

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. W-354, SUB 400

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

IN THE MATTER OF
APPLICATION BY CAROLINA WATER SERVICE INC OF NORTH CAROLINA
FOR AUTHORITY TO ADJUST AND INCREASE RATES AND CHARGES FOR
WATER AND SEWER UTILITY SERVICE IN ALL SERVICE AREAS IN
NORTH CAROLINA AND APPROVAL OF A THREE-YEAR WATER AND
SEWER INVESTMENT PLAN

PREFILED REBUTTAL TESTIMONY OF

DYLAN W. D'ASCENDIS, CRRA, CVA
PARTNER
SCOTTMADDEN, INC.

ON BEHALF OF

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

November 10, 2022

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I. INTRODUCTION, PURPOSE, AND SUMMARY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dylan W. D’Ascendis. I am employed by ScottMadden, Inc., as a Partner. My business address is 3000 Atrium Way, Suite 200, Mount Laurel, NJ 08054.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this rebuttal testimony (referred to throughout as my “Rebuttal Testimony”) before the North Carolina Utilities Commission (“Commission”) on behalf of Carolina Water Services Inc. of North Carolina (“CWSNC” or the “Company”).

Q. DID YOU FILE DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I did.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my Rebuttal Testimony is two-fold; first, I update my analyses using market data as of October 14, 2022. Second, I respond to the Testimony of John R. Hinton (“Hinton Testimony”) and the Joint Testimony of John R. Hinton, Charles M. Junis, Kuei Fen Sun, and Fenge Zhang (“Joint Testimony”), who testify on behalf of the Public Staff – North Carolina Utilities Commission (“Public Staff”) as it relates to the Company’s return on common equity (“ROE”) in its North Carolina jurisdictional rate base.

1 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

2 A. My Rebuttal Testimony responds to the flaws in Mr. Hinton's determination
3 of his recommended ROE. Specifically, I disagree with Mr. Hinton's
4 applications of the discounted cash flow ("DCF") model and his risk
5 premium model ("RPM"), his failure to reflect the Company's smaller size
6 relative to his proxy group in his ROE recommendation, and his proposal to
7 lower the Company's ROE 20 basis points if its requested water and sewer
8 investment plan ("WSIP") is approved. I also respond to Mr. Hinton's
9 critiques of my Direct Testimony.

10 **Q. HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR**
11 **RECOMMENDATION?**

12 A. Yes. I have prepared D'Ascendis Rebuttal Exhibit No. 1, which contains
13 Schedules DWD-1R through DWD-6R, which has been prepared by me or
14 under my direction.

15 **II. UPDATED ANALYSES**

16 **Q. HAVE YOU UPDATED YOUR COST OF COMMON EQUITY ANALYSES**
17 **FOR YOUR REBUTTAL TESTIMONY?**

18 A. Yes, I have. Due to the passage of time since my Direct Testimony analysis
19 (data as of May 13, 2022), I have updated my analysis using data as of
20 October 14, 2022.

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Q. HAVE YOU UPDATED YOUR UTILITY PROXY GROUP FOR YOUR UPDATED ANALYSES?

A. Yes, I have. The York Water Company is no longer covered by *Value Line Investment Survey's* ("Value Line") Standard edition. As such, I have eliminated them from my updated Utility Proxy Group.

Q. HAVE YOU APPLIED ANY OF YOUR ROE MODELS DIFFERENTLY IN YOUR UPDATED ANALYSES?

A. No, I have not.

Q. WHAT ARE THE RESULTS OF YOUR UPDATED ANALYSES?

A. Using data available as of October 14, 2022, my updated results are presented on page 2 of Exhibit DWD-1R and in Table 1, below.

Table 1: Updated Cost of Common Equity Results

	Using Current Interest Rates	Using Projected 2023 Interest Rates	Using Projected 2024 Interest Rates	Using Projected 2025 Interest Rates
Discounted Cash Flow Model	10.12%	10.12%	10.12%	10.12%
Risk Premium Model	11.44%	12.01%	11.91%	11.88%
Capital Asset Pricing Model	11.75%	12.03%	12.00%	12.00%
Cost of Equity Models Applied to Comparable Risk, Non-Price Regulated Companies	<u>11.81%</u>	<u>12.08%</u>	<u>12.02%</u>	<u>12.02%</u>
Indicated Range	10.47% - 11.47%	10.60% - 11.60%	10.57% - 11.57%	10.57% - 11.57%
Size Adjustment	0.10%	0.10%	0.10%	0.10%
Indicated Range of Common Equity Cost Rates After Adjustment	10.57% - 11.57%	10.70% - 11.70%	10.67% - 11.67%	10.67% - 11.67%

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In view of the unadjusted and adjusted ranges of ROE, the Company maintains its requested ROE of 10.45% for the base year (“BY”) and 10.70% for each of the forecasted test years (“FY”). Upon reviewing my updated results, two items became apparent: (1) the indicated results of my ROE models have generally increased from my analyses presented in my Direct Testimony, which is a directional indicator that the investor-required return has increased since my Direct Testimony, and (2) since the Company’s requested ROEs of 10.45% for the BY and 10.70% for the FYs are at the bottom of my ranges of ROEs attributable to the Company (and in the case of the BY request below my indicated range of results), they are conservative measures of the Company’s ROE at this time.

Q. DO ECONOMIC CONDITIONS INFLUENCE THE REQUIRED COST OF CAPITAL AND REQUIRED RETURN ON COMMON EQUITY?

A. Yes. The models used to estimate the cost of equity are meant to reflect, and therefore are influenced by, current and expected capital market conditions. Therefore, it is important to assess the reasonableness of any financial model’s results in the context of observable market data.

Q. DOES YOUR UPDATED ROE ANALYSIS CONSIDER THE CURRENT CAPITAL MARKET ENVIRONMENT?

A. Yes, it does. From an analytical perspective, it is important that the inputs and assumptions used to arrive at a ROE recommendation, including assessments of capital market conditions, are consistent with the

1 recommendation itself. Although all analyses require an element of
2 judgment, the application of that judgment must be made in the context of
3 the quantitative and qualitative information available to the analyst and the
4 capital market environment in which the analyses were undertaken.

5 **Q. MR. HINTON SUMMARIZES THE COMPANY'S AUTHORIZED CAPITAL**
6 **STRUCTURE AND RATES OF RETURN FOR ITS LAST FOUR RATE**
7 **CASES ON PAGES 3 AND 4 OF HIS TESTIMONY. DO THOSE**
8 **AUTHORIZED RETURNS REFLECT CAPITAL MARKET CONDITIONS**
9 **AT THOSE PARTICULAR TIMES?**

10 A. Yes, they do.

11 **Q. WHAT ARE MARKET CONDITIONS NOW AS OPPOSED TO DURING**
12 **THE COMPANY'S LAST FOUR RATE CASES?**

13 A. Current capital market conditions are riskier now than during the Company's
14 last four rate cases. On Table 2, below, I have compared several measures
15 of risk throughout each of the Company's last four rate cases. They are (1)
16 proxy group average beta; (2) Fed Funds rate; (3) Average 30-year
17 Treasury bond yield; (4) the Coefficient of Variation ("CoV") of 30-year
18 Treasury bonds during the proceeding;¹ (5) Average A-rated public utility
19 bond yields; (6) the CoV of A-rated utility bond yields; (7) Average inflation
20 rate; (8) the annualized volatility² of the Utility Proxy Group; (9) the

¹ The Coefficient of Variation is used by investors and economists to determine volatility.

² The annualized standard deviation of daily price movements.

1 annualized volatility of the S&P 500; and (10) the average level of the
2 Chicago Board of Exchange's Volatility Index, or VIX.

3 **Table 2: Comparison of Risk Measures During the Pendency of the**
4 **Company's Last Four Rate Cases and the Instant Proceeding³**

	Sub 356	Sub 360	Sub 364	Sub 384	Sub 400
Average Beta	0.73	0.71	0.66	0.78	0.78
Fed Funds rate	0.75%- 1.25%	1.50%- 2.50%	0.00%- 2.50%	0.00%- 0.25%	1.50%- 4.00%
Average 30-year Treasury yield	2.86%	3.13%	2.14%	2.06%	3.33%
CoV of 30-year Treasury bond	1.95%	2.24%	5.79%	4.36%	4.13%
Moody's A-Rated Utility bond Yield	3.97%	4.34%	3.39%	3.25%	5.04%
CoV of Moody's A-Rated Utility bond	1.35%	1.27%	3.32%	3.03%	3.17%
Average Inflation rate (CPI)	1.96%	2.32%	1.96%	6.67%	8.32%
Annualized Proxy Group Volatility	19.97%	23.25%	47.61%	23.31%	26.66%
Annualized S&P500 Volatility	6.77%	15.97%	34.03%	15.97%	23.03%
VIX Index	10.99	16.47	20.25	20.92	25.65

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7 As show in Table 2, current measures of beta, the Fed Funds target
8 rate, 30-year Treasury bond yields, A-rated public utility bond yields, the
9 level of VIX, and the Consumer Price Index ("CPI") are all the highest of the
10 five most recent Company rate cases, indicating higher risk. The increase
11 in risk, and resultant investor required return from last rate case is also
12 reflected in Mr. Hinton's recommended ROE. In Sub 384, Mr. Hinton
13 recommended an ROE of 8.93%, over 50 basis points lower than his
14 present ROE recommendation of 9.45%.

³ Source: Federal Reserve Data Download Program, Bloomberg Professional Services, Value Line Investment Survey

1 **Q. PLEASE SUMMARIZE THE CURRENT CAPITAL MARKET**
2 **ENVIRONMENT FROM WHICH YOUR UPDATED ANALYSIS IS BASED.**

3 A. The economy is currently in an inflationary environment, as evidenced by
4 increased levels of the CPI as compared to the Federal Reserve's ("Fed")
5 traditional inflation target of 2.00%. Inflation can be characterized as an
6 imbalance of supply and demand in the economy, specifically, when
7 demand is in excess of supply. When demand is in excess of supply, the
8 cost of goods and services increase.

9 Part of the Fed's Congressional mandate is to mitigate inflation and
10 they have two main tools to achieve their mandate: (1) raising the Fed
11 Funds Rate; or (2) decreasing the size of their balance sheet. In Fed
12 Chairman Jerome H. Powell's Press Conference on November 2, 2022, he
13 indicated that the Fed has the resolve to use both tools to restore price
14 stability on behalf of American families and businesses.⁴

15 Overall, the current market environment can be summarized as one
16 with increasing inflation⁵, and expectations are that the Fed will implement
17 both of its tools in an attempt to limit inflation.

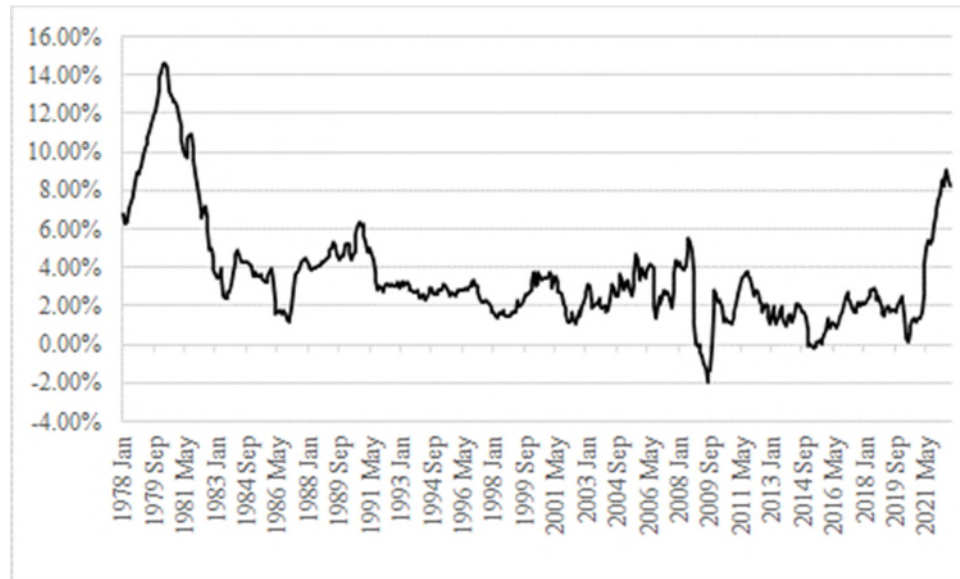
⁴ Transcript of Chair Powell's Press Conference, November 2, 2022.

⁵ As noted by Mr. Hinton on page 16 of his Direct Testimony.

1 **Q. HAS THE CPI RISEN RECENTLY?**

2 A. Yes, it has. As shown on Chart 1, the CPI has increased exponentially since
 3 the beginning of the pandemic, and more recently has experienced year-
 4 over-year increases not seen since the early 1980s.⁶

5 **Chart 1: Consumer Price Index Change, 1978-Current⁷**



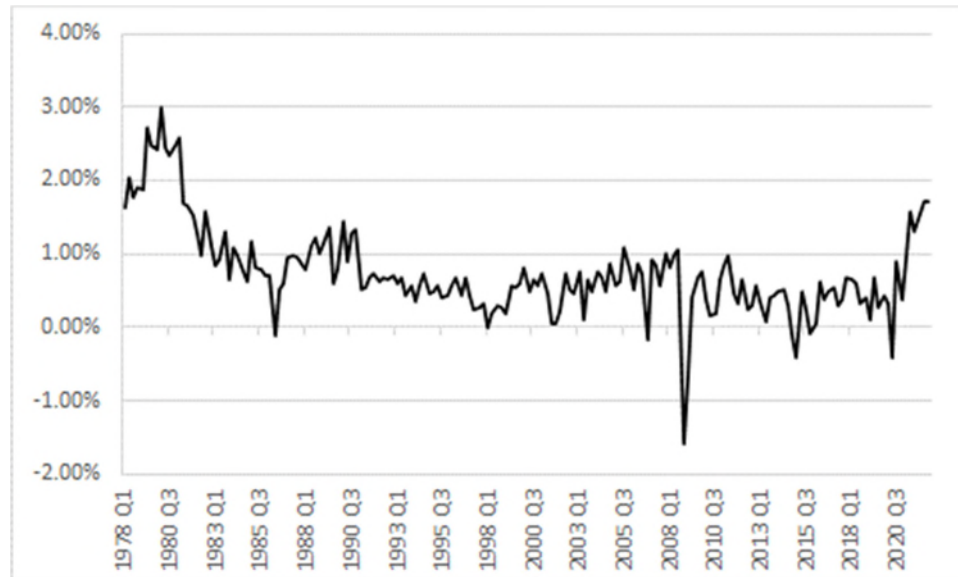
6 Further, looking to other measures of inflation such as the Personal
 7 Consumption Expenditures Index, both with and without food and energy
 8 costs, recent quarterly increases also are the highest they have been since
 9 the 1980s.⁸

6 Source: Bureau of Labor Statistics, Series Title: All items in U.S. city average, all urban consumers, seasonally adjusted, Series ID: CUSR0000SA0 (https://data.bls.gov/timeseries/CUSR0000SA0?output_view=pct_1mth).

7 Source: Bureau of Labor Statistics, Series Title: All items in U.S. city average, all urban consumers, seasonally adjusted, Series ID: CUSR0000SA0 (https://data.bls.gov/timeseries/CUSR0000SA0?output_view=pct_1mth).

8 Bureau of Economic Analysis. Table 2.3.4. Price Indexes for Personal Consumption Expenditures by Major Type of Product (<https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey>)

**Chart 2: Personal Consumption Expenditures Index Change,
1978-Current**



Given the rise in these measures as shown in Charts 1 & 2, even if inflation were to moderate to a degree, it would still remain significantly elevated compared to the last several years and the Fed's inflation target of 2.00%.

Q. IS INFLATION EXPECTED TO MODERATE TOWARDS THE FED'S TARGET OF 2.00% IN THE LONG TERM?

A. Yes, it is. In response to market conditions and Fed action, the 10- and 30-year breakeven inflation rates,⁹ represented as the 10-year and 30-year Treasury Inflation-Protected Securities ("TIPS") spreads are 2.41% and 2.33% as of October 14, 2022. These data are consistent with Mr. Powell's

⁹ The breakeven inflation rate is the market's determination of the level of inflation during the period it measures. For example, the 10-year breakeven inflation rate is the market's expectation of inflation over the next ten years.

1 statements in his November 2, 2022 press conference. Discussing the
2 anchoring¹⁰ of long-term inflation expectations, he warns: “But that [TIPS
3 spreads] is not grounds for complacency; the longer the current bout of high
4 inflation continues, the greater the chance that expectations of higher
5 inflation will become entrenched.”¹¹

6 Market-based inflation expectations like the breakeven inflation rate
7 are important benchmarks for the Fed. Michelle W. Bowman, Member of
8 the Board of Governors of the Federal Reserve System noted that:

9 One important factor that we often point to in driving
10 today’s spending decisions and inflation outlook are
11 expectations of future inflation. Near-term
12 expectations tend to rise as current inflation increases,
13 but when inflation expectations over the longer-term –
14 the next 5 to 10 years – begin to rise, it may indicate
15 that consumers and businesses have less confidence
16 in the Fed’s ability to address higher inflation and return
17 it to the Federal Open Market Committee’s (FOMC)
18 goal of 2 percent. If expectations move significantly
19 above our 2 percent goal, it would make it more difficult
20 to change people’s perceptions about the duration of
21 high inflation and potentially more difficult to get
22 inflation under control.¹²

23 **Q. HAS MR. POWELL DESCRIBED THE FED’S APPROACH TO BRING**
24 **INFLATION BACK TO ITS 2.00% TARGET?**

25 A. Yes, he has. During his press conference on November 2, 2022 Mr. Powell
26 stated:

¹⁰ Anchoring of inflation expectations is characterized as the market’s belief (as shown in market data) that inflation rates will normalize toward the Fed’s target of 2.00%.

¹¹ Transcript of Chair Powell’s Press Conference, November 2, 2022. [clarification added]

¹² Michelle W. Bowman, “The Outlook for Inflation and Monetary Policy”, At “Executive Officers Conference Massachusetts Bankers Association”, Harwich, Massachusetts, June 23, 2022.

1 My colleagues and I are strongly committed to bringing
2 inflation back down to our 2 percent goal. We have
3 both the tools that we need and the resolve it will take
4 to restore price stability on behalf of American families
5 and businesses.

6 ***

7 Today, the FOMC [Federal Open Market Committee]
8 raised our policy interest rate by 75 basis points, and
9 we continue to anticipate that ongoing increases will be
10 appropriate. We are moving our policy stance
11 purposefully to a level that will be sufficiently restrictive
12 to return inflation to 2 percent. In addition, we are
13 continuing the process of significantly reducing the size
14 of our balance sheet. Restoring price stability will likely
15 require maintaining a restrictive stance of policy for
16 some time.

17 ***

18 At some point, as I've said in the last two press
19 conferences, it will become appropriate to slow the
20 pace of increases, as we approach the level of interest
21 rates that will be sufficiently restrictive to bring inflation
22 down to our 2 percent goal. **There is significant
23 uncertainty around that level of interest rates.**
24 Even so, we still have some ways to go, and incoming
25 data since our last meeting suggest that the ultimate
26 level of interest rates will be higher than previously
27 expected.

28 ***

29 We are taking forceful steps to moderate demand so
30 that it comes into better alignment with supply. Our
31 overarching focus is using our tools to bring inflation
32 back down to our 2 percent goal and to keep longer-
33 term inflation expectations well anchored. Reducing
34 inflation is likely to require a sustained period of below-
35 trend growth and some softening of labor market
36 conditions. Restoring price stability is essential to set
37 the stage for achieving maximum employment and
38 stable prices in the longer run. The historical record

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cautions strongly against prematurely loosening policy.
We will stay the course, until the job is done¹³

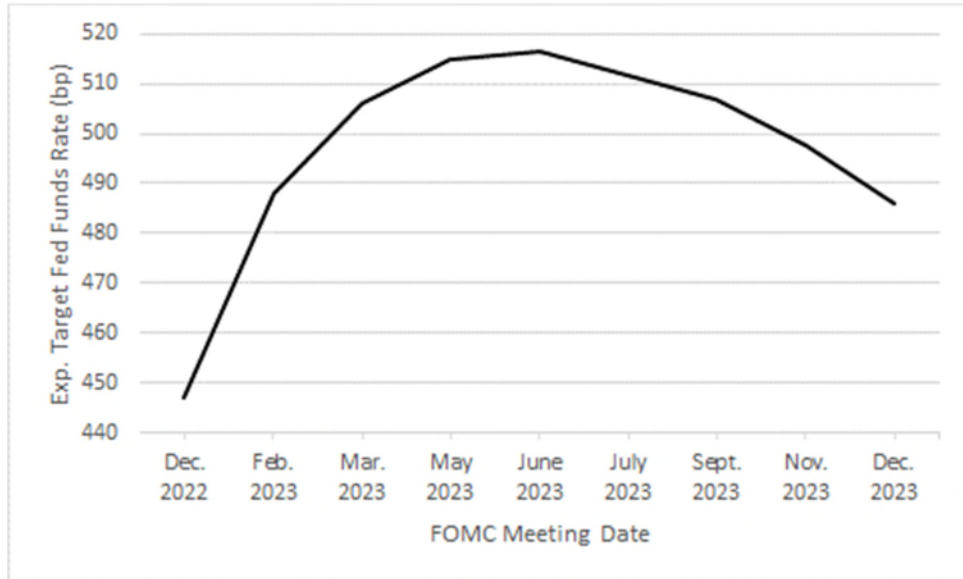
As can be gleaned from statements by members of the Fed, they expect inflation to continue well into next year and they will continue to use the tools at their disposal to support the economy and the labor market, including accelerating the pace of rate increases of the Fed Funds Rate and the roll off of assets from its balance sheet.

Q. IS THE MARKET CURRENTLY PRICING EXPECTATIONS OF SIGNIFICANT FUTURE FED FUNDS RATE INCREASES IN LINE WITH THE FED'S STATEMENTS?

A. Yes. The CME FedWatch Tool, as presented in Chart 3 below, indicates that investors are pricing a Fed Funds Rate in excess of 4.50% through the Fed's December 2023 meeting, as compared to the current level of the Fed Funds Rate between 3.75% and 4.00% as of November 2, 2022.

¹³ Transcript of Chair Powell's Press Conference, November 2, 2022. [clarification and emphasis added]

Chart 3: CME FedWatch Tool – Expected Fed Funds Rate Through December 2023 Meeting¹⁴



Q. HOW DOES THE CURRENT INFLATIONARY ENVIRONMENT AFFECT AUTHORIZED ROES AND INTEREST RATES?

A. Increasing inflation drives *all* costs higher (e.g., prices for materials, labor, capital). This is an economic reality that affects companies across the board and CWSNC is not immune to such increases. As a result, among other impacts inflation has on a utility’s cost of service, higher inflation increases risk, and hence, the investor-required return for utility investors.

Q. PLEASE SUMMARIZE YOUR OBSERVATIONS OF THE CURRENT MARKET ENVIRONMENT.

A. In response to the current inflationary environment, the Fed recently raised the Fed Funds Rate and anticipates additional increases over the next year

¹⁴ Source: <https://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html>, accessed November 2, 2022.

1 in addition to rolling off of assets from their balance sheet. Regardless of
2 current and future actions of the Fed, it has acknowledged that inflation is
3 higher than its target average level of 2.00% and will continue to run higher
4 than that target.

5 Utilities are not immune from those inflationary pressures which will
6 lead to an increased level of risk, and a higher investor-required return for
7 utility investors.

8 **III. RESPONSE TO PUBLIC STAFF WITNESS HINTON**

9 **Q. PLEASE SUMMARIZE MR. HINTON'S RECOMMENDATIONS.**

10 A. Mr. Hinton accepts the Company's proposed capital structure, which
11 consists of 50.00% long-term debt and 50.00% common equity.¹⁵ Mr.
12 Hinton also accepts the Company's proposed long-term debt cost rate of
13 4.64%.¹⁶ Mr. Hinton has two recommended ROEs, depending on whether
14 the Company's requested WSIP is approved by the Commission. If the
15 WSIP is not approved, Mr. Hinton's recommended ROE is 9.45%.¹⁷ If the
16 Company's WSIP is approved, Mr. Hinton's recommended ROE is 9.25%.¹⁸

17 **Q. DO YOU HAVE ANY GENERAL COMMENTS ON MR. HINTON'S**
18 **RECOMMENDED ROE?**

19 A. There are some areas in which Mr. Hinton and I agree. For example, we
20 both accept the Company's proposed capital structure and debt cost rate,

15 Hinton Testimony, at 5.

16 Hinton Testimony, at 5.

17 Hinton Testimony, at 5.

18 Joint Testimony, at 62.

1 and we both rely on the DCF model and RPM in our analyses. However,
2 there are areas in which we disagree. As will be discussed below, I disagree
3 with (1) his application of the DCF model; (2) his application of the RPM; (3)
4 his failure to reflect the Company's smaller size relative to his proxy group;
5 and (4) his recommended 20-basis-point deduction to his recommended
6 ROE.

