOULD YOU PLEASE DESCRIBE THE DCF MODEL?**

19 A. The discounted cash flow model is a method of evaluating the

20   expected cash flows from an investment by giving appropriate

21   consideration to the time value of money. The theory dictates that

1   the price of the investment will equal the discounted cash flows of

2   returns. The return to an equity investor comes in the form of

3   expected future dividends and price appreciation. However, as the

4   new price will again be the sum of the discounted cash flows, price

5   appreciation can be ignored and attention focused on the expected

6   stream of dividends. Mathematically, this relationship may be

7   expressed as follows:

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

9   g = expected growth rate of dividends;

10   k = cost of equity capital; and

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

12   Then,

13
14   $$P = \frac{D_1}{1+k} + \frac{D_1(1+g)}{(1+k)^2} + \frac{D_1(1+g)^2}{(1+k)^3} + ... + \frac{D_1(1+g)^{t-1}}{(1+k)^t}$$
15

16   This equation represents the amount an investor would be willing to

17   pay for a share of common equity with a dividend stream over the

18   future periods. Using the formula for a sum of an infinite geometric

19   series, this equation may be reduced to:

20
21   $$P = \frac{D_1}{k-g}$$
22

12

1   Solving for k yields the DCF equation:

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

5   Therefore, the rate of return on equity capital required by investors

6   is the sum of the dividend yield (D_1/P) plus the expected long term

7   growth rate in dividends (g).

8   **Q.   DID YOU APPLY THE DCF METHOD DIRECTLY TO CWSNC?**

9   A.   No, because the common equity of CWSNC is not publically traded.

10   As such, I applied the DCF method to a comparable group of water

11   utilities and a group of natural gas distribution companies that are

12   comparable followed by Value Line Investment Survey (Value Line)

13   that exhibit comparable measure of investor-related risk measures

14   as shown in Exhibit CCC-2.

15   **Q.   WHY DID YOU CONSIDER THE COST OF EQUITY FOR A**

16   **GROUP OF COMPANIES COMPARABLE IN RISK TO**

17   **CWSNC?**

18   A.   The cost of equity capital is a cost borne by firms whose equity

19   shares are considered to be risk-comparable investments.   In

20   order to estimate the investor required rate of return for

21   CWSNC, I performed a DCF analysis on comparable risk

13

1   companies. Use of a comparable risk group reduces the

2   possibility of error in judgment, can be used as a check, and

3   also insures that the standards and criteria of the <u>Hope</u> and

4   <u>Bluefield</u> cases are met.

5 Q. **HOW DID YOU DETERMINE THE DIVIDEND YIELD**

6   **COMPONENT OF THE DCF?**

7 A. I calculated the dividend yield by using the <u>Value Line</u> estimate of

8   dividends to be declared over the next 12 months divided by the

9   price of the stock as reported in the <u>Value Line</u> Summary and Index

10   sections for each week of the 13-week period from April 10, 2015

11   through July 3, 2015. A 13-week averaging period tends to smooth

12   out short-term variations in the stock prices. This process resulted

13   in a 2.7% average dividend yield for the comparable group of water

14   utilities.

15 Q. **HOW DID YOU DETERMINE THE EXPECTED GROWTH RATE**

16   **COMPONENT OF THE DCF?**

17 A. I employed the growth rates of the comparable group in earnings

18   per share (EPS), dividend per share (DPS), and book value per

19   share (BPS) as reported in <u>Value Line</u> over the past five and ten

20   years. They apply a smoothing process in an attempt to avoid the

1   distortion that may be associated with choosing an

2   unrepresentative high or low beginning or ending point.

3   Secondly, I employed the forecasts of the growth rates of the

4   comparable groups in EPS, DPS, and BPS as also reported in

5   Value Line.   These forecasts are prepared by analysts of an

6   independent advisory service.   This service is widely available to

7   investors and should also provide an estimate of investor

8   expectations.

9   Thirdly, I incorporated the consensus of various analysts' forecasts

10   of five-year EPS growth rates projections as reported in Yahoo

11   Finance.   On Exhibit CCC-3, I have presented the dividend yields

12   and growth rates as described above for each of the companies

13   individually as well as average for the group.