7 **A. DISCOUNTED CASH FLOW MODEL**

8 **Q. PLEASE SUMMARIZE MR HINTON'S DCF ANALYSIS.**

9 A. Mr. Hinton calculated his dividend yield by using the *Value Line* estimate of
10 the 12-month projected dividend yield for each of his proxy companies as
11 reported in the *Value Line* Summary and Index for the 13 weeks ended
12 October 7, 2022.¹⁹ He then added the average expected dividend yield of
13 1.87% to a range of growth rates from 6.73% to 7.48% to arrive at indicated
14 DCF cost rates from 8.60% to 9.35%. From these indicated cost rates, he
15 averaged all of them together for his historical & forecasted growth rate DCF
16 cost rate of 9.05%, averaged all of his indicated DCF cost rates using
17 projected measures of growth for his predicted growth rate DCF cost rate
18 of 8.60%, and then averaged all of his indicated DCF cost rates using
19 historical measures of growth for his historical growth rate DCF cost rate of
20 9.35%.²⁰

¹⁹ Hinton Testimony, at 29.

²⁰ Hinton Exhibit 5.

1 **Q. PLEASE COMMENT ON MR. HINTON'S GROWTH RATE ANALYSIS IN**
2 **HIS APPLICATION OF THE DCF MODEL.**

3 A. Mr. Hinton states on pages 30-31 of his testimony that he employed EPS,
4 dividends ("DPS"), and book value of equity per share ("BVPS") growth
5 rates as reported in *Value Line*, both five- and ten-year historical and
6 forecasted, and the five-year projected EPS growth rate as reported by
7 Yahoo! Finance. He includes both historical and forecasted growth rates,
8 "because it is reasonable to expect that investors consider both sets of data
9 in deriving their expectations".

10 As will be discussed below, there is a significant body of empirical
11 evidence supporting the superiority of analysts' EPS growth rates in a DCF
12 analysis, indicating that analysts' forecasts of earnings remain the best
13 predictor of growth to use in the DCF model. Such ample evidence of the
14 proven reliability and superiority of analysts' forecasts of EPS should not be
15 dismissed by Mr. Hinton.

16 **Q. PLEASE DESCRIBE SOME OF THE EVIDENCE SUPPORTING THE**
17 **RELIABILITY AND SUPERIORITY OF ANALYSTS' EPS GROWTH**
18 **RATES IN A DCF ANALYSIS.**

19 A. As discussed in my Direct Testimony,²¹ over the long run there can be no
20 growth in DPS without growth in EPS. Security analysts' earnings
21 expectations have a more significant, but not the only, influence on market

²¹ D'Ascendis Direct Testimony, at 32.

1 prices than dividend expectations. Thus, the use of projected EPS growth
2 rates in a DCF analysis provides a better match between investors' market
3 price appreciation expectations and the growth rate component of the DCF,
4 because they have a significant influence on market prices and the
5 appreciation or "growth" experienced by investors.²² This should be evident
6 even to relatively unsophisticated investors by listening to financial news
7 reports on radio, TV, or reading newspapers.

8 In addition, Myron Gordon, the "father" of the standard regulatory
9 version of the DCF model widely utilized throughout the United States in
10 rate base/rate of return regulation, recognized the significance of analysts'
11 forecasts of growth in EPS in a speech he gave in March 1990 before the
12 Institute for Quantitative Research and Finance²³, stating on page 12:

13 We have seen that earnings and growth estimates by
14 security analysts were found by Malkiel and Cragg to
15 be superior to data obtained from financial statements
16 for the explanation of variation in price among common
17 stocks... estimates by security analysts available from
18 sources such as IBES are far superior to the data
19 available to Malkiel and Cragg.

20 * * *

21 Eq (7) is not as elegant as Eq (4), but it has a good deal
22 more intuitive appeal. It says that investors buy
23 earnings, but what they will pay for a dollar of earnings
24 increases with the extent to which the earnings are

22 Roger A. Morin, Modern Regulatory Finance, Public Utilities Reports, Inc., 2021, at 373-380. ("Morin")

23 Myron J. Gordon, *The Pricing of Common Stock*, Presented before the Spring 1990 Seminar, March 27, 1990, of the Institute for Quantitative Research in Finance, Palm Beach, FL.

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reflected in the dividend or in appreciation through growth.

Professor Gordon recognized that the total return is largely affected by the terminal price, which is mostly affected by earnings (hence price/earnings (“P/E”) multiples).

Studies performed by Cragg and Malkiel²⁴ demonstrate that analysts’ forecasts are superior to historical growth rate extrapolations. While some question the accuracy of analysts’ forecasts of EPS growth, the level of accuracy of those analysts’ forecasts well after the fact does not really matter. What is important is the forecasts reflect widely held expectations influencing investors at the time they make their pricing decisions, and hence, the market prices they pay.

In addition, Jeremy J. Siegel also supports the use of security analysts’ EPS growth forecasts when he states:

For the equity holder, the source of future cash flows is the earnings of firms. (p. 90)

* * *

Some people argue that shareholders most value stocks’ cash dividends. But this is not necessarily true. (p. 91)

* * *

Since the price of a stock depends primarily on the present discounted value of all expected future dividends, it appears that dividend policy is crucial to

²⁴ John G. Cragg and Burton G. Malkiel, Expectations and the Structure of Share Prices (University of Chicago Press, 1982) Chapter 4.

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determining the value of the stock. However, this is not generally true. (p. 92)

* * *

Since stock prices are the present value of future dividends, it would seem natural to assume that economic growth would be an important factor influencing future dividends and hence stock prices. However, this is not necessarily so. The determinants of stock prices are earnings and dividends on a *per-share* basis. Although economic growth may influence *aggregate* earnings and dividends favorably, economic growth does not necessarily increase the growth of per-share earnings or dividends. It is earnings per share (EPS) that is important to Wall Street because per-share data, not aggregate earnings or dividends, are the basis of investor returns. (italics in original) (pp. 93-94)²⁵

In view of the above, given the overwhelming academic and empirical support regarding the superiority of security analysts' EPS growth rate forecasts, such EPS growth rate projections should have been relied on by Mr. Hinton in his DCF analysis.

Q. IN REVIEWING THE FINANCIAL LITERATURE, DID YOU DISCOVER ANY PUBLICATIONS THAT SUPPORTED THE USE OF PROJECTED DPS OR BVPS GROWTH RATES FOR USE IN A DCF MODEL?

A. No, I did not.

²⁵ Jeremy J. Siegel, *Stocks for the Long Run – The Definitive Guide to Financial Market Returns and Long-Term Investment Strategies*, McGraw-Hill 2002, pp. 90-94.

1 **Q. LIKewise, ARE YOU AWARE OF ANY SOURCES OF DATA WHICH**
2 **PROVIDE PROJECTED DPS OR BVPS GROWTH RATES TO**
3 **INVESTORS?**

4 A. *Value Line* is the only widespread, readily available source of which I am
5 aware that publishes projected DPS and BVPS growth rates. If investors
6 indeed valued projected DPS and BVPS growth rates, there would be a
7 market for those data. As they are not relied on by investors to determine
8 their required returns on investments, there is not. Conversely, projected
9 EPS growth rates are widely available to investors.

10 **Q. WHAT WOULD MR. HINTON'S DCF RESULT BE HAD HE ONLY RELIED**
11 **ON EPS GROWTH FORECASTS?**

12 A. As shown on Schedule DWD-2R, when looking at individual company
13 results and the average of *Value Line* and Yahoo! Finance projected EPS
14 growth rates the mean and median DCF model results are 10.0% and
15 10.8%, respectively. In view of these indicated results, Mr. Hinton's
16 indicated DCF cost rate of 9.00% is severely understated.

17 **Q. IN SCHEDULE DWD-2R, YOU ELIMINATE INDIVIDUAL INDICATED**
18 **ROES LESS THAN THE YIELD ON A-RATED UTILITY BONDS, WHICH**

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IS CURRENTLY 5.26%.²⁶ IS ELIMINATING THESE INDICATED ROES CONSISTENT WITH BASIC FINANCIAL PRECEPTS?

A. Yes, it is. Yields on debt exceeding the investor required return on equity violates the fundamental financial principle of risk and return, namely that investors require greater returns for bearing greater risk. Because common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings, any indicated ROE that is below the yield on long-term debt is non-sensical and should be eliminated.

B. APPLICATION OF THE RISK PREMIUM MODEL

Q. PLEASE SUMMARIZE MR. HINTON'S RPM.

A. Mr. Hinton's RPM estimates the relationship between average allowed equity returns for water utilities published by Regulatory Research Associates, Inc. ("RRA") and annual average Moody's Investor Service ("Moody's") A-rated utility bond yields. Using data from the years 2009 through 2022, Mr. Hinton conducts a regression analysis, which he then combines with recent monthly yields on Moody's A-rated public utility bonds, to develop his risk premium estimate of 5.09% and a corresponding ROE of 9.88%.²⁷

²⁶ Average A-rated utility bond yield for September 2022 as shown on page 16 of Schedule DWD-1R.

²⁷ Hinton Exhibit 4.

1 **Q. DO YOU HAVE ANY CONCERNS REGARDING MR. HINTON'S**
2 **APPLICATION OF THE RPM?**

3 A. Yes, I do. While I agree with Mr. Hinton's methodology (*i.e.*, regression
4 analysis of historical equity risk premiums), I disagree with (1) his exclusive
5 use of current interest rates; (2) his use of annual average return data
6 instead of individual rate case data; and (3) his use of a subset of rate case
7 data instead of the entire RRA water rate case database.

8 **Q. DO YOU BELIEVE THAT MR. HINTON SHOULD RELY EXCLUSIVELY**
9 **ON CURRENT INTEREST RATES IN THE APPLICATION OF HIS RPM?**

10 A. No. Because both cost of capital and ratemaking are prospective in nature,
11 Mr. Hinton should also consider using projected interest rates in his RPM.
12 The cost of capital, including the cost rate of common equity, is
13 expectational in that it reflects investors' expectations of future capital
14 markets, including an expectation of interest rate levels, as well as future
15 risks. Ratemaking is prospective in that the rates set in this proceeding will
16 be in effect for a period in the future.

17 Even though Mr. Hinton relies, in part, on projected growth rates in
18 his DCF analyses, noting that growth in the DCF is expected, stating "I
19 include both known historical growth rates and forecasted growth rates
20 because it is reasonable to expect that investors consider both sets of data

1 in deriving their expectations.”²⁸ Despite this statement, he fails to consider
2 projected measure of interest rates in his RPM analysis.

3 **Q. MR. HINTON STATES THAT HE DOES NOT BELIEVE INTEREST RATE**
4 **FORECASTS ARE RELIABLE IN DETERMINING THE ROE BECAUSE**
5 **THEY DO NOT MATERIALIZE AS EXPECTED²⁹. PLEASE RESPOND.**

6 A. Whether Mr. Hinton believes those forecasts will prove to be accurate is
7 irrelevant to estimating the market-required cost of common equity.
8 Published industry forecasts, such as *Blue Chip Financial Forecasts*’ (“*Blue*
9 *Chip*”) consensus interest rate projections, reflect industry expectations.
10 Additionally, investors’ expectations are not improper inputs to cost of
11 common equity estimation models simply because prior projections were
12 not proven correct in hindsight. As the Federal Energy Regulatory
13 Commission (“FERC”) noted in Opinion No. 531, “the cost of common equity
14 to a regulated enterprise depends upon what the market expects, not upon
15 what ultimately happens.”³⁰ Because our analyses are predicated on
16 market expectations, the expected increase in bond yields is a measurable,
17 observable, and relevant data point that should be reflected in Mr. Hinton’s
18 analysis. Therefore, Mr. Hinton should have considered forecasted interest
19 rates in his analysis.

²⁸ Hinton Direct Testimony, at 30.

²⁹ Hinton Direct Testimony, at 36-37.

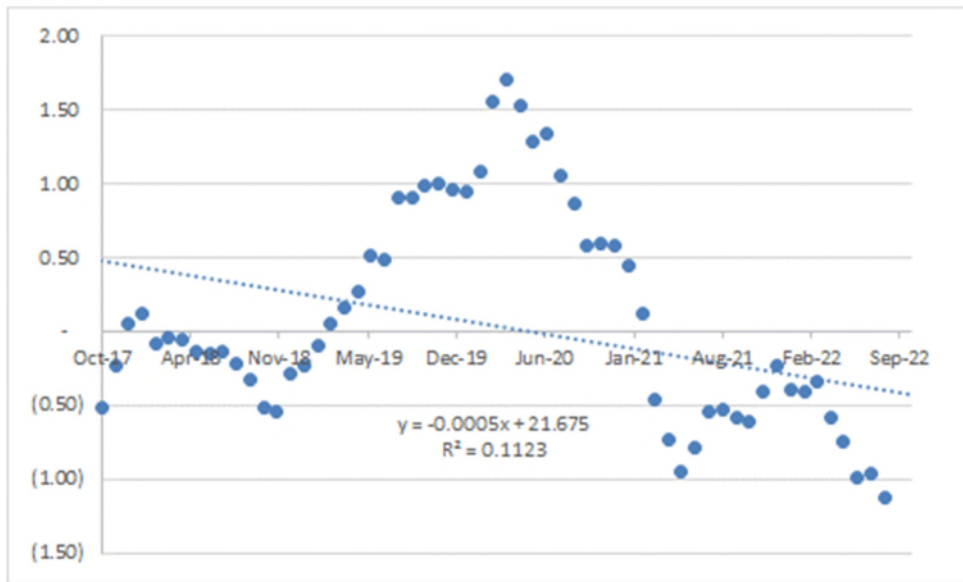
³⁰ Opinion No. 531, 147 FERC ¶ 61,234 at P 88.

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Q. ARE CURRENT INTEREST RATES ACCURATE PREDICTORS OF FUTURE INTEREST RATES?

A. No, they are not. Current interest rates are not proven to be a better predictor of future interest rates than predicted interest rates. In Chart 4 (below) I compare actual monthly yields to the three-month yield average from twelve months prior. This chart demonstrates that current Treasury yields have not been accurate predictors of future yields. Those results make intuitive sense. With the recent market dislocation, Treasury yields have decreased significantly and have been volatile. As interest rates decreased, historical Treasury yields over-projected current yields. As interest rates subsequently increased, the opposite was true.

Chart 4: Forecast Error of Three-Month Average Treasury Yields³¹



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³¹ Source: Federal Reserve Schedule H.15.

1 **Q. DO YOU AGREE WITH MR. HINTON'S USE OF ANNUAL AUTHORIZED**
2 **RETURNS AND INTEREST RATE DATA IN HIS RPM?**

3 A. No, I do not. Instead of using yearly average authorized returns and
4 Moody's A-rated public utility bond yields, it is preferable to use the
5 authorized returns and Moody's A-rated public utility bond yields on a case-
6 by-case basis. One reason why one should use individual cases instead of
7 an annual average is that some years have more rate case decisions than
8 others, and years with less rate case decisions will garner unnecessary
9 weight. Another reason to use individual cases over an annual average is
10 that interest rates and market conditions change during the year (e.g., the
11 beginning and end of 2020), if one uses annual average authorized returns
12 and annual average interest rates, the fluctuation between the interest rates
13 and equity risk premiums during the year are lost.

14 **Q. DO YOU AGREE WITH MR. HINTON'S USE OF AUTHORIZED ROES**
15 **FOR THE PERIOD 2009-2022 WHEN RATE CASE DATA FROM THE**
16 **PERIOD 2006-2022 IS AVAILABLE?**

17 A. No, I do not. Kroll's 2022 SBBI® Yearbook ("SBBI – 2022") makes it clear
18 that the arbitrary selection of historical periods is highly suspect and unlikely
19 to be representative of long-term trends in market data. For example, SBBI
20 - 2022 states:

21 The estimate of the equity risk premium depends on the length
22 of the data series studied. A proper estimate of the equity risk
23 premium requires a data series long enough to give a reliable
24 average without being unduly influenced by very good and

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very poor short-term returns. When calculated using a long data series, the historical equity risk premium is relatively stable. Furthermore, because an average of the realized equity risk premium, is quite volatile when calculated using a short history, using a long series makes it less likely that the analyst can justify any number he or she wants.³²

Given the above, Mr. Hinton should have used the entire dataset provided by Regulatory Research Associates.

Q. WHAT IS THE RESULT OF THE REGRESSION ANALYSIS AFTER REFLECTING A PROSPECTIVE MOODY’S A-RATED PUBLIC UTILITY BOND YIELD AND USING INDIVIDUAL RATE CASE DATA IN PLACE OF ANNUAL RATE CASE DATA?

A. The range of RPM results reflecting the consideration of projected interest rates and individual rate case results for the period 2006-2022 is from 9.88% (using current interest rates) and 10.12% (using projected interest rates). As shown on Schedule DWD-3R, the analysis is based on a regression of 194 rate cases for water utility companies from August 2006 through May 2022. It shows the implicit equity risk premium relative to the yields on Moody’s A-rated public utility bonds immediately prior to the issuance of each regulatory decision.³³

I determined the appropriate prospective Moody’s A-rated public utility yield by relying on a consensus forecast of about 50 economists of the

³² SBBI – 2022 at 201-202.

³³ If the Order was in the first half of the month, the Moody’s A-rated utility bond from two months prior would be used. If the Order was in the second half of the month, the Moody’s A-rated public utility bond from the last prior month was used.

1 expected yield on Moody's Aaa-rated corporate bonds for the six calendar
2 quarters ending with the first calendar quarter of 2024, and *Blue Chip's* long-
3 term projections for 2024 to 2028, and 2029 to 2033.³⁴ As described on
4 page 2 of Schedule DWD-3R, the average expected yield on Moody's Aaa-
5 rated corporate bonds is 5.18%. I then derived an expected yield on
6 Moody's A2-rated public utility bonds, by making an upward adjustment of
7 0.70%, which represents a recent spread between Moody's Aaa-rated
8 corporate bonds and Moody's A2-rated public utility bonds. Adding the
9 recent 0.70% spread to the expected Moody's Aaa-rated corporate bond
10 yield of 5.18% results in an expected Moody's A2-rated public utility bond
11 yield of 5.88%.

12 I then used the regression results to estimate the equity risk premium
13 applicable to the both the projected yield and current yields on Moody's A2-
14 rated public utility bonds of 5.88% and 4.93%, respectively. Given the
15 expected Moody's A-rated utility bond yield of 5.88%, the indicated equity
16 risk premium is 4.24%, which results in an indicated ROE of 10.12%, as
17 shown on Schedule DWD-3R. Also shown on Schedule DWD-3R, using a
18 current three-month average Moody's A-rated Utility bond yield of 4.93%,
19 the indicated ROE using the RPM is 9.88%.

³⁴ *Blue Chip Financial Forecasts*, September 30, 2022, at 2, June 1, 2022, at 14.

1 **C. COMPARABLE EARNINGS ANALYSIS**

2 **Q. DID MR. HINTON INCLUDE A COMPARABLE EARNINGS MODEL**
3 **("CEM") ANALYSIS?**

4 A. No. Despite the fact that in at least two recent rate cases, Docket No. G-9,
5 Sub 781 Re: Piedmont Natural Gas Company, Inc., and Docket No. G-5,
6 Sub 632 Re: The Public Service Company of North Carolina, Mr. Hinton
7 considered a CEM as a check on his results, he chose not to do so in this
8 proceeding.

9 **Q. HAVE YOU CONDUCTED A CEM ANALYSIS SIMILAR TO WHAT MR.**
10 **HINTON HAS CONDUCTED IN PRIOR RATE CASES?**

11 A. Yes, I did. Though I disagree with the application of Mr. Hinton's CEM
12 analysis, I examined six years of *Value Line* historical earned returns on
13 equity for each company in his proxy group, as Mr. Hinton did in both of the
14 prior mentioned proceedings. Additionally, as previously discussed, the
15 cost of capital and ratemaking are expectational in nature and, as such,
16 need to use projected data, so I have also examined *Value Line's* projected
17 earned returns for the 2022, 2023, and 2025-2027 periods.

18 **Q. WHAT ARE THE RESULTS OF THAT ANALYSIS?**

19 A. As shown on Schedule DWD-4R, based on historical returns, the average
20 ROE is 10.01% (median 10.00%) and based on projected returns the
21 average ROE is 9.81% (median 10.25%). Even if used as a check, Mr.
22 Hinton's CEM analysis would indicate that his DCF result of 9.00% and his
23 overall ROE recommendation of 9.45% is woefully inadequate.

1 **D. CONCLUSION OF HINTON ADJUSTED RESULTS**

2 **Q. WHAT ARE THE RESULTS OF MR. HINTON'S ROE MODELS AFTER**
 3 **MAKING THE ADJUSTMENTS DESCRIBED TO HIS DCF AND RPM?**

4 A. As shown in Table 3, below, Mr. Hinton's adjusted results are as follows:

5 **Table 3: Mr. Hinton's Adjusted ROE Model Results**

Model	Range	Midpoint
Discounted Cash Flow	10.00% - 10.80%	10.40%
Risk Premium Model	9.88% - 10.12%	10.00%

6 Mr. Hinton's corrected DCF model and RPM results are within the range of
 7 9.88% and 10.80%. The CEM result between 9.81% and 10.25% confirms
 8 that range. These indicated ranges of ROE do not reflect the Company's
 9 smaller size relative to the proxy group and as such, do not yet reflect the
 10 investor-required return for CWSNC.

11 **Q. DOES MR. HINTON MAKE A SPECIFIC ADJUSTMENT TO REFLECT**
 12 **THE SMALLER SIZE OF THE COMPANY RELATIVE TO HIS PROXY**
 13 **GROUP?**

14 A. No. As discussed in my Direct Testimony,³⁵ relative company size is a
 15 significant element of business risk for which investors expect to be
 16 compensated through greater returns. Smaller companies are simply less
 17 able to cope with significant events which affect sales, revenues and
 18 earnings. For example, smaller companies face more exposure to business

³⁵ D'Ascendis Direct Testimony, at 63-66.

1 cycles and economic conditions, both nationally and locally. Additionally,
2 the loss of revenues from a few large customers would have a far greater
3 effect on a small company than on a larger company with a more diverse
4 customer base. Finally, smaller companies are generally less diverse in
5 their operations and have less financial flexibility. Consistent with the
6 financial principle of risk and return in my Direct Testimony,³⁶ such
7 increased risk due to small size must be reflected in the allowed rate of
8 return on common equity.

9 **Q. IS THERE AN EMPIRICAL STUDY IN ADDITION TO THE EMPIRICAL**
10 **ANALYSIS YOU PERFORMED IN YOUR DIRECT TESTIMONY WHICH**
11 **EVALUATES THE EFFECT OF SIZE ON THE COST OF EQUITY?**

12 A. Yes. Kroll's Cost of Capital Navigator: U.S. Cost of Capital Module ("Kroll")
13 presents a Size Study based on the relationship of various measures of
14 size and return. Relative to the relationship between average annual
15 return and the various measures of size, Kroll states:

16 **The "size" of a company is one of the most**
17 **important risk elements to consider when**
18 **developing cost of equity estimates for use in**
19 **valuing a business** simply because size has been
20 shown to be a *predictor* of equity returns.

21 Traditionally, researchers have used market value of
22 equity (market capitalization, or simply "market cap")
23 as a measure of size in conducting historical rate of
24 return studies. However, as we discuss later in this
25 chapter, market cap is not the only measure of size that

³⁶ D'Ascendis Direct Testimony, at 10, 65.

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can be used to predict return, nor is it necessarily the best measure of size to use.³⁷

The Size Study uses the following eight measures of size, all of which have empirically shown that over the long-term, the smaller the company, the higher the risk:

- Market Value of Common Equity (or total capital if no debt / equity);
- Book Value of Common Equity;
- Net Income (five-year average);
- Market Value of Invested Capital;
- Total Assets (Invested Capital);
- Earnings Before Interest, Taxes, Depreciation & Amortization (“EBITDA”) (five-year average);
- Sales / Operating Revenues; and
- Number of Employees.

I used the Kroll Size Study to determine the approximate magnitude of any necessary risk premium due to the size of the Company relative to Mr. Hinton’s proxy group. Schedule DWD-5R shows the relative size of each Company compared with my and Mr. Hinton’s combined proxy groups. Indicated size adjustments based on these relative measures range from 1.31% to 3.42% for CWSNC. From these results, it is clear that the

³⁷ Kroll, Cost of Capital Navigator: U.S. Cost of Capital Module, Size as a Predictor of Returns, at 1.

1 Company is riskier than our combined proxy groups due to its small size,
2 and that my proposed size adjustment of 10 basis points for the Company
3 is conservative.

4 **Q. PLEASE DISCUSS MR. HINTON'S CONCERNS WITH YOUR**
5 **APPLICATION OF A SMALL SIZE PREMIUM FOR CWSNC.**

6 A. While Mr. Hinton acknowledges that “[i]t is factually correct that rating
7 agencies and investors add a risk factor for small companies with relatively
8 limited capital resources”³⁸ and that “there are published studies that
9 address how the small size of a company relates to higher risks³⁹, he
10 contends, however, is that the size premium does not apply to regulated
11 utilities, and he cites an article by Dr. Annie Wong stating that “utility stocks
12 do not exhibit a significant size premium.”

13 **Q. IS THERE A PUBLISHED RESPONSE TO DR. WONG'S ARTICLE?**

14 A. Yes, there is. In response to Professor Wong's article, *The Quarterly*
15 *Review of Economics and Finance* published an article in 2003, authored
16 by Thomas M. Zepp, which commented on the Wong article cited by Mr.
17 Hinton. Relative to Dr. Wong's results, Dr. Zepp concluded in the Abstract
18 on page 1 of his article: “Her weak results, however, do not rule out the
19 possibility of a small firm effect for utilities.”⁴⁰ Dr. Zepp also noted on page
20 582 that: “Two other studies discussed here support a conclusion that

³⁸ Hinton Direct Testimony, at 38.

³⁹ Hinton Direct Testimony, at 40.

⁴⁰ Thomas M. Zepp, “Utility Stocks and the Size Effect --- Revisited”, *The Quarterly Review of Economics and Finance*, 43 (2003), at 578-582.

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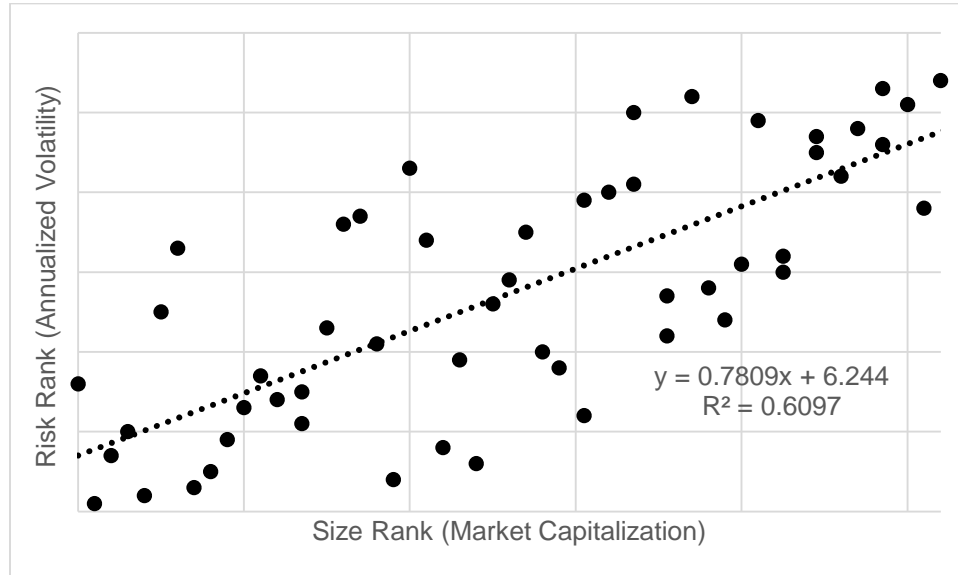
smaller water utility stocks are more risky than larger ones. To the extent that water utilities are representative of all utilities, there is support for smaller utilities being more risky than larger ones.”⁴¹

Q. HAVE YOU PERFORMED STUDIES SPECIFIC TO UTILITY COMPANIES THAT LINK SIZE AND RISK?

A. Yes, I have performed two studies that link size and risk for utility companies. My first study included the universe of electric, gas, and water companies included in *Value Line Standard* and *Small and Mid-Cap Editions*. From each of the utilities’ *Value Line Ratings & Reports*, I calculated the 10-year annualized volatility of daily prices (a measure of risk) and current market capitalization (a measure of size) for each company. After ranking the companies by size (largest to smallest) and risk (least risky to most risky), I made a scatter plot of the data, as shown on Chart 5, below:

41 Thomas M. Zepp, “Utility Stocks and the Size Effect --- Revisited”, *The Quarterly Review of Economics and Finance*, 43 (2003), at 578-582.

Chart 5: Relationship Between Size and Risk for the Value Line Universe of Utility Companies⁴²



As shown in Chart 5 above, as company size decreases (increasing size rank), the annualized volatility increases, linking size and risk for utilities, which is significant at 95.0% confidence level.

The second study used the same universe of companies, but instead of using annualized volatility, I used the Value Line Safety Ranking, which is another measure of total risk.⁴³ After ranking the companies by size and Safety Ranking, I made a scatterplot of those data, as shown on Chart 6, below:

⁴² Source: Value Line

⁴³ Value Line also ranks stocks for Safety by analyzing the total risk of a stock compared to the approximately 1,700 stocks in the Value Line universe. Each of the stocks tracked in the Value Line Investment Survey is ranked in relationship to each other, from 1 (the highest rank) to 5 (the lowest rank). Safety is a quality rank, not a performance rank, and stocks ranked 1 and 2 are most suitable for conservative investors; those ranked 4 and 5 will be more volatile. Volatility means prices can move dramatically and often unpredictably, either down or up. The major influences on a stock's Safety rank are the company's financial strength, as measured by balance sheet and financial ratios, and the stability of its price over the past five years.

Chart 6: Relationship Between Size and Safety Ranking for the Value Line Universe of Utility Companies⁴⁴



Similar to the first study, as company size decreases, Safety Ranking degrades, indicating a link between size and risk for utilities. This study is also significant at the 95% confidence level.

Q. ARE YOU AWARE OF ANOTHER ACADEMIC ARTICLE RELATING TO THE APPLICABILITY OF A SIZE PREMIUM?

A. Yes. An article by Michael A. Paschall, ASA, CFA, and George B. Hawkins ASA, CFA, “Do Smaller Companies Warrant a Higher Discount Rate for Risk?” also supports the applicability of a size premium. As the article makes clear, all else equal, size is a risk factor which must be taken into account when setting the cost of capital or capitalization (discount) rate. Paschall and Hawkins state in their conclusion as follows:

⁴⁴ Source: *Value Line*.

1 The current challenge to traditional thinking about a
2 small stock premium is a very real and potentially
3 troublesome issue. The challenge comes from bright
4 and articulate people and has already been
5 incorporated into some court cases, providing further
6 ammunition for the IRS. Failing to consider the
7 additional risk associated with most smaller
8 companies, however, is to fail to acknowledge reality.
9 Measured properly, small company stocks have
10 proven to be more risky over a long period of time than
11 have larger company stocks. This makes sense due to
12 the various advantages that larger companies have
13 over smaller companies. Investors looking to purchase
14 a riskier company will require a greater return on
15 investment to compensate for that risk. There are
16 numerous other risks affecting a particular company,
17 yet the use of a size premium is one way to quantify
18 the risk associated with smaller companies.⁴⁵

19 Hence, Paschall and Hawkins corroborate the need for a small size
20 adjustment, all else equal.

21 **Q. WHAT WOULD MR. HINTON'S CORRECTED RANGE OF ROES BE**
22 **AFTER ADJUSTMENT FOR THE COMPANY'S SMALL RELATIVE**
23 **SIZE?**

24 A. Applying a small size premium of 0.10% to Mr. Hinton's 10.00% to 10.80%
25 indicated range of ROEs applicable to his proxy group would result in a
26 Company-specific ROE range between 10.10% and 10.90%. Mr. Hinton's
27 adjusted range of ROEs includes the Company's requested BY and FY
28 ROEs of 10.45% and 10.70%, respectively.

⁴⁵ Michael A. Paschall, ASA, CFA and George B. Hawkins ASA, CFA, *Do Smaller Companies Warrant a Higher Discount Rate for Risk?*, CCH Business Valuation Alert, Vol. 1, Issue No. 2, December 1999.

1 Q. MR. HINTON JUSTIFIES HIS RECOMMENDED ROE OF 9.45% BY
2 REVIEWING THE INTEREST COVERAGE RATIO AND CONFIRMING
3 THAT HIS ROE WOULD ALLOW THE COMPANY A SINGLE “A”
4 RATING.⁴⁶ DOES ONE MEASURE OF FINANCIAL RISK SUCH AS PRE-
5 TAX INTEREST COVERAGE INDICATE A SPECIFIC CREDIT RATING?

6 A. No. While I do not take issue with Mr. Hinton’s inputs or calculations in
7 determining CWSNC’s pre-tax interest coverage ratio, I note that the ratios
8 of pre-tax coverage needed to qualify for a single “A” rating range from 3.0
9 to 6.0. As can be seen in Schedule DWD-6R, ROEs ranging from as low
10 as 7.15% to as high as 17.87% all allow CWSNC to qualify for a single “A”
11 rating based on its pre-tax coverage ratio. Clearly, a significantly large
12 range of results indicates that simply relying on a single measure, out of a
13 multitude of measures reviewed by the bond/credit ratings agencies, to
14 determine a company’s bond rating is without significance.

15 E. THE COMPANY’S PROPOSED WATER AND SEWER
16 INFRASTRUCTURE PLAN AND ITS EFFECT ON ROE

17 Q. MR. JUNIS, MS. SUN, AND MS. ZHANG SUGGEST THAT BECAUSE
18 THE FY ROE IS GREATER THAN THE BY ROE, THE COMPANY
19 BELIEVES THAT THE “WSIP PRESENTS GREATER RISKS AND THAT

⁴⁶ Hinton Direct Testimony, at 35.

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CUSTOMERS SHOULD COMPENSTATE FOR THAT RISK WITH A HIGHER ROE”.⁴⁷ IS THIS A VALID CHARACTERIZATION?

A. No, it is not. As stated in my Direct Testimony, the recommended ROEs for the BY and FY periods are based solely on underlying changes in forecasted interested rates during the FY period relative to the BY period.⁴⁸

Q. MR. HINTON PROPOSES A 20-BASIS-POINT DEDUCTION TO THE COMMISSION-AUTHORIZED ROE IF THE COMMISSION APPROVES THE COMPANY’S REQUESTED WSIP.⁴⁹ WHAT REASONS DOES MR. HINTON GIVE TO JUSTIFY HIS 20-BASIS-POINT ADJUSTMENT?

A. Mr. Hinton’s main reason to deduct 20 basis points from the approved ROE in this case is due to the WSIP’s effect on regulatory lag, as it allows enhanced cost recovery of eligible capital improvements.⁵⁰ Mr. Hinton also mentions that the reduction in regulatory lag will enhance the Company’s ability to match revenues and expenses, which in turn should reduce the non-weather related volatility of earnings.⁵¹

⁴⁷ Joint Testimony, at 19.
⁴⁸ D’Ascendis Direct Testimony, at 4.
⁴⁹ Joint Testimony, at 63-64.
⁵⁰ Joint Testimony, at 63.
⁵¹ Joint Testimony, at 63-64.

1 **Q. DO YOU AGREE WITH MR. HINTON'S PROPOSED 20-BASIS-POINT**
2 **DEDUCTION?**

3 A. No, I do not. I do not agree with Mr. Hinton's adjustment because he did
4 not prove that the Company's requested WSIP is unique relative to his proxy
5 group.

6 **Q. WHAT IS YOUR POSITION ON REGULATORY MECHANISMS AND THE**
7 **COST OF COMMON EQUITY?**

8 A. It is important to remember that determining the cost of capital is a
9 comparative exercise, so if similar mechanisms are common throughout the
10 companies on which one bases their analyses, the comparative risk is zero,
11 because any impact of the perceived reduced risk of the mechanism(s) by
12 investors would be reflected in the market data of the proxy group. This is
13 a critical and necessary aspect of assessing whether an annual rate
14 mechanism affects a utility's overall risk. As discussed in my Direct
15 Testimony, the WSIP serves as a multi-year rate plan, generating fully
16 forecasted future test years and associated revenue requirements.

17 **Q. DID MR. HINTON ATTEMPT TO SURVEY HIS PROXY GROUP FOR**
18 **SIMILAR REGULATORY MECHANISMS?**

19 A. No, he did not.

1 **Q. HAVE YOU IDENTIFIED THE COMPANIES IN YOUR PROXY GROUP**
2 **WHOSE MARKET DATA WOULD REFLECT FULLY FORECASTED**
3 **FUTURE TEST YEARS?**

4 A. Yes, I have. In response to discovery from Public Staff, I identified that
5 multi-year rate plans are common in the state of California, which would be
6 reflected in the market data of American States Water Company, American
7 Water Works Co., Inc., (through California American Water), California
8 Water Service, and SJW Corp. Similarly, fully forecasted future test years
9 are common in Iowa, Tennessee, Virginia, Pennsylvania, and New York,
10 which would be reflected in the market data of American Water Works, Co.,
11 Inc. (through IA American, TN American, VA American, and PA American),
12 and Essential Utilities, Inc (through Aqua PA and VA).⁵² As detailed above,
13 fully forecasted future test years are reflected in the market data of every
14 proxy group company except for Middlesex Water Company. As such, any
15 risk reduction attributable to a multi-year rate plan would be reflected in their
16 market data, and a further reduction to the Company's ROE would
17 constitute as a double count.

18 **Q. MR. HINTON MENTIONS THAT RATINGS AGENCIES VIEW MULTI-**
19 **YEAR RATE PLANS FAVORABLY. ⁵³ DID HE PROVIDE ANY**

⁵² Fully forecasted test years would also have been reflected in the market data of the York Water Company, as used in the Utility Proxy Group in my Direct Testimony, Joint Testimony, at 64-65.

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EXAMPLES OF A UTILITY’S CREDIT RATING BEING UPGRADED UPON APPROVAL OF A MULTI-YEAR RATE PLAN?

A. No, he did not. As no utility’s credit rating been upgraded upon approval of a multi-year rate plan, Mr. Hinton’s quantification of a 20-basis-point deduction to the Company’s authorized ROE has no basis.

Q. MR. HINTON CRITIQUES YOUR ROE BAND OF 200 BASIS POINTS⁵⁴ PLEASE RESPOND.

A. In the order adopting Commission Rule R1-17A establishing the WSIP, specifically, Issue 6: Banding of Authorized Rates of Return, the Public Staff proposed the rule that “Any banding of the water utility’s authorized return shall not exceed 100 basis points above or below the midpoint.” My recommended band between 9.70% - 11.70% is consistent with Public Staff’s proposed rule.

Q. MR. HINTON ALSO STATES THAT THE ROE BAND PROVIDES “NO BENEFITS TO RATEPAYERS” BECAUSE THE LOWER LIMIT IS 30 BASIS POINTS ABOVE THE COMMISSION-APPROVED ROE IN THE COMPANY’S LAST RATE CASE.⁵⁵ PLEASE RESPOND.

A. The ROE is not constant, as investor expectations are constantly changing to reflect the latest market data and changes in capital markets. As stated in *Bluefield*, an ROE “may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money

⁵⁴ Joint Testimony, at 66.
⁵⁵ Joint Testimony, at 67.

1 market and business conditions generally".⁵⁶ Mr. Hinton's own
2 recommended ROE has also increased from the Company's last rate case
3 by 50 basis points, illustrating that capital costs are higher today than they
4 were in 2021. As a result, the fact that capital costs have increased from
5 the Company's last rate case is not sufficient to deem that the ROE band is
6 not beneficial to ratepayers.

7 **F. RESPONSE TO STAFF WITNESS HINTON'S CRITICISMS OF**
8 **COMPANY ANALYSES**

9 **Q. DOES MR. HINTON HAVE ANY CONCERNS WITH YOUR DIRECT**
10 **TESTIMONY?**

11 A. Yes. Mr. Hinton has concerns with my use of interest rate forecasts and my
12 adjustment for CWSNC's small size compared to the proxy group. I have
13 already discussed the appropriateness of using projected interest rates and
14 the application of size adjustments for cost of capital purposes and will not
15 discuss them again here.

16 **IV. CONCLUSION**

17 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

18 A. Using market data as of October 14, 2022, I updated my ROE model
19 analyses, which generally increased since the filing of my Direct Testimony
20 and reflects current and expected capital market conditions. Regarding Mr.
21 Hinton's direct analyses, I discuss flaws in his analysis that are not

⁵⁶ *Bluefield*, at para [6].

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consistent with financial literature, resulting in a corrected range of ROEs between 10.10% and 10.90%, which overlap my recommended range. I also discuss the Company's requested WSIP and why Mr. Hinton's recommended 20-basis point downward adjustment is unwarranted.

Given all of the above, the Company's requested ROE of 10.45% in the BY and 10.70% in the FY is reasonable.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Carolina Water Service Inc. of North Carolina
Table of Contents
to Rebuttal Exhibit No. 1
of Dylan W. D'Ascendis, CRRA, CVA

	<u>Schedule</u>
Updated Cost of Capital Analysis	DWD-1R
Hinton Corrected Discounted Cash Flow Model	DWD-2R
Corrected Regression Analysis with Individual Rate Cases	DWD-3R
Hinton CEM Analysis	DWD-4R
Kroll Size Study	DWD-5R
Pre-Tax Interest Coverage	DWD-6R

Carolina Water Service Inc. of North Carolina
 Recommended Capital Structure and Cost Rates

Base Year

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	50.00%	4.64% (1)	2.32%
Common Equity	50.00%	10.57% - 11.57% (2)	5.28% - 5.78%
Total	100.00%		7.60% - 8.10%

Projected Rate Year 1 (2023 Projected Interest Rates)

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	50.00%	4.64% (1)	2.32%
Common Equity	50.00%	10.70% - 11.70% (2)	5.35% - 5.85%
Total	100.00%		7.67% - 8.17%

Projected Rate Year 2 (2024 Projected Interest Rates)

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	50.00%	4.64% (1)	2.32%
Common Equity	50.00%	10.67% - 11.67% (2)	5.34% - 5.84%
Total	100.00%		7.66% - 8.16%

Projected Rate Year 3 (2025 Projected Interest Rates)

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	50.00%	4.64% (1)	2.32%
Common Equity	50.00%	10.67% - 11.67% (2)	5.34% - 5.84%
Total	100.00%		7.66% - 8.16%

Notes:

- (1) Company-provided.
- (2) From page 2 of this Schedule.

Carolina Water Service Inc. of North Carolina
Brief Summary of Common Equity Cost Rate

Line No.	Principal Methods	Base Year (Current Interest Rates)	Projected Year 1 (2023 Projected Int. Rates)	Projected Year 2 (2024 Projected Int. Rates)	Projected Year 3 (2025 Projected Int. Rates)
1.	Discounted Cash Flow Model (DCF) (1)	10.12%	10.12%	10.12%	10.12%
2.	Risk Premium Model (RPM) (2)	11.44%	12.01%	11.91%	11.88%
3.	Capital Asset Pricing Model (CAPM) (3)	11.75%	12.03%	12.00%	12.00%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	11.81%	12.08%	12.02%	12.02%
5.	Indicated Common Equity Cost Rate before Adjustment for Unique Risk	10.47% - 11.47%	10.60% - 11.60%	10.57% - 11.57%	10.57% - 11.57%
6.	Business Risk Adjustment (5)		0.10%		
8.	Indicated Common Equity Cost Rate after Adjustment	10.57% - 11.57%	10.70% - 11.70%	10.67% - 11.67%	10.67% - 11.67%

Notes:

- (1) From page 3 of this Schedule.
- (2) From page 10 of this Schedule.
- (3) From pages 26-29 of this Schedule.
- (4) From page 34 of this Schedule.
- (5) Business risk adjustment to reflect Carolina Water Services' unique risk compared to the Utility Proxy Group as detailed in the Direct Testimony.

Carolina Water Service Inc. of North Carolina
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for the
Proxy Group of Six Water Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Water Companies	Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth in EPS (3)	Adjusted Dividend Yield (4)	Indicated Common Equity Cost Rate (5)
American States Water Company	1.87 %	5.50 %	NA %	4.40 %	4.95 %	1.92 %	6.87 %
American Water Works Company, Inc.	1.78	3.00	8.10	8.30	6.47	1.84	8.31
California Water Service Group	1.71	6.50	NA	11.70	9.10	1.79	10.89
Essential Utilities Inc.	2.41	10.00	6.10	6.80	7.63	2.50	10.13
Middlesex Water Company	1.32	4.50	NA	2.70	3.60	1.34	4.94 (6)
SJW Group	2.25	14.00	NA	9.80	11.90	2.38	14.28
						Average	10.10 %
						Median	10.13 %
						Average of Mean and Median	10.12 %

NA= Not Available

Notes:

- (1) Indicated dividend at 10/14/2022 divided by the average closing price of the last 60 trading days ending 10/14/2022 for each company.
- (2) From pages 4 through 9 of this Schedule.
- (3) Average of columns 2 through 4 excluding negative growth rates.
- (4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 5) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Company, $1.87\% \times (1 + (1/2 \times 4.95\%))$
- (5) Column 5 + column 6.
- (6) Excluding the indicated DCF cost rate of Middlesex Water Company, as its result is less than the yield on A-rated utility bonds.

Source of Information:

Value Line Investment Survey
www.zacks.com Downloaded on 10/14/2022
www.yahoo.com Downloaded on 10/14/2022