14   Q.   **WHAT IS YOUR CONCLUSION REGARDING THE COST OF**

15   **COMMON EQUITY TO THE COMPANY BASED ON THE DCF**

16   **METHOD?**

17   A.   Based upon the DCF results for the comparable group of water

18   utilities, I determined that the cost of common equity is within the

19   range of 8.2% to 9.2%.   This range is consistent with a dividend

20   yield of 2.7% and an expected growth rate of 5.5% to 6.5%.

1 Q. **PLEASE DESCRIBE THE RISK PREMIUM METHOD BASED ON**

2 **COMMISSION APPROVED ALLOWED RETURNS OF EQUITY.**

3 A. I used a regression analysis to analyze the historical relationship

4 between approved returns on common equity for LDC public

5 utilities and yields on utility bonds. The regression analysis

6 incorporates annual average allowed returns as reported by

7 Regulatory Research and Associates (RRA) and the annual

8 average single 'A' rated public utility bond yields as reported by

9 Moody's Investor Service (Moody's). Using the last three months of

10 'A' rated bond yields, the regression analysis generates a prediction

11 of the current allowed return of equity and the associated risk

12 premium.

13 The method was relied upon by this Commission in Docket No.

14 E-22, Sub 333, a 1993 general rate case of North Carolina Power,

15 and Docket No. G-5, Sub 327, a 1994 general rate case of Public

16 Service Company of North Carolina. This method has been used in

17 filings by the Public Staff in previous general rate cases that were

18 ultimately settled. The method has been used in annual formula

19 rate plans for LDCs[2] regulated by the Mississippi Public Service

20 Commission for over ten years and the method has used in filings

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[2] Mississippi Valley Gas, Docket No. 92-UN-230; Willmut Gas & Oil Co., Docket 01-UN-0524.

1   by the Staff of the Federal Energy Regulatory Commission in

2   litigated rate cases.

3 **Q.** **WHAT DID YOU CONCLUDE FROM THE ANALYSIS OF**

4   **ALLOWED RETURNS AND UTILITY BOND YIELDS?**

5 **A.** Based on current Moody's single "A' rated utility bonds yields and

6   the regression equation, the predicted return on common equity is

7   9.66%, as shown in Exhibit CCC-4b. This result is derived by

8   adding the value for the intercept coefficient (0.07646) to the value

9   of the x variable coefficient (0.45964), and multiplying the result by

10   the average bond yield for "A" rated bonds during the past 90 days

11   (4.37%).

12 **Q.** **DID YOU USE THE COMPARABLE EARNINGS METHOD?**

13 **A.** Yes. I used the comparable earnings method to review actual earned

14   returns that are available to investors in the capital markets as a

15   method to check the results of my DCF analysis.

16 **Q.** **PLEASE EXPLAIN THE BASIS FOR THIS METHOD.**

17 **A.** The approach is based upon the Hope case cited earlier in my

18   testimony, which maintains that an investor should be able to earn a

19   return comparable to the returns available on alternative investments

20   with similar risks.

1 Q. **WHAT ARE SOME OF THE STRENGTHS AND WEAKNESSES**

2   **INHERENT IN THE COMPARABLE EARNINGS APPROACH?**

3 A. A strength of this method is that information on earned returns on

4   common equity is widely available to investors and it is believed that

5   investors use earned returns as a guide in determining an expected

6   return on an investment. A weakness is that actual earned rates of

7   return can be impacted by items outside the company's control, such

8   as with weather and inflation.

9 Q. **PLEASE DESCRIBE YOUR COMPARABLE EARNING METHOD.**

10 A. I examined the earned returns on common equity as reported in Value

11   Line for the water utility industry.

12 Q. **WHAT DID YOU CONCLUDE FROM YOUR COMPARABLE**

13   **EARNINGS ANALYSIS OF THE GROUP OF COMPARABLE**

14   **WATER UTILITIES?**

15 A. Based on the average earned rates of return from 2007-2015 as

16   shown in Exhibit CCC-5, I conclude that the cost of equity using the

17   comparable earnings analysis is in the range of 8.70% to 9.80%.The

18   low end of this range of estimates is based on the average return and

19   the median return for the years 2007-2012 of 8.60% and 8.70% and

20   high end of this range is based on the average return and the median

18

1   return for the three most recent years (2013-2015) of 10.20% and

2   9.50%, respectively.