AMER. STATES WATER NYSE-AWR				RECENT PRICE	82.11	P/E RATIO	31.9 (Trailing: 36.8 Median: 27.0)	RELATIVE P/E RATIO	2.22	DIV'D YLD	2.0%	VALUE LINE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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LLC</th> <th>25-27</th> </tr> <tr> <td>7.88</td> <td>8.75</td> <td>9.21</td> <td>9.74</td> <td>10.71</td> <td>11.12</td> <td>12.12</td> <td>12.19</td> <td>12.17</td> <td>12.56</td> <td>11.92</td> <td>12.01</td> <td>11.88</td> <td>12.86</td> <td>13.24</td> <td>13.51</td> <td>13.70</td> <td>14.00</td> <td>Revenues per sh</td> <td>18.15</td> </tr> <tr> <td>1.45</td> <td>1.65</td> <td>1.69</td> <td>1.70</td> <td>2.11</td> <td>2.13</td> <td>2.48</td> <td>2.65</td> <td>2.67</td> <td>2.81</td> <td>2.70</td> <td>2.96</td> <td>2.84</td> <td>3.26</td> <td>3.34</td> <td>3.64</td> <td>3.60</td> <td>3.90</td> <td>"Cash Flow" per sh</td> <td>4.75</td> </tr> <tr> <td>.67</td> <td>.81</td> <td>.78</td> <td>.81</td> <td>1.11</td> <td>1.12</td> <td>1.41</td> <td>1.61</td> <td>1.57</td> <td>1.61</td> <td>1.62</td> <td>1.88</td> <td>1.72</td> <td>2.28</td> <td>2.33</td> <td>2.55</td> <td>2.45</td> <td>2.60</td> <td>Earnings per sh A</td> <td>3.25</td> </tr> <tr> <td>.46</td> <td>.48</td> <td>.50</td> <td>.51</td> <td>.52</td> <td>.55</td> <td>.64</td> <td>.76</td> <td>.83</td> <td>.87</td> <td>.91</td> <td>.99</td> <td>1.06</td> <td>1.16</td> <td>1.28</td> <td>1.40</td> <td>1.53</td> <td>1.62</td> <td>Div'd Decl'd per sh B</td> <td>2.15</td> </tr> <tr> <td>1.95</td> <td>1.45</td> <td>2.23</td> <td>2.09</td> <td>2.12</td> <td>2.13</td> <td>1.77</td> <td>2.52</td> <td>1.89</td> <td>2.39</td> <td>3.55</td> <td>3.08</td> <td>3.44</td> <td>4.12</td> <td>3.54</td> <td>3.91</td> <td>4.10</td> <td>4.00</td> <td>Cap'l Spending per sh</td> <td>4.25</td> </tr> <tr> <td>8.32</td> <td>8.77</td> <td>8.97</td> <td>9.70</td> <td>10.13</td> <td>10.84</td> <td>11.80</td> <td>12.72</td> <td>13.24</td> <td>12.77</td> <td>13.52</td> <td>14.45</td> <td>15.19</td> <td>16.33</td> <td>17.39</td> <td>18.57</td> <td>20.15</td> <td>21.35</td> <td>Book Value per sh D</td> <td>23.75</td> </tr> <tr> <td>34.10</td> <td>34.46</td> <td>34.60</td> <td>37.06</td> <td>37.70</td> <td>38.53</td> <td>38.72</td> <td>38.29</td> <td>36.50</td> <td>36.57</td> <td>36.68</td> <td>36.76</td> <td>36.85</td> <td>36.89</td> <td>36.94</td> <td>37.25</td> <td>37.50</td> <td>37.50</td> <td>Common Shs Outs't'g C</td> <td>37.50</td> </tr> <tr> <td>27.7</td> <td>24.0</td> <td>22.6</td> <td>21.2</td> <td>15.7</td> <td>15.4</td> <td>14.3</td> <td>17.2</td> <td>20.1</td> <td>24.6</td> <td>25.6</td> <td>25.7</td> <td>34.0</td> <td>34.4</td> <td>34.3</td> <td>33.2</td> <td colspan="3"> Bold figures are Value Line estimates </td> <td>Avg Ann'l P/E Ratio</td> <td>25.0</td> </tr> <tr> <td>1.50</td> <td>1.27</td> <td>1.36</td> <td>1.41</td> <td>1.00</td> <td>.97</td> <td>.91</td> <td>.97</td> <td>1.06</td> <td>1.24</td> <td>1.34</td> <td>1.29</td> <td>1.84</td> <td>1.83</td> <td>1.76</td> <td>1.82</td> <td colspan="3"></td> <td>Relative P/E Ratio</td> <td>1.40</td> </tr> <tr> <td>2.5%</td> <td>2.5%</td> <td>2.9%</td> <td>2.9%</td> <td>3.0%</td> <td>3.2%</td> <td>3.1%</td> <td>2.7%</td> <td>2.6%</td> <td>2.2%</td> <td>2.2%</td> <td>2.0%</td> <td>1.8%</td> <td>1.5%</td> <td>1.6%</td> <td>1.7%</td> <td colspan="3"></td> <td>Avg Ann'l Div'd Yield</td> <td>2.6%</td> </tr> <tr> <td colspan="4">CAPITAL STRUCTURE as of 6/30/22</td> <td>466.9</td> <td>472.1</td> <td>465.8</td> <td>458.6</td> <td>436.1</td> <td>440.6</td> <td>436.8</td> <td>473.9</td> <td>488.2</td> <td>498.9</td> <td>510</td> <td>525</td> <td colspan="4"> Revenues (\$mill) 680 </td> </tr> <tr> <td colspan="4">Total Debt \$670.8 mill. Due in 5 Yrs \$33.5 mill.</td> <td>54.1</td> <td>62.7</td> <td>61.1</td> <td>60.5</td> <td>59.7</td> <td>69.4</td> <td>63.9</td> <td>84.3</td> <td>86.4</td> <td>94.3</td> <td>91.0</td> <td>98.0</td> <td colspan="4"> Net Profit (\$mill) 120 </td> </tr> <tr> <td colspan="4">LT Debt \$446.9 mill. LT Interest \$24.0 mill. (39% of Cap'l)</td> <td>39.9%</td> <td>36.3%</td> <td>38.4%</td> <td>38.4%</td> <td>36.8%</td> <td>36.0%</td> <td>22.0%</td> <td>22.6%</td> <td>24.6%</td> <td>24.4%</td> <td>24.0%</td> <td>24.0%</td> <td colspan="4"> AFUDC % to Net Profit 1.5% </td> </tr> <tr> <td colspan="4">Leases, Uncapitalized: Annual rentals \$2.6 mill.</td> <td>42.2%</td> <td>39.8%</td> <td>39.1%</td> <td>41.1%</td> <td>39.4%</td> <td>38.0%</td> <td>40.5%</td> <td>44.4%</td> <td>47.2%</td> <td>46.1%</td> <td>46.5%</td> <td>45.5%</td> <td colspan="4"> Long-Term Debt Ratio 52.0% </td> </tr> <tr> <td colspan="4">Pension Assets-12/21 \$233.5 mill. Oblig. \$259.8 mill.</td> <td>57.8%</td> <td>60.2%</td> <td>60.9%</td> <td>58.9%</td> <td>60.6%</td> <td>62.0%</td> <td>59.5%</td> <td>55.6%</td> <td>52.8%</td> <td>53.9%</td> <td>53.5%</td> <td>54.5%</td> <td colspan="4"> Common Equity Ratio 48.0% </td> </tr> <tr> <td colspan="4">Pfd Stock None</td> <td>787.0</td> <td>818.4</td> <td>832.6</td> <td>791.5</td> <td>815.3</td> <td>854.9</td> <td>938.4</td> <td>1082.5</td> <td>1216.2</td> <td>1272.6</td> <td>1400</td> <td>1450</td> <td colspan="4"> Total Capital (\$mill) 1710 </td> </tr> <tr> <td colspan="4">Common Stock 36,956,824 shs. as of 7/29/22</td> <td>917.8</td> <td>981.5</td> <td>1003.5</td> <td>1060.8</td> <td>1150.9</td> <td>1205.0</td> <td>1296.3</td> <td>1415.7</td> <td>1512.0</td> <td>1626.0</td> <td>1720</td> <td>1800</td> <td colspan="4"> Net Plant (\$mill) 2025 </td> </tr> <tr> <td colspan="4">MARKET CAP: \$3.0 billion (Mid Cap)</td> <td>8.3%</td> <td>8.9%</td> <td>8.6%</td> <td>9.0%</td> <td>8.6%</td> <td>9.3%</td> <td>7.9%</td> <td>8.9%</td> <td>8.0%</td> <td>8.3%</td> <td>7.5%</td> <td>8.0%</td> <td colspan="4"> Return on Total Cap'l 8.0% </td> </tr> <tr> <td colspan="4">CURRENT POSITION 2020 2021 6/30/22</td> <td>11.9%</td> <td>12.7%</td> <td>12.0%</td> <td>13.0%</td> <td>12.1%</td> <td>13.1%</td> <td>11.4%</td> <td>14.0%</td> <td>13.5%</td> <td>13.8%</td> <td>12.5%</td> <td>12.5%</td> <td colspan="4"> Return on Shr. Equity 13.5% </td> </tr> <tr> <td colspan="4"></td> <td>11.9%</td> <td>12.7%</td> <td>12.0%</td> <td>13.0%</td> <td>12.1%</td> <td>13.1%</td> <td>11.4%</td> <td>14.0%</td> <td>13.5%</td> <td>13.8%</td> <td>12.5%</td> <td>12.5%</td> <td colspan="4"> Return on Com Equity 13.5% </td> </tr> <tr> <td colspan="4"></td> <td>4.5%</td> <td>4.7%</td> <td>5.3%</td> <td>5.4%</td> <td>5.6%</td> <td>5.2%</td> <td>6.1%</td> <td>5.1%</td> <td>5.5%</td> <td>5.5%</td> <td>6.2%</td> <td colspan="4"> Retained to Com Eq 4.5% </td> </tr> <tr> <td colspan="4"></td> <td>45%</td> <td>47%</td> <td>53%</td> <td>54%</td> <td>56%</td> <td>52%</td> <td>61%</td> <td>51%</td> <td>55%</td> <td>55%</td> <td>62%</td> <td colspan="4"> All Div'ds to Net Prof 6.5% </td> </tr> <tr> <td colspan="4">Cash Assets</td> <td>36.7</td> <td>5.0</td> <td>10.8</td> <td colspan="12">BUSINESS: American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 262,770 customers in 10 California counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,656 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS subsidiary, Sold Chaparral City Wtr. of AZ. (6/11). Employs 808. BlackRock, Inc. owns 17.7% of out. shares; State St., 13.7%; off. & dir., 0.9% (4/22 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls, Inc. CA. Address: 630 East Foothill Blvd., San Dimas, CA 91773. Tel.: 909-394-3600. Internet: www.aswater.com.</td> </tr> <tr> <td colspan="4">Accts Receivable</td> <td>29.2</td> <td>34.4</td> <td>27.1</td> <td colspan="12">American States Water had another difficult quarter. In the June interim, the company's share net came in at \$0.54, versus last year's \$0.72 showing. About \$0.10 a share of the shortfall was the result of old rates still being in effect. Recall that the company's Golden States Water utility has already reached a settlement regarding higher rates with the state's Office of Public Advocate. The California Public Utility Commission (CPUC) has yet to approve the deal. Typically, the CPUC goes along with the Public Advocate's recommendation. (Indeed, as a body, it can be tougher on utilities than the CPUC.) Also, with the rate increase not in effect yet, third-quarter income will be hurt as well. It is important to note, however, that once the agreement is finalized, the utility will be able to collect these funds retroactive to the beginning of 2022.</td> </tr> <tr> <td colspan="4">Other</td> <td>91.2</td> <td>98.7</td> <td>101.1</td> <td colspan="12">We have lowered our earnings estimates for both 2022 and 2023. Assuming the CPUC makes a final ruling by the end of the year, we have still reduced our share-net estimate by a dime for this year and next. The main reason being that American States has to adjust the valuation of its portfolio of assets set aside for the pension program each quarter. Losses were incurred that impacted the June period by \$0.10 a share. Moreover, we think the third quarter will cause another asset writedown, as both the bond and equity markets slumped.</td> </tr> <tr> <td colspan="4">Current Assets</td> <td>157.1</td> <td>138.1</td> <td>139.0</td> <td colspan="12">Nonutility operations could be a growth catalyst out to 2025 to 2027. Through its ASUS subsidiary, American States provides water and waste treatment services to U.S. military bases. As the armed forces continue to privatize their water systems, we believe that ASUS will keep winning a fair amount of the 50-year contracts that are being put out for competitive bidding. This business is not regulated, so earnings here can exceed those in its other operations.</td> </tr> <tr> <td colspan="4">Accts Payable</td> <td>63.8</td> <td>65.9</td> <td>71.9</td> <td colspan="12">These shares do not hold much appeal at the recent quotation. In the near term, the equity is ranked to underperform the broader market averages in the coming year. Furthermore, over the three-to-five-year pull, AWR's total return potential is well below that of the Value Line median.</td> </tr> <tr> <td colspan="4">Debt Due</td> <td>4</td> <td>31.4</td> <td>223.9</td> <td colspan="12">James A. Flood October 7, 2022</td> </tr> <tr> <td colspan="4">Other</td> <td>54.4</td> <td>58.3</td> <td>52.9</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Current Liab.</td> <td>118.6</td> <td>155.6</td> <td>348.7</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">ANNUAL RATES of change (per sh)</td> <td>Past 10 Yrs.</td> <td>Past 5 Yrs.</td> <td>Est'd '19-'21 to '25-'27</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Revenues</td> <td>2.5%</td> <td>4.5%</td> <td>5.5%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">"Cash Flow"</td> <td>5.5%</td> <td>4.5%</td> <td>5.5%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Earnings</td> <td>9.0%</td> <td>8.5%</td> <td>9.0%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Dividends</td> <td>9.5%</td> <td>8.0%</td> <td>9.0%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Book Value</td> <td>5.5%</td> <td>6.0%</td> <td>5.5%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">QUARTERLY REVENUES (\$ mill.)</td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td>Full Year</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2019</td> <td>101.7</td> <td>124.7</td> <td>134.5</td> <td>113.0</td> <td>473.9</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2020</td> <td>109.1</td> <td>121.3</td> <td>133.6</td> <td>124.2</td> <td>488.2</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2021</td> <td>117.1</td> <td>128.4</td> <td>136.8</td> <td>116.6</td> <td>498.9</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2022</td> <td>108.6</td> <td>122.6</td> <td>143.8</td> <td>135</td> <td>510</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2023</td> <td>112</td> <td>130</td> <td>145</td> <td>138</td> <td>525</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">EARNINGS PER SHARE A</td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td>Full Year</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2019</td> <td>.35</td> <td>.72</td> <td>.76</td> <td>.45</td> <td>2.28</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2020</td> <td>.38</td> <td>.69</td> <td>.72</td> <td>.54</td> <td>2.33</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2021</td> <td>.52</td> <td>.72</td> <td>.76</td> <td>.55</td> <td>2.55</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2022</td> <td>.38</td> <td>.54</td> <td>.65</td> <td>.88</td> <td>2.45</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2023</td> <td>.50</td> <td>.75</td> <td>.75</td> <td>.60</td> <td>2.60</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">QUARTERLY DIVIDENDS PAID B</td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td>Full Year</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2018</td> <td>.255</td> <td>.255</td> <td>.275</td> <td>.275</td> <td>1.06</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2019</td> <td>.275</td> <td>.275</td> <td>.305</td> <td>.305</td> <td>1.16</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2020</td> <td>.305</td> <td>.305</td> <td>.335</td> <td>.335</td> <td>1.28</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2021</td> <td>.335</td> <td>.335</td> <td>.365</td> <td>.365</td> <td>1.40</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2022</td> <td>.365</td> <td>.365</td> <td>.3975</td> <td></td> <td></td> <td colspan="12"></td> </tr> <tr> <td colspan="4">(A) Primary earnings. Excludes nonrecurring gains/(losses); '06, '08, '10, '14c, '20, '23c; '11, '10c. Next earnings report due early Nov.</td> <td colspan="4">(B) Dividends historically paid in early March.</td> <td colspan="4">(C) In millions, adjusted for split.</td> <td colspan="4">(D) Includes intangibles. As of 12/31/21; \$1.1 million/\$0.03 a share.</td> <td colspan="4">Company's Financial Strength A</td> </tr> <tr> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4">Stock's Price Stability 100</td> </tr> <tr> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4">Price Growth Persistence 85</td> </tr> <tr> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4">Earnings Predictability 95</td> </tr> <tr> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4"></td> <td colspan="4">To subscribe call 1-800-VALUELINE</td> </tr> </table>												2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	VALUE LINE PUB. LLC	25-27	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.01	11.88	12.86	13.24	13.51	13.70	14.00	Revenues per sh	18.15	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.96	2.84	3.26	3.34	3.64	3.60	3.90	"Cash Flow" per sh	4.75	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.61	1.62	1.88	1.72	2.28	2.33	2.55	2.45	2.60	Earnings per sh A	3.25	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.99	1.06	1.16	1.28	1.40	1.53	1.62	Div'd Decl'd per sh B	2.15	1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	3.08	3.44	4.12	3.54	3.91	4.10	4.00	Cap'l Spending per sh	4.25	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.45	15.19	16.33	17.39	18.57	20.15	21.35	Book Value per sh D	23.75	34.10	34.46	34.60	37.06	37.70	38.53	38.72	38.29	36.50	36.57	36.68	36.76	36.85	36.89	36.94	37.25	37.50	37.50	Common Shs Outs't'g C	37.50	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	25.7	34.0	34.4	34.3	33.2	Bold figures are Value Line estimates			Avg Ann'l P/E Ratio	25.0	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.34	1.29	1.84	1.83	1.76	1.82				Relative P/E Ratio	1.40	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%	2.0%	1.8%	1.5%	1.6%	1.7%				Avg Ann'l Div'd Yield	2.6%	CAPITAL STRUCTURE as of 6/30/22				466.9	472.1	465.8	458.6	436.1	440.6	436.8	473.9	488.2	498.9	510	525	Revenues (\$mill) 680				Total Debt \$670.8 mill. Due in 5 Yrs \$33.5 mill.				54.1	62.7	61.1	60.5	59.7	69.4	63.9	84.3	86.4	94.3	91.0	98.0	Net Profit (\$mill) 120				LT Debt \$446.9 mill. LT Interest \$24.0 mill. (39% of Cap'l)				39.9%	36.3%	38.4%	38.4%	36.8%	36.0%	22.0%	22.6%	24.6%	24.4%	24.0%	24.0%	AFUDC % to Net Profit 1.5%				Leases, Uncapitalized: Annual rentals \$2.6 mill.				42.2%	39.8%	39.1%	41.1%	39.4%	38.0%	40.5%	44.4%	47.2%	46.1%	46.5%	45.5%	Long-Term Debt Ratio 52.0%				Pension Assets-12/21 \$233.5 mill. Oblig. \$259.8 mill.				57.8%	60.2%	60.9%	58.9%	60.6%	62.0%	59.5%	55.6%	52.8%	53.9%	53.5%	54.5%	Common Equity Ratio 48.0%				Pfd Stock None				787.0	818.4	832.6	791.5	815.3	854.9	938.4	1082.5	1216.2	1272.6	1400	1450	Total Capital (\$mill) 1710				Common Stock 36,956,824 shs. as of 7/29/22				917.8	981.5	1003.5	1060.8	1150.9	1205.0	1296.3	1415.7	1512.0	1626.0	1720	1800	Net Plant (\$mill) 2025				MARKET CAP: \$3.0 billion (Mid Cap)				8.3%	8.9%	8.6%	9.0%	8.6%	9.3%	7.9%	8.9%	8.0%	8.3%	7.5%	8.0%	Return on Total Cap'l 8.0%				CURRENT POSITION 2020 2021 6/30/22				11.9%	12.7%	12.0%	13.0%	12.1%	13.1%	11.4%	14.0%	13.5%	13.8%	12.5%	12.5%	Return on Shr. Equity 13.5%								11.9%	12.7%	12.0%	13.0%	12.1%	13.1%	11.4%	14.0%	13.5%	13.8%	12.5%	12.5%	Return on Com Equity 13.5%								4.5%	4.7%	5.3%	5.4%	5.6%	5.2%	6.1%	5.1%	5.5%	5.5%	6.2%	Retained to Com Eq 4.5%								45%	47%	53%	54%	56%	52%	61%	51%	55%	55%	62%	All Div'ds to Net Prof 6.5%				Cash Assets				36.7	5.0	10.8	BUSINESS: American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 262,770 customers in 10 California counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,656 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS subsidiary, Sold Chaparral City Wtr. of AZ. (6/11). Employs 808. BlackRock, Inc. owns 17.7% of out. shares; State St., 13.7%; off. & dir., 0.9% (4/22 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls, Inc. CA. Address: 630 East Foothill Blvd., San Dimas, CA 91773. Tel.: 909-394-3600. Internet: www.aswater.com.												Accts Receivable				29.2	34.4	27.1	American States Water had another difficult quarter. In the June interim, the company's share net came in at \$0.54, versus last year's \$0.72 showing. About \$0.10 a share of the shortfall was the result of old rates still being in effect. Recall that the company's Golden States Water utility has already reached a settlement regarding higher rates with the state's Office of Public Advocate. The California Public Utility Commission (CPUC) has yet to approve the deal. Typically, the CPUC goes along with the Public Advocate's recommendation. (Indeed, as a body, it can be tougher on utilities than the CPUC.) Also, with the rate increase not in effect yet, third-quarter income will be hurt as well. It is important to note, however, that once the agreement is finalized, the utility will be able to collect these funds retroactive to the beginning of 2022.												Other				91.2	98.7	101.1	We have lowered our earnings estimates for both 2022 and 2023. Assuming the CPUC makes a final ruling by the end of the year, we have still reduced our share-net estimate by a dime for this year and next. The main reason being that American States has to adjust the valuation of its portfolio of assets set aside for the pension program each quarter. Losses were incurred that impacted the June period by \$0.10 a share. Moreover, we think the third quarter will cause another asset writedown, as both the bond and equity markets slumped.												Current Assets				157.1	138.1	139.0	Nonutility operations could be a growth catalyst out to 2025 to 2027. Through its ASUS subsidiary, American States provides water and waste treatment services to U.S. military bases. As the armed forces continue to privatize their water systems, we believe that ASUS will keep winning a fair amount of the 50-year contracts that are being put out for competitive bidding. This business is not regulated, so earnings here can exceed those in its other operations.												Accts Payable				63.8	65.9	71.9	These shares do not hold much appeal at the recent quotation. In the near term, the equity is ranked to underperform the broader market averages in the coming year. Furthermore, over the three-to-five-year pull, AWR's total return potential is well below that of the Value Line median.												Debt Due				4	31.4	223.9	James A. Flood October 7, 2022												Other				54.4	58.3	52.9													Current Liab.				118.6	155.6	348.7													ANNUAL RATES of change (per sh)				Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27													Revenues				2.5%	4.5%	5.5%													"Cash Flow"				5.5%	4.5%	5.5%													Earnings				9.0%	8.5%	9.0%													Dividends				9.5%	8.0%	9.0%													Book Value				5.5%	6.0%	5.5%													QUARTERLY REVENUES (\$ mill.)				Mar.31	Jun.30	Sep.30	Dec.31	Full Year													2019				101.7	124.7	134.5	113.0	473.9													2020				109.1	121.3	133.6	124.2	488.2													2021				117.1	128.4	136.8	116.6	498.9													2022				108.6	122.6	143.8	135	510													2023				112	130	145	138	525													EARNINGS PER SHARE A				Mar.31	Jun.30	Sep.30	Dec.31	Full Year													2019				.35	.72	.76	.45	2.28													2020				.38	.69	.72	.54	2.33													2021				.52	.72	.76	.55	2.55													2022				.38	.54	.65	.88	2.45													2023				.50	.75	.75	.60	2.60													QUARTERLY DIVIDENDS PAID B				Mar.31	Jun.30	Sep.30	Dec.31	Full Year													2018				.255	.255	.275	.275	1.06													2019				.275	.275	.305	.305	1.16													2020				.305	.305	.335	.335	1.28													2021				.335	.335	.365	.365	1.40													2022				.365	.365	.3975															(A) Primary earnings. Excludes nonrecurring gains/(losses); '06, '08, '10, '14c, '20, '23c; '11, '10c. Next earnings report due early Nov.				(B) Dividends historically paid in early March.				(C) In millions, adjusted for split.				(D) Includes intangibles. As of 12/31/21; \$1.1 million/\$0.03 a share.				Company's Financial Strength A																Stock's Price Stability 100																Price Growth Persistence 85																Earnings Predictability 95																To subscribe call 1-800-VALUELINE			
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	VALUE LINE PUB. LLC	25-27																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.96	2.84	3.26	3.34	3.64	3.60	3.90	"Cash Flow" per sh	4.75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.61	1.62	1.88	1.72	2.28	2.33	2.55	2.45	2.60	Earnings per sh A	3.25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	3.08	3.44	4.12	3.54	3.91	4.10	4.00	Cap'l Spending per sh	4.25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.45	15.19	16.33	17.39	18.57	20.15	21.35	Book Value per sh D	23.75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
34.10	34.46	34.60	37.06	37.70	38.53	38.72	38.29	36.50	36.57	36.68	36.76	36.85	36.89	36.94	37.25	37.50	37.50	Common Shs Outs't'g C	37.50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	25.7	34.0	34.4	34.3	33.2	Bold figures are Value Line estimates			Avg Ann'l P/E Ratio	25.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.34	1.29	1.84	1.83	1.76	1.82				Relative P/E Ratio	1.40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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CAPITAL STRUCTURE as of 6/30/22				466.9	472.1	465.8	458.6	436.1	440.6	436.8	473.9	488.2	498.9	510	525	Revenues (\$mill) 680																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Total Debt \$670.8 mill. Due in 5 Yrs \$33.5 mill.				54.1	62.7	61.1	60.5	59.7	69.4	63.9	84.3	86.4	94.3	91.0	98.0	Net Profit (\$mill) 120																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
LT Debt \$446.9 mill. LT Interest \$24.0 mill. (39% of Cap'l)				39.9%	36.3%	38.4%	38.4%	36.8%	36.0%	22.0%	22.6%	24.6%	24.4%	24.0%	24.0%	AFUDC % to Net Profit 1.5%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Leases, Uncapitalized: Annual rentals \$2.6 mill.				42.2%	39.8%	39.1%	41.1%	39.4%	38.0%	40.5%	44.4%	47.2%	46.1%	46.5%	45.5%	Long-Term Debt Ratio 52.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Pension Assets-12/21 \$233.5 mill. Oblig. \$259.8 mill.				57.8%	60.2%	60.9%	58.9%	60.6%	62.0%	59.5%	55.6%	52.8%	53.9%	53.5%	54.5%	Common Equity Ratio 48.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Pfd Stock None				787.0	818.4	832.6	791.5	815.3	854.9	938.4	1082.5	1216.2	1272.6	1400	1450	Total Capital (\$mill) 1710																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Common Stock 36,956,824 shs. as of 7/29/22				917.8	981.5	1003.5	1060.8	1150.9	1205.0	1296.3	1415.7	1512.0	1626.0	1720	1800	Net Plant (\$mill) 2025																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
MARKET CAP: \$3.0 billion (Mid Cap)				8.3%	8.9%	8.6%	9.0%	8.6%	9.3%	7.9%	8.9%	8.0%	8.3%	7.5%	8.0%	Return on Total Cap'l 8.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Cash Assets				36.7	5.0	10.8	BUSINESS: American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 262,770 customers in 10 California counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,656 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS subsidiary, Sold Chaparral City Wtr. of AZ. (6/11). Employs 808. BlackRock, Inc. owns 17.7% of out. shares; State St., 13.7%; off. & dir., 0.9% (4/22 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls, Inc. CA. Address: 630 East Foothill Blvd., San Dimas, CA 91773. Tel.: 909-394-3600. Internet: www.aswater.com.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Accts Receivable				29.2	34.4	27.1	American States Water had another difficult quarter. In the June interim, the company's share net came in at \$0.54, versus last year's \$0.72 showing. About \$0.10 a share of the shortfall was the result of old rates still being in effect. Recall that the company's Golden States Water utility has already reached a settlement regarding higher rates with the state's Office of Public Advocate. The California Public Utility Commission (CPUC) has yet to approve the deal. Typically, the CPUC goes along with the Public Advocate's recommendation. (Indeed, as a body, it can be tougher on utilities than the CPUC.) Also, with the rate increase not in effect yet, third-quarter income will be hurt as well. It is important to note, however, that once the agreement is finalized, the utility will be able to collect these funds retroactive to the beginning of 2022.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Other				91.2	98.7	101.1	We have lowered our earnings estimates for both 2022 and 2023. Assuming the CPUC makes a final ruling by the end of the year, we have still reduced our share-net estimate by a dime for this year and next. The main reason being that American States has to adjust the valuation of its portfolio of assets set aside for the pension program each quarter. Losses were incurred that impacted the June period by \$0.10 a share. Moreover, we think the third quarter will cause another asset writedown, as both the bond and equity markets slumped.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Current Assets				157.1	138.1	139.0	Nonutility operations could be a growth catalyst out to 2025 to 2027. Through its ASUS subsidiary, American States provides water and waste treatment services to U.S. military bases. As the armed forces continue to privatize their water systems, we believe that ASUS will keep winning a fair amount of the 50-year contracts that are being put out for competitive bidding. This business is not regulated, so earnings here can exceed those in its other operations.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Accts Payable				63.8	65.9	71.9	These shares do not hold much appeal at the recent quotation. In the near term, the equity is ranked to underperform the broader market averages in the coming year. Furthermore, over the three-to-five-year pull, AWR's total return potential is well below that of the Value Line median.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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(A) Primary earnings. Excludes nonrecurring gains/(losses); '06, '08, '10, '14c, '20, '23c; '11, '10c. Next earnings report due early Nov.				(B) Dividends historically paid in early March.				(C) In millions, adjusted for split.				(D) Includes intangibles. As of 12/31/21; \$1.1 million/\$0.03 a share.				Company's Financial Strength A																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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AMERICAN WATER NYSE-AWK										RECENT PRICE	P/E RATIO		RELATIVE P/E RATIO		DIV'D YLD	VALUE LINE								
TIMELINESS 2 Raised 9/16/22 SAFETY 3 New 7/25/08 TECHNICAL 3 Raised 10/7/22 BETA .90 (1.00 = Market)										137.33	31.0	(Trailing: 19.2)	(Median: 25.0)	2.15	2.0%									
18-Month Target Price Range Low-High Midpoint (% to Mid) \$132-\$255 \$194 (40%)										High: 32.8 Low: 25.2	39.4 31.3	45.1 37.0	56.2 41.1	61.2 48.4	85.2 58.9	92.4 70.0	98.2 76.0	129.9 88.0	172.6 92.0	189.6 131.0	189.3 129.5	Target Price 2025	Range 2026	2027
2025-27 PROJECTIONS Price Gain Ann'l Total Low 185 (+35%) 10% High 125 (-10%) Nil																								
Institutional Decisions 4Q2021 1Q2022 2Q2022 to Buy 526 450 469 to Sell 369 473 415 Hld's(000) 156569 156704 151931										Percent shares traded: 21, 14, 7 % TOT. RETURN 8/22: 1 yr: -17.2, 3 yr: 21.7, 5 yr: 99.2 VL ARITH+ INDEX: -12.0, 43.2, 54.0														
CAPITAL STRUCTURE as of 6/30/22 Total Debt \$11621 mil. Due in 5 Yrs \$1849 mil. LT Debt \$11023 mil. LT Interest \$414 mil. (59% of Cap'l)										2876.9	2901.9	3011.3	3159.0	3302.0	3357.0	3440.0	3610.0	3777.0	3920.0	3800	4060	Revenues (\$mill)	5150	
Leases, Uncapitalized: Annual rentals \$12.0 mill. Pension Assets 12/21 \$2294.0 mill. Obliq. \$1991.0 mill. Pfd Stock \$3.0 mill. Pfd Div'd \$.2 mill										374.3	369.3	429.8	476.0	468.0	426.0	567.0	621.0	709.0	1263.0	810	885	Net Profit (\$mill)	1095	
Common Stock 181,786,473 shares as of 7/21/22										40.7%	39.1%	39.4%	39.1%	39.2%	53.3%	28.2%	25.5%	23.3%	23.0%	21.0%	22.0%	Income Tax Rate	24.0%	
MARKET CAP: \$25.0 billion (Large Cap)										6.2%	5.1%	--	--	--	--	--	--	5.1%	2.9%	5.0%	5.0%	AFUDC % to Net Profit	5.0%	
CURRENT POSITION 2020 2021 6/30/22										53.9%	52.4%	52.4%	53.7%	52.4%	54.7%	56.3%	58.5%	59.1%	58.6%	61.0%	61.0%	Long-Term Debt Ratio	60.0%	
Cash Assets 576 196 97 Accts Receivable 321 271 383 Other 1009 1147 538 Current Assets 1906 1554 1018 Accts Payable 189 235 196 Debt Due 1611 641 598 Other 1081 1265 934 Current Liab. 2881 2141 1728										46.1%	47.6%	47.4%	46.2%	47.5%	45.3%	43.6%	41.4%	40.9%	41.4%	40.0%	39.0%	Common Equity Ratio	40.0%	
ANNUAL RATES of change (per sh) Past 10 Yrs. Past 5 Yrs. Est'd '19-'21 to 25-'27										9635.5	9940.7	10364	10911	10967	11875	13433	14760	15787	17639	19260	20500	Total Capital (\$mill)	22000	
Revenues "Cash Flow" 3.5% 3.5% 4.5% Earnings 12.0% 13.5% 3.0% Dividends 9.5% 10.0% 8.5% Book Value 4.5% 5.0% 8.0%										11739	12391	12900	13933	14992	16246	17409	18232	19710	21084	22900	24400	Net Plant (\$mill)	26000	
QUARTERLY REVENUES (\$ mill.) Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year										5.4%	5.1%	5.5%	5.7%	5.6%	4.9%	5.4%	5.4%	5.7%	8.2%	5.5%	5.5%	Return on Total Cap'l	6.0%	
QUARTERLY EARNINGS PER SHARE A Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year										8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	9.7%	10.1%	11.0%	17.3%	10.5%	10.5%	Return on Shr. Equity	10.5%	
QUARTERLY DIVIDENDS PAID B Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year										8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	9.7%	10.1%	11.0%	17.3%	10.5%	10.5%	Return on Com Equity	10.5%	
QUARTERLY DIVIDENDS PAID B Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year										3.6%	4.7%	4.3%	4.7%	4.0%	2.5%	4.2%	4.4%	5.0%	11.4%	4.5%	4.5%	Retained to Com Eq	4.0%	
2019 813 882 1013 902 3610 2020 844 931 1079 923 3777 2021 888 999 1082 951 3920 2022 842 937 1081 940 3800 2023 895 1000 1165 1000 4060										57%	40%	50%	50%	56%	68%	56%	57%	55%	34%	58%	58%	All Div's to Net Prof	62%	
2019 .62 .94 1.33 .54 3.43 2020 .68 .97 1.46 .80 3.91 2021 .73 1.14 1.53 3.55 6.95 2022 .87 1.20 1.55 .83 4.45 2023 .85 1.25 1.80 .95 4.85										BUSINESS: American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to approximately 14 million people in 24 states. Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 86% of 2021 revenues. Pennsylvania is its largest market account-														
2018 .415 .455 455 .455 1.78 2019 .455 .50 .50 .50 1.96 2020 .50 .55 .55 .55 2.15 2021 .55 .6025 6025 .6025 2.36 2022 .6025 .655 655										Profits from American Water Works' operations ought to be flattish for the second half of this year. After deducting a \$2.70-a-share one-time gain in 2021's final period, the company's share net was \$2.38 over the third and fourth quarters. That is the same amount we expect the utility to make in the remainder of 2022. The bottom line ought to get back on track in 2023. Assuming reasonable treatment from regulators, American Water's share net could well rise 9% to \$4.85. A healthy percentage of the profit increase will come from the utility's acquisition strategy (more below). The regulatory climate could change. American Water has enjoyed a good relationship with the authorities that determine the rates it's allowed to charge customers. State regulators have been cognizant that large capital expenditures are required to upgrade the existing infrastructure. The potential problem ahead is inflation. When prices were rising just 2% annually, it was easier to pass along higher rates to residents. When inflation is high, though, it makes it more difficult politically to approve hikes of 6%-8%, even														
(A) Diluted earnings. Excludes nonrecr. losses: '08, \$4.62; '09, \$2.63; '11, \$0.07. Disc. oper.: '06, (\$0.04); '11, \$0.03; '12, (\$0.10); '13, (\$0.01). GAAP used as of 2014. Includes										if the costs are justified. The construction program is massive. Management has been pursuing an aggressive building policy aimed mostly at replacing antiquated pipelines and wastewater systems. In 2022, the company is on pace to spend \$2.5 billion. Since most of its pipelines and other assets are not in great shape, the spending should be ongoing. Acquisitions ought to be a driver of income growth. There are thousands of small municipally run water district in the U.S. A good portion do not have the finances to fund the necessary repairs and upgrades needed to be in compliance with EPA guidelines. American Water has been absorbing many smaller entities over the decade. This has enabled it to expand its rate base, on which it earns a return. Also, there are redundancies in the industry that can be eliminated from the districts it purchases, which should increase operating margins. These timely shares are not suitable for long-term accounts. The price of the equity is already trading within our projected 2025-2027 Target Price Range. James A. Flood October 7, 2022														
(B) Dividends paid in March, June, September, and December. Div. reinvestment available.										Company's Financial Strength B++ Stock's Price Stability 80 Price Growth Persistence 100 Earnings Predictability 80														
(C) In millions. (D) Includes intangibles. On 12/31/21: \$1.231 billion, \$6.67/share.										To subscribe call 1-800-VALUELINE														
(E) Pro forma numbers for '06 & '07.										© 2022 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.														