3 Q. **BASED UPON YOUR DCF, RISK PREMIUM, AND COMPABLE**

4   **EARNINGS METHODS, WHAT IS YOUR RECOMMENDED COST**

5   **OF EQUITY FOR CWSNC?**

6 A. Based on the results of the three methods, I conclude that a

7   reasonable range of estimates for the cost of equity is between

8   8.80% and 9.80%.

9 Q. **HAS CWSNC FILED A THREE-YEAR PLAN FOR WATER**

10   **SYSTEM OR SEWER SYSTEM IMPROVEMENT CHARGES**

11   **(WSIC/SSIC)?**

12 A. Yes. CWSNC's current three year plan projects $1.79 Million of

13   capital improvements.

14 Q. **TO WHAT EXTENT DOES YOUR RECOMMENDED RATE OF**

15   **RETURN ON COMMON EQUITY TAKE INTO CONSIDERATION**

16   **THE IMPACT OF A WSIC/SSIC MECHANISM PURSUANT TO**

17   **G.S. 62-133.12 ON THE COMPANY'S FINANCIAL RISK?**

18 A. I believe the ability for enhanced recovery of the eligible

19   WSIC/SSIC capital improvements reduces regulatory lag and is

20   seen by investors as supportive regulation that mitigates risk.

1   However, a clear method does not exist to quantify the reduction in

2   risk and the return on equity from the investor perspective. As such,

3   I believe that this mechanism supports the reasonableness of my

4   recommendation.

5   **Q**   **DID YOU SUPPORT SETTLING WITH THE COMPANY AT 9.75%**

6   **RATE OF RETURN ON COMMON EQUITY?**

7   A.   CWSNC'S cost of capital expert witness Pauline Ahern's testimony

8   presents a specific return on common equity recommendation of

9   10.40%. Ms. Ahern's 10.40% includes a .40% upward business

10   risk adjustment to which the Public Staff completely disagrees. The

11   range of Ms. Ahern's return on company equity analyses included a

12   low of 8.52% discounted cash flow model and a high of 10.74% risk

13   premium model.

14   While the results of my study support a cost of equity between

15   8.80% and 9.80% and a mid point estimate of 9.30%, I believe that

16   the 9.75% return on common equity in the Stipulation represents a

17   reasonable compromise. The 9.75% should enable CWSNC by

18   sound management to produce a fair return for its shareholders,

19   considering economic conditions and other factors, as they now

20   exist, to maintain its facilities and services in accordance with the

21   reasonable requirements of its customers in the territories covered

1   by its franchises, and to compete in the market for capital funds

2   which are reasonable and which are fair to the customers and to its

3   existing investors.

4   IV.   OVERALL RECOMMENDED COST OF CAPITAL

5 Q. WHAT IS YOUR RECOMMENDED OVERALL RATE OF RETURN?

6 A.   The recommended cost of capital is 8.20%, as shown in Exhibit

7   CCC-7.

8 Q. DID YOU PERFORM ANY TESTS OF REASONABLNESS WITH

9   YOUR RECOMMENDED RETURN OF EQUITY AND OVERALL

10   COST OF CAPITAL?

11 A.   In regard to reasonableness assessment with financial risk, I

12   considered the pre-tax interest coverage ratio as a result of my cost

13   of capital recommendation. Based on the recommended capital

14   structure, cost of debt, and equity return of 9.75%, the pre-tax

15   interest coverage ratio is approximately 2.9 times. This level of pre-

16   tax interest coverage should allow the Company to qualify for a

17   "BBB" bond rating.

18 Q. TO WHAT EXTENT DOES THE RETURN ON EQUITY AGREED

19   TO IN THE STIPULATION TAKE INTO CONSIDERATION THE

1   **IMPACT OF CHANGING ECONOMIC CONDITIONS ON THE**

2   **CWSNC CUSTOMERS?**

3   A.   I am aware of no clear numerical basis for quantifying the impact of

4   changing economic conditions on customers in determining an

5   appropriate return on equity in setting rates for a public utility.

6   Rather, the impact of changing economic conditions nationwide is

7   inherent in the methods and data used in my study to determine the

8   cost of equity for utilities that are comparable in risk to CWSNC. In

9   addition, customer testimony at the public hearings in this

10   proceeding focused on the amount of proposed rate increases in

11   the various service areas. There was no customer testimony on the

12   impact of changing economic conditions on the Company's cost of

13   equity capital.

14   In order to obtain information on the economic conditions in the

15   area served by CWSNC, I conducted a review of the data on total

16   personal income for the years 2008 through 2014 as complied by

17   the Bureau of Economic Analysis (BEA) and the Development Tier

18   Designations published by the North Carolina Department of

19   Commerce for the counties within the Company's service area

20   which have the greatest number of CWSNC customers. The

21   CWSNC service areas with larger numbers of CWSNC customers

22   include subdivisions in Currituck, Dare, Forsyth, Gaston, Iredell,

1   Johnston, Mecklenburg, Montgomery, Moore, Onslow, Pender,

2   Watauga and Wake counties.

3   The two largest counties within the Company's service area,

4   Mecklenburg and Wake, experienced growth in personal income of

5   more than 3.5% annually during the years 2008 through 2014, all of

6   the 13 CWSNC counties experienced growth in personal income

7   from 2008-2014, and the annual average for all 13 of the CWSNC

8   counties was 2.7%.

9   The 2015 County Tier Designations by the North Carolina

10   Department of Commerce for these 13 counties has only

11   Montgomery County as TIER 1, Currituck, Dare, Gaston and

12   Onslow are TIER 2, and Forsyth, Iredell, Johnston, Mecklenburg,

13   Moore, Pender, Watauga and Wake are TIER 3.

14   These 13 CWSNC counties have an average 5.9% July 2015

15   unemployment rate compared to North Carolina's statewide 6.3%

16   July 2015 unemployment rate. The unemployment rate in these 13

17   counties has dropped an average of 0.4% in the one year period

18   July 2014 to July 2015 as shown on CCC Exhibit 8, which

19   demonstrates the continued improvement in North Carolina's

20   economy.

1   The determination of the rate of return for regulatory proposes must

2   be based on the requirements of capital markets. However, as

3   noted by the North Carolina Supreme Court in recent decisions, it is

4   necessary to consider the impact of changing economic conditions

5   on consumers in general rate cases. As noted in the discussion on

6   present economic conditions, there are reasons to believe that the

7   economic conditions in the nation and in North Carolina will

8   continue to improve which should provide a benefit for many

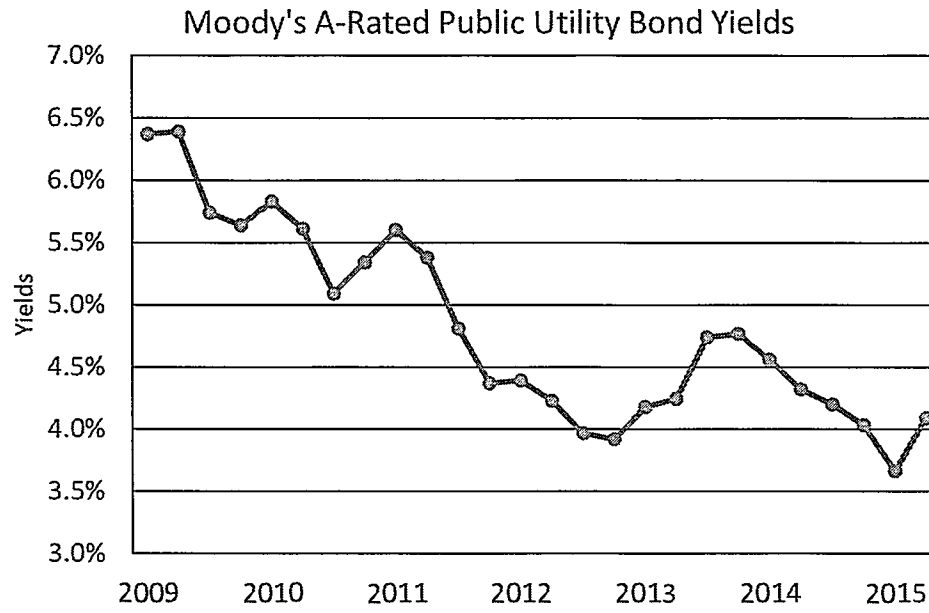9   CWSNC customers.