CALIFORNIA WATER NYSE-CWT										RECENT PRICE	P/E RATIO 31.2 (Trailing: 33.7; Median: 27.0)		RELATIVE P/E RATIO 2.17	DIV'D YLD 1.8%	VALUE LINE										
TIMELINESS 4 Lowered 8/12/22	High: 19.4	19.3	23.4	26.4	26.0	36.8	46.2	49.1	57.5	57.4	72.1	72.0	Target Price	Range											
SAFETY 3 Lowered 7/27/07	Low: 16.7	16.8	18.4	20.3	19.5	22.5	32.4	35.3	44.6	39.7	51.0	48.5	2025	2026	2027										
TECHNICAL 3 Raised 9/16/22	LEGENDS 50.00 x Dividends p sh divided by Interest Rate Relative Price Strength 2-for-1 split 6/11 Options: Yes Shaded area indicates recession																								
BETA .70 (1.00 = Market)																									
18-Month Target Price Range	Low-High Midpoint (% to Mid) \$47-\$89 \$68 (20%)																								
2025-27 PROJECTIONS	<table border="1"> <thead> <tr> <th>Price</th> <th>Gain</th> <th>Ann'l Total</th> </tr> <tr> <th>High</th> <th>(+35%)</th> <th>Return</th> </tr> <tr> <th>Low</th> <th>(-10%)</th> <th>Nil</th> </tr> </thead> <tbody> <tr> <td>50</td> <td></td> <td></td> </tr> </tbody> </table>												Price	Gain	Ann'l Total	High	(+35%)	Return	Low	(-10%)	Nil	50			
Price	Gain	Ann'l Total																							
High	(+35%)	Return																							
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Institutional Decisions	<table border="1"> <thead> <tr> <th>4Q2021</th> <th>1Q2022</th> <th>2Q2022</th> </tr> </thead> <tbody> <tr> <td>To Buy 155</td> <td>152</td> <td>121</td> </tr> <tr> <td>To Sell 109</td> <td>127</td> <td>141</td> </tr> <tr> <td>Held 42143</td> <td>43279</td> <td>43653</td> </tr> </tbody> </table>												4Q2021	1Q2022	2Q2022	To Buy 155	152	121	To Sell 109	127	141	Held 42143	43279	43653	
4Q2021	1Q2022	2Q2022																							
To Buy 155	152	121																							
To Sell 109	127	141																							
Held 42143	43279	43653																							
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027				
8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.50	12.29	12.70	13.89	14.53	14.72	15.78	14.72	15.45	16.55	16.55	Revenues per sh	17.90					
1.36	1.56	1.86	1.93	1.93	2.07	2.07	2.32	2.21	2.22	2.34	3.00	3.11	3.14	3.88	3.91	3.20	3.70	3.70	"Cash Flow" per sh	4.15					
.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	1.40	1.36	1.31	1.97	1.96	1.70	2.15	2.15	Earnings per sh A	2.55					
.58	.58	.59	.59	.60	.62	3.03	.64	.65	.67	.69	.72	.75	.79	.85	.92	1.00	1.08	1.08	Div'd Decl'd per sh B	1.25					
2.14	1.84	2.41	2.66	2.97	2.83	6.34	2.58	2.76	3.69	4.77	5.40	5.65	5.64	5.93	5.46	5.85	6.00	6.00	Cap'l Spending per sh	6.45					
9.07	9.25	9.72	10.13	10.45	10.76	11.28	12.54	13.11	13.41	13.75	14.44	15.19	16.07	18.30	21.92	22.35	23.55	23.55	Book Value per sh C	25.50					
41.31	41.33	41.45	41.53	41.67	41.82	41.98	47.74	47.81	47.88	47.97	48.01	48.07	48.53	50.33	53.72	53.75	52.00	52.00	Common Shs Outs'g D	50.00					
29.2	26.1	19.8	19.7	20.3	21.3	17.9	20.1	19.7	24.8	29.6	26.9	30.3	39.3	24.9	30.5	30.5	30.5	30.5	Avg Ann'l P/E Ratio	24.0					
1.58	1.39	1.19	1.31	1.29	1.34	1.14	1.13	1.04	1.25	1.55	1.35	1.64	2.09	1.28	1.67	1.67	1.67	1.67	Relative P/E Ratio	1.30					
2.9%	3.0%	3.1%	3.1%	3.2%	3.4%	3.5%	3.1%	2.8%	2.9%	2.3%	1.9%	1.8%	1.5%	1.7%	1.5%	1.5%	1.5%	1.5%	Avg Ann'l Div'd Yield	2.0%					
CAPITAL STRUCTURE as of 6/30/22												560.0	584.1	597.5	588.4	609.4	666.9	698.2	714.6	794.3	790.9	830	860	Revenues (\$mill) E	895
Total Debt \$1130.0 mill. Due in 5 Yrs \$357.0 mill.												42.6	47.3	56.7	45.0	48.7	67.2	65.6	63.1	96.8	101.1	92.0	112	Net Profit (\$mill)	128
LT Debt \$1054.2 mill. LT Interest \$40.0 mill.												37.5%	30.3%	33.0%	36.0%	35.5%	30.1%	24.5%	19.1%	11.1%	20.1%	21.0%	21.0%	Income Tax Rate	21.0%
(Total interest coverage: 4.9x) (47% of Cap'l)												8.0%	4.3%	2.7%	4.3%	6.1%	3.5%	3.1%	5.8%	3.3%	1.7%	4.0%	5.0%	AFUDC % to Net Profit	5.0%
Pension Assets-12/21 \$810.5 mill.												47.8%	41.6%	40.1%	44.4%	44.6%	42.7%	49.3%	50.2%	45.9%	47.3%	44.0%	42.5%	Long-Term Debt Ratio	39.5%
Oblig. \$887.5 mill.												52.2%	58.4%	59.9%	55.6%	55.4%	57.3%	50.7%	49.8%	54.1%	52.7%	56.0%	57.5%	Common Equity Ratio	60.5%
Pfd Stock None												908.2	1024.9	1045.9	1154.4	1191.2	1209.3	1440.2	1566.7	1702.4	2233.4	2150	2125	Total Capital (\$mill)	2100
Common Stock 54,356,000 shs.												1457.1	1515.8	1590.4	1701.8	1859.3	2048.0	2232.7	2406.4	2650.6	2846.9	2950	2975	Net Plant (\$mill)	3050
MARKET CAP: \$3.0 billion (Mid Cap)												6.3%	6.0%	6.3%	5.2%	5.5%	7.1%	5.9%	5.5%	7.0%	5.5%	5.0%	6.0%	Return on Total Cap'l	6.5%
CURRENT POSITION 2020 2021 6/30/22												9.0%	7.9%	9.1%	7.0%	7.4%	9.7%	9.0%	8.1%	10.5%	8.6%	7.5%	9.0%	Return on Shr. Equity	10.0%
(\$MILL)												9.0%	7.9%	9.1%	7.0%	7.4%	9.7%	9.0%	8.1%	10.5%	8.6%	7.5%	9.0%	Return on Com Equity	10.0%
Cash Assets												3.4%	3.4%	4.1%	2.0%	2.4%	4.7%	4.0%	3.2%	6.0%	4.6%	3.0%	4.5%	Retained to Com Eq	5.0%
Other												62%	56%	55%	71%	68%	51%	55%	60%	43%	47%	59%	50%	All Div'ds to Net Prof	49%
Current Assets												BUSINESS: California Water Service Group provides regulated and nonregulated water service to 494,500 customers in 100 communities in the state of California. Accounts for about 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Acquired Rio Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown, '21: residential, 69%; business, 19%; industrial, 3%; public authorities, 5%; other 4%. Off. and dir. own 1% of common stock (4/22 proxy). Has 1,184 employees. Pres. and CEO: Martin A. Kropelnicki. Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Internet: www.calwatergroup.com.													
Debt Payable												California Water Service Group has made some moves since our early-July review. First, the company's California and Washington-based subsidiaries both inked deals to acquire water system assets of two adjacent utilities. The acquisitions, which are still pending customary closing conditions and regulatory approval, ought to bolster California Water's residential operating footprint in these areas. Meanwhile, in Texas, the company recently entered into a long-term water supply agreement with the Guadalupe Blanco River Authority. The deal is imperative to meeting residential water demand in the growing region, and is likely to require substantial pipeline infrastructure development. Lastly, management continues to make progress on its 2021 cost of capital review and general rate case filing.													
Debt Due												Earnings are apt to take a step back this year. California Water posted net income of \$0.36 per share in the June period, roughly half that of the prior-year tally. The softer-than-expected showing can be attributed to costs associated with a change in deferred revenue, weaker customer water consumption, and an uptick in general and administrative expenses. That said, bottom-line comparisons are poised to improve over the back half of 2022, largely owing to prospects for customer rate increases. Even so, we are shaving \$0.30 from our current-year earnings estimate, to \$1.70 per share.													
Other												Significant infrastructure investment is on the docket over the pull to late decade. In addition to upgrading aging water delivery systems and treatment plants, California Water is allocating funds to shore up its preparation for unexpected wildfires and climate-related challenges. Meanwhile, the company's recently announced \$350-million stock buyback program is imminent.													
Current Liab.												California Water shares lack investment appeal at this juncture. The stock has slipped one notch on our Timeliness ranking scale, to 4 (Below Average). Moreover, much of the growth we envision three to five years hence appears to already be factored into the recent quotation. All told, subscribers would do well to remain on the sidelines, for now.													
ANNUAL RATES Past 10 Yrs. Past 5 Yrs. Est'd '19-'21 to 25-'27												Nicholas Patrikis October 7, 2022													
Revenues												Company's Financial Strength B++													
"Cash Flow"												Stock's Price Stability 95													
Earnings												Price Growth Persistence 85													
Dividends												Earnings Predictability 55													
Book Value												To subscribe call 1-800-VALUELINE													
QUARTERLY REVENUES (\$ mill) F												(A) Basic EPS. Excl. nonrecurring gain (loss): '11, '4c. Next earnings report due early Nov.													
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																				
2019	126.1	179.0	232.6	176.9	714.6																				
2020	125.6	175.5	304.1	189.1	794.3																				
2021	147.7	213.1	256.7	173.4	790.9																				
2022	173.0	206.2	255	195.8	830																				
2023	175	220	265	200	860																				
QUARTERLY DIVIDENDS PAID B =												(B) Dividends historically paid in late Feb., May, Aug., and Nov. Div'd reinvestment plan available.													
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																				
2018	.1875	.1875	.1875	.1875	.75																				
2019	.1975	.1975	.1975	.1975	.79																				
2020	.2125	.2125	.2125	.2125	.85																				
2021	.230	.230	.230	.230	.92																				
2022	.250	.250	.250																						
QUARTERLY DIVIDENDS PAID C =												(C) Incl. intangible assets. In '21 : \$36.8 mill., \$0.69/sh.													
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																				
2018	.1875	.1875	.1875	.1875	.75																				
2019	.1975	.1975	.1975	.1975	.79																				
2020	.2125	.2125	.2125	.2125	.85																				
2021	.230	.230	.230	.230	.92																				
2022	.250	.250	.250																						
QUARTERLY DIVIDENDS PAID D =												(D) In millions, adjusted for split.													
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																				
2018	.1875	.1875	.1875	.1875	.75																				
2019	.1975	.1975	.1975	.1975	.79																				
2020	.2125	.2125	.2125	.2125	.85																				
2021	.230	.230	.230	.230	.92																				
2022	.250	.250	.250																						