10   In any event, the Commission's duty to set rates as low as

11   reasonably possible consistent with constitutional constraints is the

12   same regardless of the customer's ability to pay, and this was the

13   principle underlying the Stipulation.

14   Q.   DOES THIS CONCLUDE YOUR TESTIMONY?

15   A.   Yes.

CCC-1

Moody's A-Rated Public Utility Bond Yields

Exhibit CCC-2

Risk Measures
Group of Water Utilities

Company Name	Value Line[1]				
	Safety	Beta	Price Stability	Earnings Predict.	Financial Strength
1 Amer. States Water	2	0.70	85	85	A
2 Amer. Water Works	3	0.70	100	25	B+
3 Aqua America	2	0.75	95	100	A
4 California Water	3	0.75	95	85	B++
5 Conn. Water Services	3	0.70	90	85	B+
6 Middlesex Water	2	0.75	90	80	B++
7 SJW Corp.	3	0.80	85	55	B+
8 York Water	3	0.75	85	95	B+
Average	2.6	0.74	91	76	

Source:
[1] Value Line Investment Survey, July 17, 2015.

Group of LDC Utilities

Company Name	Value Line[1]				
	Safety	Beta	Price Stability	Earnings Predict.	Financial Strength
1 AGL Resources	1	0.80	95	60	A
2 Atmos Energy	1	0.85	95	90	A
3 Laclede Gas	2	0.70	100	85	B++
4 New Jersery Resources	1	0.80	90	60	A+
5 NiSource	3	0.85	90	75	B+
6 Northwest Natural Gas	1	0.70	95	100	A
7 Piedmont Nat. Gas	2	0.80	95	95	B++
8 South Jersey inds.	2	0.85	95	95	A
9 Southwest Gas Corp	3	0.85	90	80	B++
10 UGI Corp.	2	0.95	90	75	B++
11 WGL Holdings	1	0.80	90	80	A
Average	1.7	0.81	93	81	

Source:
[1] Value Line Investment Survey, July 17, 2015.

Exhibit CCC-3

DCF Analysis

Group of Water Utilities

	Company Name	Yield[2]	Value Line[1] Historical						Value Line Forecast			Forecast[3]
			EPS 10-Yr	DPS 10-Yr	BPS 10-Yr	EPS 5-Yr	DPS 5-Yr	BPS 5-Yr	EPS 5-Yr	DPS 5-Yr	BPS 5-Yr	EPS 5-Yr
1	American States Water	2.3%	11.0%	5.5%	6.0%	14.0%	8.5%	6.5%	6.5%	8.0%	4.0%	5.0%
2	Amerirican Water Works	2.5%	NA	NA	NA	NA	21.5	0.5%	7.5%	8.0%	5.0%	7.5%
3	Aqua America	2.6%	8.5%	7.5%	7.5%	13.0%	7.0%	6.5%	8.0%	9.0%	5.5%	5.0%
4	California Water	2.8%	5.0%	1.5%	5.5%	4.0%	2.0%	5.0%	7.5%	7.0%	5.5%	5.0%
5	Conn. Water Services	3.0%	4.0%	2.0%	6.5%	9.0%	2.0%	9.5%	6.5%	4.5%	4.5%	5.0%
6	Middlesex Water	3.5%	4.0%	1.5%	4.5%	4.5%	1.5%	3.0%	5.0%	2.0%	2.5%	2.7%
7	SJW Corp	2.6%	6.5%	4.0%	6.0%	10.5%	3.0%	3.5%	6.5%	5.5%	5.0%	14.0%
8	York Water	2.6%	5.5%	4.0%	6.5%	6.0%	2.5%	4.5%	6.5%	5.0%	3.0%	4.9%
	Average	2.7%	6.4%	3.7%	6.1%	8.7%	3.8%	5.5%	6.8%	6.1%	4.4%	6.1%
	Cost of Equity		9.1%	6.5%	8.8%	11.5%	6.5%	8.2%	9.5%	8.9%	7.1%	8.9%

	Company Name	Yield[2]	Value Line[1] Historical						Value Line Forecast			Forecast[3]
			EPS 10-Yr	DPS 10-Yr	BPS 10-Yr	EPS 5-Yr	DPS 5-Yr	BPS 5-Yr	EPS 5-Yr	DPS 5-Yr	BPS 5-Yr	EPS 5-Yr
1	AGL Resources	4.1%	4.5%	5.5%	7.5%	3.0%	2.0%	6.5%	6.5%	4.5%	3.0%	N/A
2	Atmos Energy	3.0%	5.0%	1.5%	6.0%	5.0%	2.0%	4.5%	7.0%	5.0%	4.5%	7.0%
3	Laclede Gas	3.5%	4.0%	2.5%	7.0%	-2.0%	3.0%	7.5%	10.0%	4.5%	7.5%	4.4%
4	New Jersery Resources	3.1%	6.5%	6.5%	8.0%	5.5%	8.5%	4.5%	2.5%	3.0%	6.5%	6.0%
5	NiSource	2.4%	-1.0%	-1.0%	1.0%	7.0%	1.5%	1.0%	9.0%	3.5%	5.5%	-2.3%
6	Northwest Natural Gas	4.0%	2.5%	3.5%	3.5%	-4.0%	3.5%	3.0%	7.0%	2.5%	3.5%	4.0%
7	Piedmont Nat. Gas	3.6%	5.0%	4.0%	5.0%	3.5%	3.5%	4.0%	3.0%	3.0%	4.0%	5.0%
8	South Jersey inds.	4.0%	8.0%	8.5%	8.5%	6.5%	10.0%	8.0%	8.5%	7.0%	6.5%	6.0%
9	Southwest Gas Corp	3.0%	8.5%	5.0%	5.0%	11.0%	8.0%	5.0%	6.0%	8.0%	4.5%	4.0%
10	UGI Corp.	2.6%	8.0%	7.0%	13.5%	3.0%	8.0%	10.0%	4.5%	5.0%	8.0%	6.4%
11	WGL Holdings	3.4%	3.5%	2.5%	4.0%	1.5%	3.0%	3.0%	5.5%	3.0%	3.5%	6.5%
	Average	3.3%	5.6%	4.7%	6.3%	5.1%	4.8%	5.2%	6.3%	4.5%	5.2%	5.5%
	Cost of Equity		8.9%	8.0%	9.6%	8.4%	8.1%	8.5%	9.6%	7.8%	8.5%	8.8%

Sources:

[1] Value Line Investment Survey, July 17, 2015.

[2] Value Line Investment Survey, Summary and Index, April 10, 2015 through July 3, 2015

[3] Yahoo Finance, Projected Five Year EPS Growth Estimates, downloaded on July 14, 2015..

Note: Average calculation excludes negative numbers.