ESSENTIAL UTIL. NYSE-WTRG			RECENT PRICE	P/E RATIO	Trailing: 25.6 Median: 25.0		RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE											
TIMELINESS	3	Raised 9/16/22	43.46	23.9	31.1	35.8	1.66	2.7%												
SAFETY	3	Lowered 1/8/21	High: 19.0 Low: 15.4	39.6	39.4	47.3	54.5	53.9	53.7											
TECHNICAL	1	Raised 9/16/22	28.1 20.6	28.2 22.4	24.4	28.0	30.4	41.1	41.0											
BETA	.95	(1.00 = Market)	LEGENDS		17.50 x "Cash Flow" p/sh Relative Price Strength 54-4 split 9/13 Options: Yes Shaded area indicates recession															
18-Month Target Price Range			Target Price		Range															
Low-High	Midpoint (% to Mid)		2025	2026	2027															
\$38-\$72	\$55 (25%)																			
2025-27 PROJECTIONS			Ann'l Total Return																	
High	Price	Gain	15%																	
Low	45	(+60%)	4%																	
Institutional Decisions			Percent shares traded																	
4Q2021	1Q2022	2Q2022	15%																	
To Buy	313	292	10%																	
To Sell	208	248	5%																	
Hld's(000)	178560	181504	5																	
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	VALUE LINE PUB. LLC	25-27	
3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	4.56	4.71	4.03	5.96	7.43	8.25	8.25	Revenues per sh	8.95	
1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	2.12	1.90	1.73	2.21	2.89	3.00	3.20	"Cash Flow" per sh	4.00	
.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.35	1.08	1.04	1.12	1.67	1.80	1.95	Earnings per sh	2.25	
.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	.79	.85	.91	.97	1.04	1.11	1.20	Div'd Decl'd per sh	1.55	
1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	2.69	2.78	2.49	3.41	4.04	3.95	3.85	Cap'l Spending per sh	3.80	
5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.02	11.28	17.58	19.09	20.50	21.45	22.30	Book Value per sh	26.90	
165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	176.54	177.39	177.71	178.09	220.76	245.39	252.87	255.00	260.00	Common Shs Outs'tg	280.00	
34.7	32.0	24.9	23.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	24.7	32.6	39.1	39.6	28.3	Bold figures are Value Line estimates			Avg Ann'l P/E Ratio	26.0
1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.25	1.24	1.76	2.08	2.03	1.55				Relative P/E Ratio	1.45
1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%	2.4%	2.4%	2.2%	2.2%	2.2%				Avg Ann'l Div'd Yield	2.7%
CAPITAL STRUCTURE as of 6/30/22			757.8	768.6	779.9	814.2	819.9	809.5	838.1	889.7	1462.7	1878.1	2110	2150	Revenues (\$mill)	2500				
Total Debt \$6213.3 mill. Due in 5 Yrs \$882.1 mill.			153.1	205.0	213.9	201.8	234.2	239.7	192.0	224.5	284.8	431.6	460	505	Net Profit (\$mill)	630				
LT Debt \$6087.7 mill. LT Interest \$216.0 mill. (53% of Cap'l)			39.0%	10.0%	10.5%	6.9%	8.2%	6.6%	--	--	--	--	4.0%	10.0%	Income Tax Rate	15.0%				
Pension Assets-12/21 \$433.1 mill. Oblig. \$452.9 mill.			--	1.1%	2.4%	3.1%	3.8%	6.3%	6.8%	7.2%	4.5%	4.8%	5.0%	5.0%	AFUDC % to Net Profit	6.0%				
Pfd Stock None			52.7%	48.9%	48.5%	50.3%	48.4%	50.6%	54.4%	43.1%	54.0%	52.7%	54.0%	54.5%	Long-Term Debt Ratio	53.0%				
Common Stock 262,170,763 shares as of 7/22/22			47.3%	51.1%	51.5%	49.7%	51.6%	49.4%	45.6%	56.9%	46.0%	47.3%	46.0%	45.5%	Common Equity Ratio	47.0%				
MARKET CAP: \$11.4 billion (Large Cap)			2929.7	3003.6	3216.0	3469.5	3587.7	3965.4	4407.8	6824.2	10192	10964	11975	12800	Total Capital (\$mill)	16000				
CURRENT POSITION (SMILL.)			3936.2	4167.3	4402.0	4688.9	5001.6	5399.9	5930.3	6345.8	9512.9	10252	10900	11600	Net Plant (\$mill)	13500				
Cash Assets			4.8	10.6	13.0	6.6%	8.0%	7.8%	6.9%	7.6%	7.1%	5.5%	4.2%	3.7%	4.8%	5.5%	5.5%	Return on Total Cap'l	5.5%	
Receivables			154.3	141.0	143.4	11.0%	13.4%	12.9%	11.7%	12.7%	12.2%	9.6%	5.8%	6.1%	8.3%	8.5%	8.5%	Return on Shr Equity	8.5%	
Inventory (AvgCst)			58.4	109.6	128.6	11.0%	13.4%	12.9%	11.7%	12.7%	12.2%	9.6%	5.8%	6.1%	8.3%	8.5%	8.5%	Return on Com Equity	8.5%	
Other			162.2	176.6	128.3	4.3%	6.7%	6.1%	4.7%	5.6%	5.1%	2.1%	9%	1.1%	3.3%	3.0%	3.0%	Retained to Com Eq	2.5%	
Current Assets			380.2	437.8	413.3	61%	50%	52%	60%	58%	59%	79%	84%	82%	60%	62%	62%	All Div's to Net Prof	69%	
Accts Payable			177.5	192.9	194.1	BUSINESS: Essential Utilities, Inc. became the new name for Aqua America on Feb. 3, 2020, to reflect the acquisition of Peoples, a natural gas utility, which occurred in 3/20. In 2021, Aqua Amer. provided water and wastewater services to about 5 million people in PA, OH, TX, IL, NC, NJ, IN, VA NS WS. Employ 3,211. Acquired AquaSource, 7/13; N. Maine Util., 7/15; and others. Water respn. for 52% of revenues in 2021; residential, 30%; commercial, 8.0%; industrial, wastewater & other, 14%. Gas 46%; other, 2.0%. Off. & dir. own less than 1% of the common stock; BlackRock, 10.6%; Vanguard, 9.7%; Can. Pen. Plan 8.6% (3/22 proxy). Pres. & CEO: Christopher Franklin, Inc.: PA Addr.: 762 W Lancaster Ave., Bryn Mawr, PA 19010. Tel.: 610-525-1400. Int.: www.essential.co.														
Debt Due			162.6	197.1	125.6	Essential Utilities' second-quarter earnings were in line with our expectations. The water and gas utility posted share net of \$0.31, versus our \$0.32 estimate. Management reaffirmed the same guidance as before, so we are sticking with our previous bottom-line estimates of \$1.80 and 1.95 for 2022 and 2023, respectively. These figures represent a solid 8% increase for both this year and next.														
Other			263.8	285.1	224.4	A potential acquisition of a large wastewater project has been shelved, for now. Last summer, Essential's Aqua America water subsidiary signed an exclusivity agreement with the Bucks County Water and Sewer Authority to discuss purchasing the asset for about \$1.1 billion. In early September, the negotiations were suddenly halted. Aqua continues to express interest in completing the transaction, however. In any case, it has already closed two acquisitions this year and agreed to buy parts, or all of the assets of seven different water systems. The price tag will total approximately \$365 million. The policy of aggressively buying other water entities ought to help fuel long-term growth. America's water industry is incredibly fragmented with most water districts being run by small, undercapitalized municipal entities. Not only do they not have the funds required to replace old pipelines and treatment centers, but they are inefficient. When a bigger company, such as Aqua, takes over a smaller water authority, it can create significant efficiencies by eliminating many redundancies.														
Current Liab.			603.9	675.1	544.1	The dividend was hiked by a healthy percentage. The board increased the quarterly payout by 7%, to \$0.287 a share in the latest quarter.														
ANNUAL RATES			Past 10 Yrs	Past 5 Yrs	Est'd '19-'21 to 25-'27	Shares of Essential do not look particularly attractive at this time. In the year ahead, the equity is just ranked to perform in line with the broader market averages. Also, the stock's total return potential is well below that of the average equity under Value Line review. Similar to others in this industry, Essential has many appealing features, including well-defined earnings and dividend growth, but they all appear to be more than reflected in the recent quotation.														
Revenues			5.0%	3.0%	10.0%	James A. Flood October 7, 2022														
"Cash Flow"			6.0%	1.0%	10.0%															
Earnings			7.5%	7.0%	8.0%															
Dividends			11.0%	14.0%	6.0%															
Book Value																				
QUARTERLY REVENUES (\$mill.)			Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year												
2019			201	218.9	243.6	226.1	889.7													
2020			255.6	384.5	348.6	474.0	1462.7													
2021			583.5	397.0	361.9	535.7	1878.1													
2022			699.3	448.8	391.9	570	2110													
2023			660	475	420	595	2150													
EARNINGS PER SHARE A			Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year												
2019			.09	.25	.38	.28	1.04													
2020			.21	.29	.22	.40	1.12													
2021			.72	.32	.19	.44	1.67													
2022			.76	.31	.22	.51	1.80													
2023			.78	.37	.33	.47	1.95													
QUARTERLY DIVIDENDS PAID B			Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year												
2018			.2047	.2047	.219	.219	.85													
2019			.219	.219	.2343	.2343	.91													
2020			.2343	.2343	.2507	.2507	.97													
2021			.2507	.2507	.2682	.2682	1.04													
2022			.2682	.2682	.287															
(A) Diluted eps. Excl. nonrec. gains: '12, 18c. Excl. gain from disc. operations: '12, 7c; '13, 9c; '14, 11c. Quarterly EPS do not add in '19 due to a large change in the number of shares			outstanding in the Dec. period. Next earnings report early November.			available (5% discount).			Company's Financial Strength B++											
(B) Dividends historically paid in early March, June, Sept., & Dec. # Div d. reinvestment plan			(C) In millions, adjusted for stock split.			(D) Includes intangibles: 12/31/21, \$1.231 bill./\$.487 a share.			Stock's Price Stability 90											
									Price Growth Persistence 90											
									Earnings Predictability 60											
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MIDDLESEX WATER NDQ-MSEX										RECENT PRICE	P/E RATIO 35.5 (Trailing: 36.5; Median: 24.0)					RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE													
TIMELINESS 3 Raised 9/9/22	High: 19.4	19.6	22.5	23.7	28.0	44.5	46.7	60.3	67.7	76.1	121.4	121.1																			
SAFETY 2 New 10/21/11	Low: 16.5	17.5	18.6	19.1	21.2	25.0	32.2	34.0	51.0	48.8	67.1	75.8																			
TECHNICAL 3 Raised 10/7/22																															
BETA .70 (1.00 = Market)	LEGENDS 55.00 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession																														
18-Month Target Price Range	Low-High Midpoint (% to Mid) \$77-\$160 \$119 (45%)																														
2025-27 PROJECTIONS	<table border="1"> <thead> <tr> <th>High</th> <th>Price</th> <th>Gain</th> <th>Ann'l Total</th> <th>Return</th> </tr> </thead> <tbody> <tr> <td>90</td> <td>90</td> <td>(+10%)</td> <td>4%</td> <td>4%</td> </tr> <tr> <td>65</td> <td>65</td> <td>(-20%)</td> <td>-4%</td> <td>-4%</td> </tr> </tbody> </table>															High	Price	Gain	Ann'l Total	Return	90	90	(+10%)	4%	4%	65	65	(-20%)	-4%	-4%	
High	Price	Gain	Ann'l Total	Return																											
90	90	(+10%)	4%	4%																											
65	65	(-20%)	-4%	-4%																											
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4Q2021	1Q2022	2Q2022	Percent																												
To Buy	82	90	shares																												
To Sell	84	90	traded																												
Hld's(000)	12685	13008	11642																												
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	VALUE LINE PUB.	25-27												
6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	8.00	8.42	7.72	8.10	8.17	8.75	8.95	Revenues per sh	9.15												
1.33	1.49	1.53	1.40	1.55	1.46	1.56	1.72	1.84	1.97	2.17	2.24	2.89	2.90	3.25	3.28	3.40	3.50	"Cash Flow" per sh	3.85												
.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	1.38	1.96	2.01	2.18	2.07	2.45	2.50	Earnings per sh ^A	2.75												
.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	.86	.91	.98	1.04	1.11	1.18	1.25	Div'd Decl'd per sh ^{B=C}	1.40												
2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	2.91	3.08	4.40	5.11	6.04	4.53	5.00	5.25	Cap'l Spending per sh	6.00												
9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12.24	12.74	13.40	14.02	15.17	18.57	19.81	20.99	21.70	22.40	Book Value per sh	22.80												
13.17	13.25	13.40	13.52	15.57	15.82	15.96	16.12	16.23	16.30	16.35	16.40	17.43	17.47	17.52	17.75	17.85	Common Shs Outst'g ^C	18.00													
22.7	21.6	19.8	21.0	17.8	21.7	20.8	19.7	18.5	19.1	25.6	28.4	22.2	29.7	30.1	44.3	44.0	45.0	Avg Ann'l P/E Ratio	28.0												
1.23	1.15	1.19	1.40	1.13	1.36	1.32	1.11	.97	.96	1.34	1.43	1.20	1.58	1.55	2.43	1.6%	2.4%	Relative P/E Ratio	1.30												
3.7%	3.7%	4.0%	4.0%	4.2%	4.0%	4.0%	3.7%	3.7%	3.3%	2.3%	2.2%	2.1%	1.6%	1.6%	1.2%	1.6%	1.2%	Avg Ann'l Div'd Yield	1.8%												
CAPITAL STRUCTURE as of 6/30/22																	110.4	114.8	117.1	126.0	132.9	130.8	138.1	134.6	141.6	143.1	155	160	Revenues (\$mill)	165	
Total Debt \$313.2 mill. Due in 5 Yrs \$43.7 mill.																	14.4	16.6	18.4	20.0	22.7	22.8	32.5	33.9	38.4	36.5	44.0	45.0	Net Profit (\$mill)	50.0	
LT Debt \$305.4 mill. LT Interest \$7.5 mill.																	33.9%	34.1%	35.0%	34.5%	34.0%	32.7%	2.8%	--	2.8%	2.8%	21.0%	21.0%	Income Tax Rate	21.0%	
(Total interest coverage: 5.0x)																	3.4%	1.9%	1.7%	1.9%	2.7%	3.1%	1.4%	3.4%	3.9%	3.9%	2.5%	2.5%	AFUDC % to Net Profit	2.5%	
(45% of Cap'l)																	41.5%	40.4%	40.5%	39.4%	37.9%	37.5%	37.8%	41.5%	44.0%	45.3%	44.0%	43.5%	Long-Term Debt Ratio	42.0%	
Pension Assets-12/21 \$100.8 mill.																	57.4%	58.7%	58.8%	59.8%	61.5%	61.8%	61.6%	58.2%	55.7%	54.4%	55.5%	56.0%	Common Equity Ratio	57.5%	
Oblig. \$113.7 mill.																	316.5	321.4	335.8	345.4	355.4	370.7	404.1	556.7	621.5	676.3	690	710	Total Capital (\$mill)	715	
Pfd Stock \$2.4 mill. Pfd Div'd: \$1 mill.																	435.2	446.5	465.4	481.9	517.8	557.2	618.5	705.7	796.6	865.4	875	885	Net Plant (\$mill)	915	
Common Stock 17,610,000 shs. as of 7/29/22																	5.4%	5.9%	6.3%	6.6%	7.1%	6.9%	8.9%	6.7%	6.8%	6.0%	6.5%	6.5%	Return on Total Cap'l	7.5%	
MARKET CAP: \$1.4 billion (Small Cap)																	7.8%	8.7%	9.2%	9.6%	10.3%	9.8%	12.9%	10.4%	11.0%	9.9%	11.0%	11.0%	Return on Shr Equity	12.0%	
CURRENT POSITION (SMILL)																	7.8%	8.7%	9.3%	9.6%	10.3%	9.9%	13.0%	10.4%	11.1%	9.9%	11.5%	11.0%	Return on Com Equity	12.0%	
2020																	1.4%	2.4%	3.1%	3.5%	4.3%	3.8%	7.0%	5.4%	5.8%	4.6%	6.0%	5.5%	Retained to Com Eq	6.0%	
2021																	83%	73%	67%	63%	58%	62%	46%	48%	48%	53%	48%	50%	All Div's to Net Prof	51%	
2022																	BUSINESS: Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2021, the Middlesex System accounted for 59% of operating revenues. At 12/31/21, the company had 347 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 2.0% of the com. stock; BlackRock Inst. Trust Co., 7.8% (4/22 proxy). Add: 485 C Route 1 South, Suite 400, Iselin, NJ 08830. Telephone: 732-634-1500. Int: www.middlesexwater.com.														
ANNUAL RATES of change (per sh)																	Middlesex Water recently inked a deal to manage the Borough of Avalon, New Jersey's water and sewer utility operations. The new 10-year contract, which went into effect on September 1, 2022, replaces the previous decade-long agreement, and includes provisions for maintenance and customer services. Periodic rate hikes have more than offset the company's regulated Delaware wastewater divestment from earlier this year. The latter resulted in approximately \$0.7 million in reduced revenues for the June period. However, the top line is benefiting notably from the latest round of customer rate increases. To wit, the New Jersey Board of Public Utilities recently approved another rate hike, largely due to aggressive infrastructure and distribution system investments. In sum, we now look for revenues of \$155 million this year (up from our previous call of \$153 million) and \$160 million in the next (up from \$158 million). Strong bottom-line expansion is likely on tap for 2022, despite a modest reduction to our current-year profit forecast. Earnings contracted about 20% year over year in the second quarter, to \$0.50 per share. Expiring income tax benefits and higher operating expenses weighed on the figure. Consequently, we are shaving a dime from our full-year 2022 bottom-line estimate, to \$2.45 per share. Over the pull to late decade, leadership is poised to invest heavily on infrastructure-related upgrades. Indeed, aging water delivery systems and pipelines are long overdue for replacement. Management is apt to focus on facility treatment enhancements as well. Overall, aggressive spending on public infrastructure projects suggests that additional rate hikes are probably in the cards further down the road. Middlesex stock is ranked to mirror the broader market averages over the coming six to 12 months. What's more, at the recent quotation, the equity lacks appeal over the 18-month and 3- to 5-year windows. Although the company is non-cyclical and pays a stable quarterly dividend that is well-covered by earnings, we think waiting for a better entry point is the prudent move here at this juncture.														
2019																	Nicholas Patrikis														
2020																	October 7, 2022														
2021																															
2022																															
2023																															
QUARTERLY REVENUES (\$ mill.)																															
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																										
2019	30.7	33.4	37.8	32.7	134.6																										
2020	31.8	35.3	39.9	34.6	141.6																										
2021	32.5	36.7	39.9	34.0	143.1																										
2022	36.2	39.7	41.0	38.1	155																										
2023	38.0	41.0	42.0	39.0	160																										
EARNINGS PER SHARE ^A																															
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																										
2019	.39	.49	.66	.46	2.01																										
2020	.44	.55	.72	.47	2.18																										
2021	.39	.62	.65	.41	2.07																										
2022	.68	.50	.75	.52	2.45																										
2023	.53	.60	.77	.60	2.50																										
QUARTERLY DIVIDENDS PAID ^{B=C}																															
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																										
2018	.22375	.22375	.22375	.24	.91																										
2019	.24	.24	.24	.2562	.98																										
2020	.2562	.2562	.2562	.2725	1.04																										
2021	.2725	.2725	.2725	.29	1.11																										
2022	.29	.29	.29																												
Company's Financial Strength B++																															
Stock's Price Stability 85																															
Price Growth Persistence 90																															
Earnings Predictability 90																															
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(A) Diluted earnings. Next earnings report due early November.

(B) Dividends historically paid in mid-Feb., May, Aug., and November. Div'd reinvestment plan available.

(C) In millions.

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SJW GROUP NYSE-SJW														RECENT PRICE	59.57	P/E RATIO	28.9	(Trailing: 34.2)	Median: 23.0	RELATIVE P/E RATIO	2.01	DIV'D YLD	2.4%	VALUE LINE
TIMELINESS	4	Lowered 8/12/22	High:	26.8	26.9	30.1	33.7	35.7	56.9	69.3	68.4	74.5	75.0	73.7	73.4	Target Price	2025	2026	2027					
SAFETY	3	New 4/22/11	Low:	20.9	22.6	24.5	25.5	27.5	28.6	45.4	51.3	53.9	45.6	58.0	55.7									
TECHNICAL	3	Raised 10/7/22	LEGENDS 42.00 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession																					
BETA	.80	(1.00 = Market)																						
18-Month Target Price Range			Low-High	Midpoint (% to Mid)																				
			\$57-\$96	\$77 (30%)																				
2025-27 PROJECTIONS			High	Price	Gain	Ann'l Total																		
			Low	90	(+50%)	Return																		
			60	(Nil)	13%																			
			3%																					
Institutional Decisions			4Q2021 1Q2022 2Q2022 to Buy 98 93 78 to Sell 68 80 104 Held's(000) 21690 21360 21790																					
			Percent shares traded 15 10 5																					
			% TOT. RETURN 8/22 THIS STOCK VL ARTH' INDEX 1 yr: -5.2 -12.0 3 yr: -0.4 -43.2 5 yr: 27.2 54.9																					
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2023	25-27				
10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	18.97	14.00	14.78	19.77	19.01	20.00	20.85	Revenues per sh	22.15					
2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.76	5.24	3.29	3.13	5.28	5.13	3.60	4.15	"Cash Flow" per sh	4.90					
1.19	1.04	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	2.86	1.82	.82	2.14	2.03	1.95	2.50	Earnings per sh A	3.25					
.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	1.04	1.12	1.20	1.28	1.36	1.44	1.52	Div'd Decl'd per sh B	1.76					
3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	7.26	5.08	6.25	7.44	8.32	7.50	8.00	Cap'l Spending per sh	7.75					
12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	22.57	31.31	31.27	32.12	34.28	36.65	39.15	Book Value per sh	40.85					
18.28	18.36	18.18	18.50	18.59	18.59	18.67	20.17	20.29	20.38	20.46	20.52	28.40	28.46	28.56	30.18	30.00	30.00	Common Shs Outst'g C	30.00					
23.5	33.4	26.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	18.8	32.7	NMF	30.0	32.9	600	625	Revenues (\$mill)	665					
1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	.59	.84	.82	.95	1.77	NMF	1.54	1.80	59.0	75.0	Net Profit (\$mill)	98.0					
2.0%	1.7%	2.3%	2.8%	2.9%	2.0%	3.0%	2.7%	2.6%	2.5%	2.0%	1.9%	1.9%	1.9%	2.0%	2.0%	1.5%	1.5%	Income Tax Rate	21.0%					
																		AFUDC % to Net Profit	1.5%					
																		Long-Term Debt Ratio	54.0%					
																		Common Equity Ratio	55.0%					
																		Total Capital (\$mill)	2225					
																		Net Plant (\$mill)	2825					
																		Return on Total Cap'l	5.0%					
																		Return on Shr Equity	8.0%					
																		Return on Com Equity	8.0%					
																		Retained to Com Eq	3.5%					
																		All Div'ds to Net Prof	54%					
CAPITAL STRUCTURE as of 6/30/22			261.5	276.9	319.7	305.1	339.7	389.2	397.7	420.5	564.5	573.7	600	625	Revenues (\$mill)	665								
Total Debt \$1494.7 mill. Due in 5 Yrs \$39.0 mill.			22.3	23.5	51.8	37.9	52.8	59.2	38.8	23.4	61.5	60.5	59.0	75.0	Net Profit (\$mill)	98.0								
LT Debt \$1455.7 mill. LT Interest \$50.0 mill.			41.1%	38.7%	32.5%	38.1%	38.8%	36.7%	20.6%	26.4%	12.0%	12.2%	21.5%	21.0%	Income Tax Rate	21.0%								
(LT Interest Coverage: 3.6x)			--	--	--	--	--	--	--	2.0%	1.5%	1.5%	1.5%	AFUDC % to Net Profit	1.5%									
(59% of Cap'l)			55.0%	51.1%	51.6%	49.8%	50.7%	48.2%	32.7%	59.1%	58.4%	59.1%	57.5%	Long-Term Debt Ratio	54.0%									
Pension Assets-12/21 \$310.2 mill.			45.0%	48.9%	48.4%	50.2%	49.3%	51.8%	67.3%	40.9%	41.6%	40.9%	42.5%	46.0%	Common Equity Ratio	55.0%								
Oblig. \$383.8 mill.			610.2	656.2	744.5	764.6	855.0	894.3	1320.7	2173.6	2204.7	2527.5	2575	2550	Total Capital (\$mill)	2225								
Pfd Stock None.			831.6	898.7	963.0	1036.8	1146.4	1239.3	1328.8	2206.5	2334.9	2497.5	2565	2650	Net Plant (\$mill)	2825								
Common Stock 30,248,000 shs.			5.0%	5.0%	8.3%	6.3%	7.4%	7.9%	3.9%	1.8%	4.0%	3.5%	3.0%	3.5%	Return on Total Cap'l	5.0%								
MARKET CAP: \$1.8 billion (Small Cap)			8.1%	7.3%	14.4%	9.9%	12.5%	12.8%	4.4%	2.6%	6.7%	5.8%	5.5%	6.5%	Return on Shr Equity	8.0%								
CURRENT POSITION			3.3%	2.8%	10.2%	5.7%	8.6%	8.2%	1.8%	NMF	2.7%	2.0%	1.5%	2.5%	Return on Com Equity	8.0%								
(SMILL)			59%	62%	29%	42%	31%	36%	60%	NMF	59%	66%	74%	61%	All Div'ds to Net Prof	54%								
Cash Assets			9.3	10.9	12.0	BUSINESS: SJW Group engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 231,000 connections with a total population of roughly one million people in the San Jose area and 16,000 connections that reach about 49,000 residents in the region between San Antonio and Austin, Texas. The company merged with Connecticut Water (10/19) which provides service to approx. 138,000 connections with a total population of 450,000 people. Has 751 employees. Officers and directors own about 8.0% of outstanding shares (3/22 proxy). Chairman & CEO: Eric Thornburg. Incorporated: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 279-7800. Internet: www.sjwater.com.																		
Accts Receivable			58.1	53.7	58.8	SJW Group reported weaker-than-anticipated second-quarter bottom-line results. The East and West coast water utility operator earned \$0.38 per share in the June period. Indeed, the figure, which was well short of consensus estimates, contracted about 45% year over year. On top of a softer revenue performance during the period (on an annual basis), higher administrative expenses, depreciation, and interest on long-term obligations weighed on the result. All told, despite management reaffirming an upbeat outlook for the remainder of the year, we are lowering our 2022 earnings estimate by \$0.55, to \$1.95 per share, which would mark the company's second-consecutive year of share profit declines. We think 2023 holds more promise. To start, modest revenue growth ought to be underpinned by further customer rate hikes and a wider base. Regarding the former, SJW Group expects the currently pending 2021 California General Rate Case decision to be reached by the end of this year, which would allow the company to not only boost rates, but recoup revenues retroactively. Rate increases in Connecticut, Maine, and Texas were also recently approved by regulators. Moreover, prospects for a healthier economic backdrop should support increased water consumption. Elsewhere, we envision a notable earnings recovery in 2023. Leadership is likely to focus on curtailing operating expenses and lowering debt obligations. Aggressive infrastructure investment remains on tap over the 3- to 5-year stretch. For this year, top brass has utilized roughly half of its \$223 million capital investment budget. Funds are allocated across all operating regions, and support aging pipeline replacement, facility and treatment plant upgrades, as well as the company's advanced metering initiative. Investors should turn the page, for now. SJW stock is unfavorably ranked (4) for relative year-ahead price performance. What's more, at the recent quotation, total return potential over the pull to 2025-2027 leaves much to be desired. <i>Nicholas Patrikis October 7, 2022</i>																		
Other			59.9	69.5	68.0																			
Current Assets			127.3	134.1	138.8																			
Accts Payable			34.2	30.4	26.6																			
Debt Due			76.2	39.1	39.0																			
Other			240.4	133.8	212.2																			
Current Liab.			350.8	203.3	277.8																			
ANNUAL RATES			Past	Past	Est'd '19-'21																			
			10 Yrs.	5 Yrs.	to 25-27																			
of change (per sh)			4.0%	2.5%	3.5%																			
Revenues			6.0%	5%	2.5%																			
"Cash Flow"			6.0%	-6.5%	14.0%																			
Earnings			6.5%	10.5%	5.5%																			
Dividends			9.0%	11.5%	4.0%																			
Book Value																								
Cal-endar	QUARTERLY REVENUES (\$ mill.)					Full Year																		
	Mar.31	Jun.30	Sep.30	Dec.31																				
2019	77.7	103.0	114.0	125.8	420.5																			
2020	115.8	147.2	165.9	135.6	564.5																			
2021	114.8	152.2	166.9	139.8	573.7																			
2022	124.3	149.0	175	151.7	600																			
2023	130	160	180	155	625																			
Cal-endar	EARNINGS PER SHARE A					Full Year																		
	Mar.31	Jun.30	Sep.30	Dec.31																				
2019	.21	.47	.33	d.19	.82																			
2020	.08	.69	.91	.46	2.14																			
2021	.09	.69	.64	.60	2.03																			
2022	.12	.38	.75	.70	1.95																			
2023	.23	.57	.95	.75	2.50																			
Cal-endar	QUARTERLY DIVIDENDS PAID B					Full Year																		
	Mar.31	Jun.30	Sep.30	Dec.31																				
2018	.28	.28	.28	.28	1.12																			
2019	.30	.30	.30	.30	1.20																			
2020	.32	.32	.32	.32	1.28																			
2021	.34	.34	.34	.34	1.36																			
2022	.36	.36	.36																					

(A) Diluted earnings. Excludes nonrecurring losses: '06, \$16.36; '08, \$1.22; '10, \$0.46. GAAP accounting as of 2013. Next earnings report due early November. Quarterly eggs. may

(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.