Exhibit CCC-4a

Regression Analysis of Allowed Equity Returns

	Year	[A] LDC Approved Returns on Equity[1]	[B] Moody's A-Rated Bond Yields[2]	[C]=[A]-[B] LDC Risk Premium	Number of Cases
1	1991	12.46%	9.36%	3.10%	35
2	1992	12.01%	8.69%	3.32%	29
3	1993	11.35%	7.59%	3.76%	45
4	1994	11.35%	8.31%	3.04%	28
5	1995	11.43%	7.89%	3.54%	16
6	1996	11.19%	7.75%	3.44%	20
7	1997	11.29%	7.60%	3.70%	13
8	1998	11.51%	7.04%	4.47%	10
9	1999	10.66%	7.62%	3.04%	9
10	2000	11.39%	8.24%	3.15%	12
11	2001	10.95%	7.80%	3.15%	7
12	2002	11.03%	7.37%	3.66%	21
13	2003	10.99%	7.80%	3.19%	25
14	2004	10.59%	7.37%	3.22%	20
15	2005	10.46%	6.58%	3.88%	26
16	2006	10.43%	6.16%	4.27%	16
17	2007	10.24%	6.05%	4.19%	37
18	2008	10.37%	6.51%	3.86%	30
19	2009	10.19%	6.04%	4.16%	29
20	2010	10.08%	5.47%	4.61%	37
21	2011	9.92%	5.04%	4.88%	16
22	2012	9.94%	4.13%	5.81%	35
23	2013	9.68%	4.48%	5.20%	21
24	2014	9.78%	4.24%	5.54%	26
26	2015	9.45%	3.97%	5.48%	6

Sources:

[1] Regulatory Research Associates (RRA), Regulatory Focus, July 16, 2015.

[2] Moody's Credittrends, various issues.

Exhibit CCC-4b

Regression Statistics	
Multiple R	0.928659023
R Square	0.86240758
Adjusted R Square	0.856425301
Standard Error	0.002873132
Observations	25

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.001190027	0.00119	144.1604	2.18577E-11
Residual	23	0.000189862	8.25E-06		
Total	24	0.00137989			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.076464883	0.002648248	28.87376	1.43E-19
X Variable 1	0.459648096	0.038282696	12.00668	2.19E-11

	Moody's A-Rated Bond Yield
May-15	4.17%
Jun-15	4.39%
Jul-15	4.55%
Average	4.37%
Cost of Equity	9.66%

Exhibit CCC-5

Comparable Earnings Analysis

Group of Water Utilities

	Company	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	American States Water	9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.1%	11.5%
2	American Water Works	NA	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	8.5%
3	Aqua America	9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	13.0%
4	California Water	8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.0%	9.0%
5	Conn. Water Services	8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.0%
6	Middlesex Water	8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.0%	9.0%
7	SJW Corp.	8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	7.5%
8	York Water	9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%
	Average	8.9%	8.5%	7.9%	8.7%	8.8%	9.1%	9.5%	10.9%	10.0%

Source:
[1] Value Line Investment Survey, July 17, 2015.

Exhibit CCC-6

Method	Range of Reasonableness
1) DCF Model	8.2% to 9.2%
2) Risk Premium Model	9.66%
3) Comparable Earnings(3 year avg.)	8.70% to 9.80%.

Exhibit CCC-7

CWS Cost of Capital
as of April 30, 2015

Component	Ratio	Cost Rate	Weighted Cost Rate	Pre-Tax Cost of Capital
Long-Term Debt	49.0%	6.60%	3.23%	3.23%
Common Equity	51.0%	9.75%	4.97%	6.16%
Total Capitalization	100.0%		8.20%	9.40%

Pre-Tax Interest Coverage   2.9

Exhibit CCC-8

Unemployment Rates
Thirteen North Carolina Counties with Largest CWSNC Number of Customers

County	July 2014 Unemployment Rate Percent	July 2015 Unemployment Rate Percent	Percentage Change
Currituck	5.70%	5.60%	-1.75%
Dare	5.50%	5.00%	-9.09%
Forsyth	6.60%	6.20%	-6.06%
Gaston	7.00%	6.40%	-8.57%
Iredell	6.60%	5.90%	-10.61%
Johnston	6.00%	5.60%	-6.67%
Mecklenburg	6.50%	5.90%	-9.23%
Montgomery	7.00%	6.50%	-7.14%
Moore	6.50%	6.30%	-3.08%
Onslow	6.40%	6.40%	0.00%
Pender	7.40%	6.50%	-12.16%
Watauga	5.80%	5.60%	-3.45%
Wake	5.30%	5.20%	-1.89%
Average	6.3%	5.9%	-6.13%

Source: North Carolina Department of Commerce- Labor and Economic Analysis
Division, News Release September 1, 2015 Local Area Unemployment Statistics.