(C) In millions.
(D) Paid special dividend of \$0.17 per share on 11/17.

Company's Financial Strength	B+
Stock's Price Stability	85
Price Growth Persistence	85
Earnings Predictability	45

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Carolina Water Service Inc. of North Carolina
 Summary of Risk Premium Models for the
Proxy Group of Six Water Companies

	<u>Base Year (Current Interest Rates)</u>	<u>Projected Rate Year 1 (2023 Proj Interest Rates)</u>	<u>Projected Rate Year 2 (2024 Proj Interest Rates)</u>	<u>Projected Rate Year 3 (2025 Proj Interest Rates)</u>
Predictive Risk Premium Model (PRPM) (1)	11.57 %	12.19 %	12.11 %	12.11 %
Risk Premium Using an Adjusted Total Market Approach (2)	<u>11.31 %</u>	<u>11.82 %</u>	<u>11.70 %</u>	<u>11.65 %</u>
Average	<u><u>11.44 %</u></u>	<u><u>12.01 %</u></u>	<u><u>11.91 %</u></u>	<u><u>11.88 %</u></u>

Notes:

- (1) From pages 11 through 14 of this Schedule.
- (2) From page 15 of this Schedule.

Carolina Water Service Inc. of North Carolina

Indicated ROE

Derived by the Predictive Risk Premium Model (1)
 Using Current Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Water Companies	LT Average Predicted Variance	Spot Predicted Variance	Recommended Variance (2)	GARCH Coefficient	Predicted Risk Premium (3)	Risk-Free Rate (4)	Indicated ROE (5)
American States Water Company	0.38%	0.40%	0.38%	1.8175	8.62%	3.26%	11.88%
American Water Works Company, Inc.	0.28%	0.33%	0.28%	4.1911	15.02%	3.26%	NMF
California Water Service Group	0.33%	0.42%	0.33%	1.8595	7.53%	3.26%	10.79%
Essential Utilities Inc.	0.45%	0.54%	0.45%	2.1551	12.22%	3.26%	15.48%
Middlesex Water Company	0.33%	0.68%	0.33%	1.9058	7.86%	3.26%	11.12%
SJW Group	0.41%	0.40%	0.41%	1.4632	7.50%	3.26%	10.76%
						Average	12.01%
						Median	11.12%
						Average of Mean and Median	11.57%

NMF = Not Meaningful Figure

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Services.
- (2) Based on the long-term average predicted variance.
- (3) $(1 + (\text{Column [3]} * \text{Column [4]})^{12}) - 1$.
- (4) From note 2 on page 30 of this Schedule.
- (5) $\text{Column [5]} + \text{Column [6]}$.

Carolina Water Service Inc. of North Carolina

Indicated ROE

Derived by the Predictive Risk Premium Model (1)
 Using Projected 2023 Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Water Companies	L.T. Average Predicted Variance	Spot Predicted Variance	Recommended Variance (2)	GARCH Coefficient	Predicted Risk Premium (3)	Risk-Free Rate (4)	Indicated ROE (5)
American States Water Company	0.38%	0.40%	0.38%	1.8175	8.62%	3.88%	12.50%
American Water Works Company, Inc.	0.28%	0.33%	0.28%	4.1911	15.02%	3.88%	NMF
California Water Service Group	0.33%	0.42%	0.33%	1.8595	7.53%	3.88%	11.41%
Essential Utilities Inc.	0.45%	0.54%	0.45%	2.1551	12.22%	3.88%	16.10%
Middlesex Water Company	0.33%	0.68%	0.33%	1.9058	7.86%	3.88%	11.74%
SJW Group	0.41%	0.40%	0.41%	1.4632	7.50%	3.88%	11.38%
						Average	12.63%
						Median	11.74%
					Average of Mean and Median		12.19%

NMF = Not Meaningful Figure

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Services.
- (2) Based on the long-term average predicted variance.
- (3) $(1 + (\text{Column [3]} * \text{Column [4]})^{0.12}) - 1$.
- (4) From note 3 on page 30 of this Schedule.
- (5) $\text{Column [5]} + \text{Column [6]}$.

Carolina Water Service Inc. of North Carolina

Indicated ROE

Derived by the Predictive Risk Premium Model (1)

Using Projected 2024 Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Water Companies	L.T. Average Predicted Variance	Spot Predicted Variance	Recommended Variance (2)	GARCH Coefficient	Predicted Risk Premium (3)	Risk-Free Rate (4)	Indicated ROE (5)
American States Water Company	0.38%	0.40%	0.38%	1.8175	8.62%	3.80%	12.42%
American Water Works Company, Inc.	0.28%	0.33%	0.28%	4.1911	15.02%	3.80%	NMF
California Water Service Group	0.33%	0.42%	0.33%	1.8595	7.53%	3.80%	11.33%
Essential Utilities Inc.	0.45%	0.54%	0.45%	2.1551	12.22%	3.80%	16.02%
Middlesex Water Company	0.33%	0.68%	0.33%	1.9058	7.86%	3.80%	11.66%
SJW Group	0.41%	0.40%	0.41%	1.4632	7.50%	3.80%	11.30%
						Average	12.55%
						Median	11.66%
					Average of Mean and Median		12.11%

NMF = Not Meaningful Figure

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Services.
- (2) Based on the long-term average predicted variance.
- (3) $(1 + (\text{Column [3]} * \text{Column [4]})^{0.12}) - 1$.
- (4) From note 4 on page 30 of this Schedule.
- (5) $\text{Column [5]} + \text{Column [6]}$.

Carolina Water Service Inc. of North Carolina
 Indicated ROE
 Derived by the Predictive Risk Premium Model (1)
 Using Projected 2025 Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Water Companies	L.T. Average Predicted Variance	Spot Predicted Variance	Recommended Variance (2)	GARCH Coefficient	Predicted Risk Premium (3)	Risk-Free Rate (4)	Indicated ROE (5)
American States Water Company	0.38%	0.40%	0.38%	1.8175	8.62%	3.80%	12.42%
American Water Works Company, Inc.	0.28%	0.33%	0.28%	4.1911	15.02%	3.80%	NMF
California Water Service Group	0.33%	0.42%	0.33%	1.8595	7.53%	3.80%	11.33%
Essential Utilities Inc.	0.45%	0.54%	0.45%	2.1551	12.22%	3.80%	16.02%
Middlesex Water Company	0.33%	0.68%	0.33%	1.9058	7.86%	3.80%	11.66%
SJW Group	0.41%	0.40%	0.41%	1.4632	7.50%	3.80%	11.30%
						Average	12.55%
						Median	11.66%
					Average of Mean and Median		12.11%

NMF = Not Meaningful Figure

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Services.
- (2) Based on the long-term average predicted variance.
- (3) $(1 + (\text{Column [3]} * \text{Column [4]})^{0.12}) - 1$.
- (4) From note 5 on page 30 of this Schedule.
- (5) $\text{Column [5]} + \text{Column [6]}$.

Carolina Water Service Inc. of North Carolina
 Indicated Common Equity Cost Rate
 Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Results using Current Interest Rates</u>	<u>Results using Projected 2023 Interest Rates</u>	<u>Results using Projected 2024 Interest Rates</u>	<u>Results using Projected 2025 Interest Rates</u>
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)		5.28 %	5.00	4.90
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A2 Rated Public Utility Bonds		<u>0.70</u> (2)	<u>0.70</u>	<u>0.70</u>
3.	Adjusted Prospective Yield on A2 Rated Public Utility Bonds		5.98 %	5.70 %	5.60 %
4.	Current Yield on A2 Rated Public Utility Bonds (3)	4.93 %			
5.	Adjustment to Reflect Bond Rating Difference of Proxy Group (4)	<u>0.12</u>	<u>0.12</u>	<u>0.12</u>	<u>0.12</u>
6.	Adjusted Prospective Bond Yield	5.05 %	6.10 %	5.82 %	5.72 %
7.	Equity Risk Premium (5)	<u>6.26</u>	<u>5.72</u>	<u>5.88</u>	<u>5.93</u>
8.	Risk Premium Derived Common Equity Cost Rate	<u>11.31 %</u>	<u>11.82 %</u>	<u>11.70 %</u>	<u>11.65 %</u>

- Notes: (1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 22 and 23 of this Schedule).
 (2) The average yield spread of A2 rated public utility bonds over Aaa rated corporate bonds of 0.70% from page 16 of this Schedule.
 (3) Three-month average A2-rated utility bond yield ending September 2022 as shown on page 16 of this Schedule.
 (4) Adjustment to reflect the A3 Moody's long-term rating of the Utility Proxy Group as shown on page 17 of this Schedule. The 0.12% upward adjustment is derived by taking 1/3 of the spread between A2 and Baa2 Public Utility Bonds ($1/3 * 0.35\% = 0.12\%$) as derived from page 16 of this Schedule.
 (5) From page 19 of this Schedule.

Carolina Water Service Inc. of North Carolina
 Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1]	[2]	[3]
	<u>Aaa Rated Corporate Bond</u>	<u>A2 Rated Public Utility Bond</u>	<u>Baa2 Rated Public Utility Bond</u>
Sep-2022	4.57 %	5.26 %	5.60 %
Aug-2022	4.07	4.76	5.09
Jul-2022	<u>4.06</u>	<u>4.78</u>	<u>5.15</u>
Average	<u><u>4.23 %</u></u>	<u><u>4.93 %</u></u>	<u><u>5.28 %</u></u>

Selected Bond Spreads

A2 Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:
0.70 % (1)

Baa2 Rated Public Utility Bonds Over A2 Rated Public Utility Bonds:
0.35 % (2)

Notes:

- (1) Column [2] - Column [1].
- (2) Column [3] - Column [2].

Source of Information:

Bloomberg Professional Services

Carolina Water Service Inc. of North Carolina
 Comparison of Long-Term Issuer Ratings for the
Proxy Group of Six Water Companies

<u>Proxy Group of Six Water Companies</u>	<u>Moody's</u>		<u>Standard & Poor's</u>	
	<u>Long-Term Issuer Rating</u>		<u>Long-Term Issuer Rating</u>	
	<u>October 2022</u>		<u>October 2022</u>	
	<u>Long-Term Issuer Rating</u>	<u>Numerical Weighting (1)</u>	<u>Long-Term Issuer Rating</u>	<u>Numerical Weighting (1)</u>
American States Water Company (2)	A2	6.0	A+	5.0
American Water Works Company, Inc. (3)	A3	7.0	A	6.0
California Water Service Group	NR	--	A+	5.0
Essential Utilities Inc. (4)	Baa1	8.0	A	6.0
Middlesex Water Company	NR	--	A	6.0
SJW Group (5)	NR	--	A-	6.5
Average	<u>A3</u>	<u>7.0</u>	<u>A</u>	<u>5.8</u>

Notes:

- (1) From page 18 of this Schedule.
- (2) Ratings are that of Golden State Water Company.
- (3) Ratings are that of New Jersey American Water Co., and Pennsylvania American Water Co.
- (4) Ratings are that of PNG Companies and Aqua Pennsylvania, Inc. (S&P).
- (5) Ratings are that of San Jose Water Company, Connecticut Water Inc. and Connecticut Water Service Inc.

Source Information: Moody's Investors Service
 Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

<u>Moody's Bond Rating</u>	<u>Numerical Bond Weighting</u>	<u>Standard & Poor's Bond Rating</u>
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

Carolina Water Service Inc. of North Carolina
Judgment of Equity Risk Premium for the
Results using Current Interest Rates

<u>Line No.</u>		<u>Results using Current Interest Rates</u>	<u>Results Using Projected 2023 Interest Rates</u>	<u>Results Using Projected 2024 Interest Rates</u>	<u>Results Using Projected 2025 Interest Rates</u>
1.	Calculated equity risk premium based on the total market using the beta approach (1)	7.34 %	6.84 %	7.00 %	7.05 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A2 rated bonds (2)	<u>5.18</u>	<u>4.59</u>	<u>4.75</u>	<u>4.80</u>
3.	Average equity risk premium	<u><u>6.26</u></u> %	<u><u>5.72</u></u> %	<u><u>5.88</u></u> %	<u><u>5.93</u></u> %

Notes: (1) From page 20 of this Schedule.
 (2) From page 24 of this Schedule.

Carolina Water Service Inc. of North Carolina
 Derivation of Equity Risk Premium Based on the Total Market Approach
 Using the Beta for the
 Proxy Group of Six Water Companies

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Results using Current Interest Rates</u>	<u>Results Using Projected 2023 Interest Rates</u>	<u>Results Using Projected 2024 Interest Rates</u>	<u>Results Using Projected 2025 Interest Rates</u>
1.	Ibbotson Equity Risk Premium (1)	6.13 %	6.13 %	6.13 %	6.13 %
2.	Regression on Ibbotson Risk Premium Data (2)	8.11	6.97	7.32	7.45
3.	Ibbotson Equity Risk Premium based on PRPM (3)	10.12	10.12	10.12	10.12
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	11.65	10.75	11.03	11.13
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	12.28	11.38	11.66	11.76
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	8.16	7.26	7.54	7.64
7.	Conclusion of Equity Risk Premium	9.41 %	8.77 %	8.97 %	9.04 %
8.	Adjusted Beta (7)	0.78	0.78	0.78	0.78
9.	Forecasted Equity Risk Premium	7.34 %	6.84 %	7.00 %	7.05 %

Notes provided on page 21 of this Schedule.

Carolina Water Service Inc. of North Carolina
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Six Water Companies

Notes:

- (1) Based on the arithmetic mean historical monthly returns on large company common stocks from Kroll 2022 SBBI® 2022 Yearbook minus the arithmetic mean monthly yield of Moody's average Aaa and Aa2 corporate bonds from 1928-2021.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa2 rated corporate bond yields from 1928-2021 referenced in Note 1 above. The equity risk premium is calculated using current and projected interest rates as indicated. The projected Aaa corporate bond yields for 2023 through 2025 are shown on line 1 of page 15 of this Schedule. The current interest rate is the three-month average Aaa and Aa2 corporate bond yields ending September 2022.
- (3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa2 corporate monthly bond yields, from January 1928 through September 2022.
- (4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the relevant bond yield from the projected 3-5 year total annual market return of 16.03% (described fully in note 1 on page 30 of this Schedule).
- (5) The equity risk premium based on Value Line data for the S&P 500 companies subtracts the relevant bond yield from the expected market return of 16.66% which was derived using expected dividend yields to represent the income return and expected earnings growth to represent the capital appreciation return.
- (6) The equity risk premium based on Bloomberg data for the S&P 500 companies subtracts the relevant bond yield from the expected market return of 12.54%, which was derived using expected dividend yields to represent the income return and expected earnings growth to represent the capital appreciation return.
- (7) Average of mean and median beta from pages 26 - 29 of this Schedule.

Sources of Information:

Kroll 2022 SBBI® Yearbook
Industrial Manual and Mergent Bond Record
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2022 and September 30, 2022
Bloomberg Professional Services

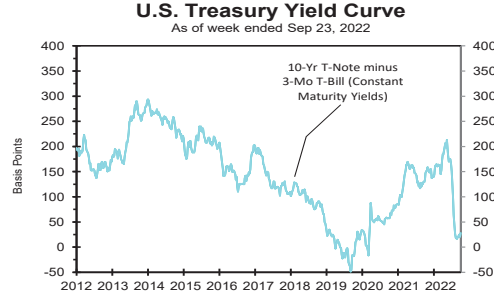
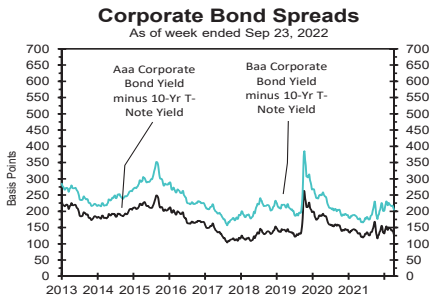
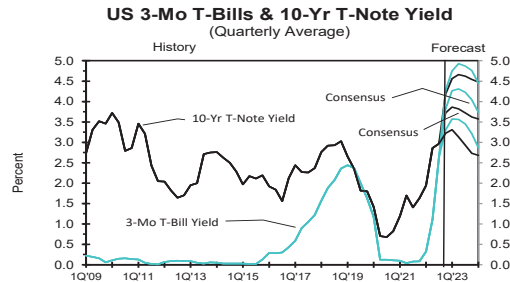
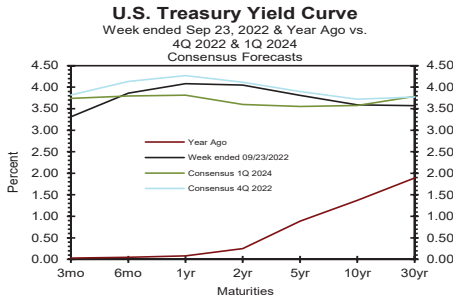
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Consensus Forecasts of U.S. Interest Rates and Key Assumptions

Interest Rates	History								Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month				Latest Qtr					
	Sep 23	Sep 16	Sep 9	Sep 2	Aug	Jul	Jun	3Q 2022*	2022	2023	2023	2023	2023	2023
Federal Funds Rate	2.33	2.33	2.33	2.33	2.33	1.68	1.21	2.12	3.8	4.3	4.4	4.3	4.2	3.9
Prime Rate	5.50	5.50	5.50	5.50	5.50	4.85	4.38	5.29	6.9	7.4	7.5	7.4	7.3	6.9
SOFR	2.55	2.28	2.28	2.29	2.28	1.60	1.11	2.09	3.6	4.2	4.3	4.3	4.1	3.7
Commercial Paper, 1-mo.	3.04	2.64	2.54	2.39	2.33	1.90	1.35	2.26	3.8	4.4	4.5	4.4	4.3	3.9
Treasury bill, 3-mo.	3.31	3.22	3.06	2.96	2.72	2.30	1.54	2.71	3.8	4.3	4.3	4.2	4.0	3.7
Treasury bill, 6-mo.	3.86	3.72	3.45	3.32	3.15	2.87	2.17	3.20	4.1	4.5	4.5	4.3	4.1	3.8
Treasury bill, 1 yr.	4.08	3.91	3.62	3.48	3.28	3.02	2.65	3.35	4.3	4.5	4.5	4.3	4.1	3.8
Treasury note, 2 yr.	4.05	3.77	3.50	3.45	3.25	3.04	3.00	3.33	4.1	4.3	4.2	4.0	3.8	3.6
Treasury note, 5 yr.	3.81	3.59	3.41	3.31	3.03	2.96	3.19	3.17	3.9	4.1	4.0	3.8	3.7	3.6
Treasury note, 10 yr.	3.59	3.42	3.31	3.17	2.90	2.90	3.14	3.05	3.7	3.9	3.8	3.7	3.6	3.6
Treasury note, 30 yr.	3.57	3.50	3.46	3.29	3.13	3.10	3.25	3.23	3.8	3.9	4.0	3.9	3.8	3.8
Corporate Aaa bond	4.86	4.77	4.73	4.57	4.35	4.39	4.52	4.49	5.0	5.4	5.4	5.4	5.2	5.1
Corporate Baa bond	5.64	5.53	5.48	5.33	5.08	5.15	5.22	5.24	6.0	6.4	6.5	6.4	6.3	6.1
State & Local bonds	4.35	4.21	4.16	4.08	3.84	3.82	3.94	3.95	4.4	4.6	4.7	4.6	4.5	4.4
Home mortgage rate	6.29	6.02	5.89	5.66	5.22	5.41	5.52	5.53	6.3	6.4	6.3	6.2	6.1	5.9

Key Assumptions	History								Consensus Forecasts-Quarterly					
	4Q		1Q		2Q		3Q		Latest Qtr					
	2020	2021	2021	2021	2021	2022	2022	2022**	2022	2023	2023	2023	2023	2023
Fed's AFE \$ Index	105.1	103.4	102.9	105.0	107.0	108.4	113.7	118.5	121.4	121.5	120.4	118.8	117.6	117.0
Real GDP	3.9	6.3	7.0	2.7	7.0	-1.6	-0.6	1.4	0.7	0.1	0.1	0.9	1.3	1.6
GDP Price Index	2.5	5.2	6.3	6.2	6.8	8.3	9.0	4.9	4.3	3.5	3.0	2.8	2.7	2.5
Consumer Price Index	2.2	4.1	8.2	6.7	7.9	9.2	10.5	5.3	3.9	3.4	3.0	2.6	2.5	2.4
PCE Price Index	1.6	4.5	6.4	5.6	6.2	7.5	7.3	4.5	3.7	3.2	2.7	2.5	2.4	2.3

Forecasts for interest rates and the Federal Reserve's Advanced Foreign Economies Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index, CPI and PCE Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; SOFR from the New York Fed. *Interest rate data for 3Q 2022 based on historical data through the week ended Sep 23. **Data for 3Q 2022 for the Fed's AFE \$ Index based on data through the week ended September 23. Figures for 3Q 2022 Real GDP, GDP Chained Price Index, Consumer Price Index, and PCE Price Index are consensus forecasts from the September 2022 survey.



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Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2023 through 2028 and averages for the five-year periods 2024-2028 and 2029-2033. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		----- Average For The Year -----						Five-Year Averages	
		2023	2024	2025	2026	2027	2028	2024-2028	2029-2033
1. Federal Funds Rate	CONSENSUS	3.0	2.7	2.5	2.5	2.5	2.5	2.6	2.5
	Top 10 Average	3.5	3.3	3.0	2.8	2.8	2.8	3.0	2.8
	Bottom 10 Average	2.6	2.1	2.0	2.2	2.2	2.2	2.2	2.1
2. Prime Rate	CONSENSUS	6.1	5.9	5.7	5.6	5.6	5.6	5.7	5.6
	Top 10 Average	6.6	6.4	6.1	6.0	6.0	6.0	6.1	5.9
	Bottom 10 Average	5.6	5.3	5.2	5.3	5.3	5.3	5.3	5.2
3. SOFR	CONSENSUS	3.0	2.8	2.5	2.5	2.5	2.5	2.6	2.5
	Top 10 Average	3.4	3.3	3.0	2.9	2.8	2.8	3.0	2.8
	Bottom 10 Average	2.7	2.2	2.0	2.2	2.2	2.2	2.2	2.1
4. Commercial Paper, 1-Mo	CONSENSUS	3.2	2.9	2.6	2.6	2.6	2.6	2.7	2.6
	Top 10 Average	3.5	3.4	3.1	2.9	2.9	2.9	3.0	2.9
	Bottom 10 Average	2.8	2.5	2.3	2.4	2.4	2.3	2.3	2.3
5. Treasury Bill Yield, 3-Mo	CONSENSUS	3.0	2.8	2.6	2.6	2.6	2.5	2.6	2.5
	Top 10 Average	3.6	3.4	3.1	3.1	3.0	2.9	3.1	2.9
	Bottom 10 Average	2.5	2.2	2.0	2.1	2.2	2.2	2.1	2.2
6. Treasury Bill Yield, 6-Mo	CONSENSUS	3.2	2.9	2.7	2.7	2.7	2.6	2.7	2.6
	Top 10 Average	3.8	3.6	3.2	3.2	3.1	3.0	3.2	3.0
	Bottom 10 Average	2.6	2.2	2.1	2.2	2.3	2.3	2.2	2.3
7. Treasury Bill Yield, 1-Yr	CONSENSUS	3.2	3.0	2.9	2.9	2.8	2.8	2.9	2.8
	Top 10 Average	3.9	3.8	3.5	3.4	3.3	3.2	3.4	3.2
	Bottom 10 Average	2.6	2.4	2.2	2.4	2.4	2.4	2.3	2.4
8. Treasury Note Yield, 2-Yr	CONSENSUS	3.4	3.2	3.1	3.1	3.0	3.0	3.1	3.0
	Top 10 Average	4.3	4.1	3.8	3.6	3.5	3.5	3.7	3.5
	Bottom 10 Average	2.7	2.4	2.3	2.5	2.6	2.5	2.4	2.5
9. Treasury Note Yield, 5-Yr	CONSENSUS	3.5	3.4	3.3	3.3	3.3	3.2	3.3	3.3
	Top 10 Average	4.3	4.2	4.1	3.9	3.8	3.8	3.9	3.8
	Bottom 10 Average	2.8	2.6	2.5	2.7	2.7	2.7	2.6	2.8
10. Treasury Note Yield, 10-Yr	CONSENSUS	3.5	3.5	3.4	3.5	3.5	3.4	3.5	3.5
	Top 10 Average	4.4	4.4	4.2	4.2	4.1	4.1	4.2	4.1
	Bottom 10 Average	2.8	2.5	2.6	2.9	2.9	2.8	2.7	2.8
11. Treasury Bond Yield, 30-Yr	CONSENSUS	3.8	3.8	3.8	3.9	3.8	3.8	3.8	3.9
	Top 10 Average	4.6	4.7	4.5	4.5	4.4	4.5	4.5	4.5
	Bottom 10 Average	3.0	2.9	3.0	3.3	3.2	3.2	3.1	3.2
12. Corporate Aaa Bond Yield	CONSENSUS	5.0	5.0	4.9	5.0	5.0	4.9	4.9	5.0
	Top 10 Average	5.7	5.7	5.6	5.5	5.5	5.5	5.5	5.6
	Bottom 10 Average	4.4	4.2	4.3	4.4	4.4	4.4	4.3	4.4
13. Corporate Baa Bond Yield	CONSENSUS	6.0	5.9	5.8	5.9	5.9	5.9	5.9	5.9
	Top 10 Average	6.6	6.6	6.4	6.3	6.3	6.3	6.4	6.4
	Bottom 10 Average	5.4	5.3	5.2	5.4	5.4	5.4	5.3	5.4
14. State & Local Bonds Yield	CONSENSUS	4.3	4.3	4.2	4.3	4.3	4.3	4.3	4.3
	Top 10 Average	5.0	5.0	4.8	4.8	4.7	4.7	4.8	4.8
	Bottom 10 Average	3.7	3.7	3.7	3.9	3.9	3.9	3.8	3.9
15. Home Mortgage Rate	CONSENSUS	5.7	5.5	5.4	5.4	5.4	5.4	5.4	5.4
	Top 10 Average	6.4	6.4	6.1	6.0	6.0	6.0	6.1	6.0
	Bottom 10 Average	4.9	4.7	4.6	4.8	4.8	4.8	4.7	4.8
A. Fed's AFE Nominal \$ Index	CONSENSUS	113.8	112.8	111.9	111.0	110.6	110.4	111.3	109.8
	Top 10 Average	115.6	114.7	114.0	113.4	113.1	112.8	113.6	112.7
	Bottom 10 Average	112.2	111.0	109.9	108.8	108.2	107.9	109.2	107.4
		----- Year-Over-Year, % Change -----						Five-Year Averages	
		2023	2024	2025	2026	2027	2028	2024-2028	2029-2033
B. Real GDP	CONSENSUS	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0
	Top 10 Average	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.3
	Bottom 10 Average	1.5	1.5	1.8	1.8	1.8	1.8	1.7	1.8
C. GDP Chained Price Index	CONSENSUS	3.0	2.4	2.3	2.3	2.2	2.2	2.3	2.2
	Top 10 Average	3.7	2.8	2.7	2.6	2.6	2.6	2.7	2.6
	Bottom 10 Average	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	CONSENSUS	3.2	2.4	2.4	2.4	2.3	2.3	2.4	2.3
	Top 10 Average	4.1	3.0	2.9	2.8	2.7	2.7	2.8	2.7
	Bottom 10 Average	2.3	1.8	2.0	2.0	1.9	1.9	1.9	1.9
E. PCE Price Index	CONSENSUS	3.0	2.3	2.3	2.3	2.3	2.2	2.3	2.3
	Top 10 Average	3.8	2.8	2.8	2.7	2.7	2.6	2.7	2.7
	Bottom 10 Average	2.2	1.8	1.9	1.9	1.9	1.8	1.9	1.9

Carolina Water Service Inc. of North Carolina
 Derivation of Mean Equity Risk Premium Based Studies
 Using Holding Period Returns and
 Projected Market Appreciation of the S&P Utility Index

<u>Line No.</u>		<u>Results using Current Interest Rates</u>	<u>Results using Projected 2023 Interest Rates</u>	<u>Results using Projected 2024 Interest Rates</u>	<u>Results using Projected 2025 Interest Rates</u>
	<u>Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):</u>				
1.	Historical Equity Risk Premium	4.28 %	4.28 %	4.28 %	4.28 %
2.	Regression of Historical Equity Risk Premium (2)	5.58	4.72	4.95	5.03
3.	Forecasted Equity Risk Premium Based on PRPM (3)	5.13	5.13	5.13	5.13
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	4.60	3.55	3.83	3.93
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	<u>6.31</u>	<u>5.26</u>	<u>5.54</u>	<u>5.64</u>
6.	Average Equity Risk Premium (6)	<u>5.18 %</u>	<u>4.59 %</u>	<u>4.75 %</u>	<u>4.80 %</u>

Notes provided on page 25 of this Schedule.

Carolina Water Service Inc. of North Carolina
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

Notes:

- (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2021. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A2 rated public utility bond yields from 1928 - 2021 referenced in note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the relevant bond yield. The current and projected A2 rated utility bond yields are shown on lines 4 and 3 of page 15 of this Schedule, respectively.
- (3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A2 rated public utility bonds from January 1928 - September 2022.
- (4) The equity risk premium based on Value Line data for the S&P Utilities Index subtracts the relevant bond yield from the expected market return of 9.53%, which was derived using expected dividend yields to represent the income return and expected earnings growth to represent the capital appreciation return.
- (5) The equity risk premium based on Bloomberg data for the S&P Utilities Index subtracts the relevant bond yield from the expected market return of 11.24%, which was derived using expected dividend yields to represent the income return and expected earnings growth to represent the capital appreciation return.
- (6) Average of lines 1 through 5.

Carolina Water Service Inc. of North Carolina
 Indicated Common Equity Cost Rate Through Use
 of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)
 Using Current Interest Rates

Proxy Group of Six Water Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (2)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost Rate (6)
American States Water Company	0.65	0.74	0.70	10.59 %	3.26 %	10.68 %	11.47 %	11.07 %
American Water Works Company, Inc.	0.90	0.89	0.90	10.59	3.26	12.79	13.06	12.93
California Water Service Group	0.70	0.81	0.75	10.59	3.26	11.21	11.87	11.54
Essential Utilities Inc.	0.95	0.86	0.91	10.59	3.26	12.90	13.14	13.02
Middlesex Water Company	0.70	0.75	0.72	10.59	3.26	10.89	11.63	11.26
SJW Group	0.80	0.72	0.76	10.59	3.26	11.31	11.95	11.63
Mean			<u>0.79</u>			<u>11.63 %</u>	<u>12.19 %</u>	<u>11.91 %</u>
Median			<u>0.76</u>			<u>11.26 %</u>	<u>11.91 %</u>	<u>11.59 %</u>
Average of Mean and Median			<u>0.78</u>			<u>11.45 %</u>	<u>12.05 %</u>	<u>11.75 %</u>

Notes on page 30 of this Schedule.

Carolina Water Service Inc. of North Carolina
 Indicated Common Equity Cost Rate Through Use
 of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)
 Using Projected 2023 Interest Rates

Proxy Group of Six Water Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (3)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost Rate (6)
American States Water Company	0.65	0.74	0.70	10.17 %	3.88 %	11.00 %	11.76 %	11.38 %
American Water Works Company, Inc.	0.90	0.89	0.90	10.17	3.88	13.03	13.29	13.16
California Water Service Group	0.70	0.81	0.75	10.17	3.88	11.51	12.14	11.83
Essential Utilities Inc.	0.95	0.86	0.91	10.17	3.88	13.13	13.36	13.25
Middlesex Water Company	0.70	0.75	0.72	10.17	3.88	11.20	11.91	11.56
SJW Group	0.80	0.72	0.76	10.17	3.88	11.61	12.22	11.91
Mean			<u>0.79</u>			<u>11.91 %</u>	<u>12.45 %</u>	<u>12.18 %</u>
Median			<u>0.76</u>			<u>11.56 %</u>	<u>12.18 %</u>	<u>11.87 %</u>
Average of Mean and Median			<u>0.78</u>			<u>11.74 %</u>	<u>12.32 %</u>	<u>12.03 %</u>

Notes on page 30 of this Schedule.

Carolina Water Service Inc. of North Carolina
 Indicated Common Equity Cost Rate Through Use
 of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)
 Using Projected 2024 Interest Rates

Proxy Group of Six Water Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (4)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost Rate (6)
American States Water Company	0.65	0.74	0.70	10.22 %	3.80 %	10.96 %	11.72 %	11.34 %
American Water Works Company, Inc.	0.90	0.89	0.90	10.22	3.80	13.00	13.26	13.13
California Water Service Group	0.70	0.81	0.75	10.22	3.80	11.47	12.11	11.79
Essential Utilities Inc.	0.95	0.86	0.91	10.22	3.80	13.10	13.33	13.22
Middlesex Water Company	0.70	0.75	0.72	10.22	3.80	11.16	11.88	11.52
SJW Group	0.80	0.72	0.76	10.22	3.80	11.57	12.18	11.88
Mean			<u>0.79</u>			<u>11.88 %</u>	<u>12.41 %</u>	<u>12.15 %</u>
Median			<u>0.76</u>			<u>11.52 %</u>	<u>12.15 %</u>	<u>11.84 %</u>
Average of Mean and Median			<u>0.78</u>			<u>11.70 %</u>	<u>12.28 %</u>	<u>12.00 %</u>

Notes on page 30 of this Schedule.

Carolina Water Service Inc. of North Carolina
 Indicated Common Equity Cost Rate Through Use
 of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)
 Using Projected 2025 Interest Rates

Proxy Group of Six Water Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (5)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost Rate (6)
American States Water Company	0.65	0.74	0.70	10.22 %	3.80 %	10.96 %	11.72 %	11.34 %
American Water Works Company, Inc.	0.90	0.89	0.90	10.22	3.80	13.00	13.26	13.13
California Water Service Group	0.70	0.81	0.75	10.22	3.80	11.47	12.11	11.79
Essential Utilities Inc.	0.95	0.86	0.91	10.22	3.80	13.10	13.33	13.22
Middlesex Water Company	0.70	0.75	0.72	10.22	3.80	11.16	11.88	11.52
SJW Group	0.80	0.72	0.76	10.22	3.80	11.57	12.18	11.88
Mean			<u>0.79</u>			<u>11.88 %</u>	<u>12.41 %</u>	<u>12.15 %</u>
Median			<u>0.76</u>			<u>11.52 %</u>	<u>12.15 %</u>	<u>11.84 %</u>
Average of Mean and Median			<u>0.78</u>			<u>11.70 %</u>	<u>12.28 %</u>	<u>12.00 %</u>

Notes on page 30 of this Schedule.

Carolina Water Service Inc. of North Carolina
 Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

<u>Historical Data MRP Estimates:</u>	<u>Using Current Interest Rates</u>	<u>Using Projected 2023 Interest Rates</u>	<u>Using Projected 2024 Interest Rates</u>	<u>Using Projected 2025 Interest Rates</u>
Measure 1: Ibbotson Arithmetic Mean MRP (1926-2021)				
Arithmetic Mean Monthly Returns for Large Stocks 1926-2021:	12.37 %	12.37 %	12.37 %	12.37 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.02	5.02	5.02	5.02
MRP based on Ibbotson Historical Data:	<u>7.35 %</u>	<u>7.35 %</u>	<u>7.35 %</u>	<u>7.35 %</u>
Measure 2: Application of a Regression Analysis to Ibbotson Historical Data (1926-2021)				
	<u>9.42 %</u>	<u>8.74 %</u>	<u>8.83 %</u>	<u>8.83 %</u>
Measure 3: Application of the PRPM to Ibbotson Historical Data: (January 1926 - September 2022)				
	<u>11.34 %</u>	<u>11.34 %</u>	<u>11.34 %</u>	<u>11.34 %</u>
<u>Value Line MRP Estimates:</u>				
Measure 4: Value Line Projected MRP (Thirteen weeks ending October 14, 2022)				
Total projected return on the market 3-5 years hence*:	16.03 %	16.03 %	16.03 %	16.03 %
Projected Risk-Free Rate (see note 2):	3.26	3.88	3.80	3.80
MRP based on Value Line Summary & Index:	<u>12.77 %</u>	<u>12.15 %</u>	<u>12.23 %</u>	<u>12.23 %</u>
*Forecasted 3-5 year capital appreciation plus expected dividend yield				
Measure 5: Value Line Projected Return on the Market based on the S&P 500				
Total return on the Market based on the S&P 500:	16.66 %	16.66 %	16.66 %	16.66 %
Projected Risk-Free Rate (see note 2):	3.26	3.88	3.80	3.80
MRP based on Value Line data	<u>13.40 %</u>	<u>12.78 %</u>	<u>12.86 %</u>	<u>12.86 %</u>
Measure 6: Bloomberg Projected MRP				
Total return on the Market based on the S&P 500:	12.54 %	12.54 %	12.54 %	12.54 %
Projected Risk-Free Rate (see note 2):	3.26	3.88	3.80	3.80
MRP based on Bloomberg data	<u>9.28 %</u>	<u>8.66 %</u>	<u>8.74 %</u>	<u>8.74 %</u>
Average of Value Line, Ibbotson, and Bloomberg MRP:	<u>10.59 %</u>	<u>10.17 %</u>	<u>10.22 %</u>	<u>10.22 %</u>

(2) Three-month average on 30-year Treasury bond yield ended September, 2022 as shown below:

Jul-22	3.10 %
Aug-22	3.13
Sep-22	3.56
	<u>3.26 %</u>

(3) For reasons explained in the Direct Testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 22-23 of this Schedule.) The projection of the 2023 risk-free rate is illustrated below:

First Quarter 2023	3.90 %
Second Quarter 2023	4.00
Third Quarter 2023	3.90
Fourth Quarter 2023	3.80
2023 Consensus	<u>3.80</u>
	<u>3.88 %</u>

(4) The projection of the 2024 risk-free rate is illustrated below:

2024 Consensus	<u>3.80 %</u>
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(5) The projection of the 2025 risk-free rate is illustrated below:

2025 Consensus	<u>3.80 %</u>
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(6) Average of Column 6 and Column 7.

- Sources of Information:
 Value Line Summary and Index
 Blue Chip Financial Forecasts, June 1, 2022 and September 30, 2022
 Kroll 2022 SBBI® Yearbook
 Bloomberg Professional Services

Carolina Water Service Inc. of North Carolina.
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of twenty-seven non-price regulated companies was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The Non-Price Regulated Proxy Group were then selected based on the unadjusted beta range of 0.49 – 0.77 and residual standard error of the regression range of 2.8333 – 3.3793 of the Utility Proxy Group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Utility Proxy Group's residual standard error of the regression is 0.1365. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1365 = \frac{3.1063}{\sqrt{518}} = \frac{3.1063}{22.7596}$$

Source of Information: Value Line, Inc., September 2022
Value Line Investment Survey (Standard Edition)

Carolina Water Service Inc. of North Carolina
 Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

	[1]	[2]	[3]	[4]
	Value Line Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression	Standard Deviation of Beta
<u>Proxy Group of Six Water Companies</u>				
American States Water Company	0.65	0.44	2.6059	0.0604
American Water Works Company, Inc.	0.90	0.78	3.3488	0.0776
California Water Service Group	0.70	0.48	3.1091	0.0721
Essential Utilities Inc.	0.95	0.91	2.7564	0.0639
Middlesex Water Company	0.70	0.51	3.4761	0.0806
SJW Group	0.80	0.65	3.3417	0.0775
Average	<u>0.78</u>	<u>0.63</u>	<u>3.1063</u>	<u>0.0720</u>
Beta Range (+/- 2 std. Devs. of Beta)	0.49	0.77		
2 std. Devs. of Beta	0.14			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.8333	3.3793		
Std. dev. of the Res. Std. Err.	0.1365			
2 std. devs. of the Res. Std. Err.	0.2730			

Source of Information: Valueline Proprietary Database, September 2022

Carolina Water Service Inc. of North Carolina
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Water Companies

	[1]	[2]	[3]	[4]
<u>Proxy Group of Twenty-Seven Non-Price Regulated Companies</u>	<u>Value Line Adjusted Beta</u>	<u>Unadjusted Beta</u>	<u>Residual Standard Error of the Regression</u>	<u>Standard Deviation of Beta</u>
Balchem Corp.	0.75	0.56	3.3474	0.0776
Becton, Dickinson	0.75	0.59	2.9969	0.0695
Black Knight, Inc.	0.75	0.56	3.1415	0.0728
Booz Allen Hamilton	0.85	0.76	3.1644	0.0733
Bristol-Myers Squibb	0.85	0.70	2.9185	0.0676
C.H. Robinson	0.70	0.54	3.3437	0.0775
Chemed Corp.	0.80	0.66	2.8403	0.0658
CSG Systems Int'l	0.75	0.56	2.8967	0.0671
CSW Industrials	0.85	0.76	3.0218	0.0700
Heartland Express	0.70	0.51	3.0304	0.0702
Henry (Jack) & Assoc	0.85	0.70	2.9759	0.0690
Lilly (Eli)	0.80	0.63	3.3732	0.0782
McCormick & Co.	0.75	0.62	3.0694	0.0711
Merck & Co.	0.80	0.63	2.9122	0.0675
Monster Beverage	0.85	0.76	2.9657	0.0687
NewMarket Corp.	0.75	0.59	2.9165	0.0676
Northrop Grumman	0.80	0.67	3.3239	0.0770
Oracle Corp.	0.80	0.67	2.8812	0.0668
Pfizer, Inc.	0.80	0.69	2.9056	0.0673
Progressive Corp.	0.75	0.60	3.0605	0.0709
Quest Diagnostics	0.80	0.62	3.2991	0.0765
RLI Corp.	0.75	0.62	2.9185	0.0676
Rollins, Inc.	0.85	0.71	3.2681	0.0758
Selective Ins. Group	0.85	0.76	3.0002	0.0695
Watsco, Inc.	0.85	0.73	2.8872	0.0669
Werner Enterprises	0.75	0.56	3.3343	0.0773
Western Union	0.80	0.68	3.0050	0.0697
Average	<u>0.79</u>	<u>0.65</u>	<u>3.0666</u>	<u>0.0711</u>
<u>Proxy Group of Six Water Companies</u>	<u>0.78</u>	<u>0.63</u>	<u>3.1063</u>	<u>0.0720</u>

Source of Information:

Valueline Proprietary Database, September 2022

Carolina Water Service Inc. of North Carolina
 Summary of Cost of Equity Models Applied to
 Proxy Group of Twenty-Seven Non-Price Regulated Companies
 Comparable in Total Risk to the
Proxy Group of Six Water Companies

Principal Methods	Results using Current Interest Rates	Results using Projected 2023 Interest Rates	Results using Projected 2024 Interest Rates	Results using Projected 2025 Interest Rates
Discounted Cash Flow Model (DCF) (1)	11.19 %	11.19 %	11.19 %	11.19 %
Risk Premium Model (RPM) (2)	12.52	12.99	12.73	12.68
Capital Asset Pricing Model (CAPM) (3)	11.79	12.07	12.04	12.04
Mean	11.83 %	12.08 %	11.99 %	11.97 %
Median	11.79 %	12.07 %	12.04 %	12.04 %
Average of Mean and Median	11.81 %	12.08 %	12.02 %	12.01 %

Notes:

- (1) From page 35 of this Schedule.
- (2) From page 36 of this Schedule.
- (3) From pages 39 through 42 of this Schedule.

Carolina Water Service Inc. of North Carolina
DCF Results for the Proxy Group of Non-Price Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Water Companies

	[1]	[2]	[3]	[4]	[6]	[7]	[8]
Proxy Group of Twenty-Seven Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate (1)
Balchem Corp.	0.49 %	14.50 %	NA %	24.00 %	19.25 %	0.54 %	19.79 %
Becton, Dickinson	1.41	4.50	7.70	4.80	5.67	1.45	7.12
Black Knight, Inc.	-	10.50	10.20	10.15	10.28	-	NA
Booz Allen Hamilton	1.80	7.00	7.50	7.50	7.33	1.87	9.20
Bristol-Myers Squibb	3.02	NA	6.30	4.44	5.37	3.10	8.47
C.H. Robinson	2.05	8.50	9.00	6.00	7.83	2.13	9.96
ChemD Corp.	0.32	7.00	7.10	7.10	7.07	0.33	7.40
CSG Systems Int'l	1.85	12.00	NA	(5.00)	12.00	1.96	13.96
CSW Industrials	0.54	11.50	NA	12.00	11.75	0.57	12.32
Heartland Express	0.53	8.50	NA	13.30	10.90	0.56	11.46
Henry (Jack) & Assoc	1.00	9.00	9.00	14.00	10.67	1.05	11.72
Lilly (Eli)	1.24	11.50	19.50	18.13	16.38	1.34	17.72
McCormick & Co.	1.79	5.00	5.30	5.10	5.13	1.84	6.97
Merck & Co.	3.12	8.00	10.20	10.80	9.67	3.27	12.94
Monster Beverage	-	10.50	10.30	14.65	11.82	-	NA
NewMarket Corp.	2.80	(1.50)	NA	7.70	7.70	2.91	10.61
Northrop Grumman	1.44	6.50	2.20	3.00	3.90	1.47	5.37
Oracle Corp.	1.77	9.00	8.00	10.13	9.04	1.85	10.89
Pfizer, Inc.	3.41	6.50	12.50	NA	9.50	3.57	13.07
Progressive Corp.	0.33	6.50	18.70	25.80	17.00	0.36	17.36
Quest Diagnostics	2.03	3.50	NA	(14.72)	3.50	2.07	5.57
RLI Corp.	0.94	12.00	NA	9.80	10.90	0.99	11.89
Rollins, Inc.	1.11	10.50	NA	8.20	9.35	1.16	10.51
Selective Ins. Group	1.37	9.50	5.70	13.40	9.53	1.44	10.97
Watco, Inc.	3.21	11.50	NA	15.00	13.25	3.42	16.67
Werner Enterprises	1.28	9.00	5.80	7.30	7.37	1.33	8.70
Western Union	6.20	8.00	NA	(2.74)	8.00	6.45	14.45
						Mean	11.40 %
						Median	10.97 %
						Average of Mean and Median	11.19 %

NA= Not Available
NMF= Not Meaningful Figure

Notes: (1) The application of the DCF model to the domestic, non-price regulated comparable risk companies is identical to the application of the DCF to the utility proxy group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of October 14, 2022. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information:
Value Line Investment Survey
www.zacks.com Downloaded on 10/14/2022
www.yahoo.com Downloaded on 10/14/2022

Carolina Water Service Inc. of North Carolina
 Indicated Common Equity Cost Rate
 Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Proxy Group of Twenty-Seven Non-Price Regulated Companies</u>	<u>Results using Projected 2023 Interest Rates</u>	<u>Results using Projected 2024 Interest Rates</u>	<u>Results using Projected 2025 Interest Rates</u>
1.	Prospective Yield on Baa2 Rated Corporate Bonds	-	6.32 % (1)	5.90 % (2)	5.80 % (3)
2.	Current Yield on Baa2 Rated Corporate Bonds (4)	5.35 %	-	-	-
3.	Adjustment to Reflect Bond rating Difference of Non-Price Regulated Companies (5)	<u>(0.17)</u>	<u>(0.17)</u>	<u>(0.17)</u>	<u>(0.17)</u>
4.	Adjusted Prospective Bond Yield	5.18	6.15	5.73	5.63
5.	Equity Risk Premium (6)	<u>7.34</u>	<u>6.84</u>	<u>7.00</u>	<u>7.05</u>
6.	Risk Premium Derived Common Equity Cost Rate	<u>12.52 %</u>	<u>12.99 %</u>	<u>12.73 %</u>	<u>12.68 %</u>

(1) Average forecast of 2023 Baa2 corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated June 1, 2022 and September 30, 2022 (see pages 22 and 23 of this Schedule). The estimates are detailed below.

First Quarter 2023	6.40 %
Second Quarter 2023	6.50
Third Quarter 2023	6.40
Fourth Quarter 2023	6.30
2023 Consensus	<u>6.00</u>
Average	<u>6.32 %</u>

(2) The projection of the 2024 Baa2 corporate bond is illustrated below:

2024 Consensus	<u>5.90 %</u>
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(3) The projection of the 2025 Baa2 corporate bond is illustrated below:

2025 Consensus	<u>5.80 %</u>
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(4) Three-month average Baa2 corporate bond yield ended September, 2022 as reported by Bloomberg Professional Services shown below:

Jul-22	5.21 %
Aug-22	5.15
Sep-22	<u>5.68</u>
Average	<u>5.35 %</u>

(5) The average yield spread of Baa rated corporate bonds over A corporate bonds for the three months ending September 2022. To reflect the Baa1 average rating of the non-utility proxy group, the prospective yield on Baa corporate bonds must be adjusted by 1/3 of the spread between A and Baa corporate bond yields as shown below:

	<u>A Corp. Bond Yield</u>	<u>Baa Corp. Bond Yield</u>	<u>Spread</u>
Sep-22	5.16 %	5.68 %	0.52 %
Aug-22	4.65	5.15	0.50
Jul-22	4.67	5.21	<u>0.54</u>
		Average yield spread	<u>0.52</u>
		1/3 of spread	<u>0.17</u>

(6) From page 38 of this Schedule.

Carolina Water Service Inc. of North Carolina
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Twenty-Seven Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Water Companies

<u>Proxy Group of Twenty-Seven Non-Price Regulated Companies</u>	Moody's Long-Term Issuer Rating October 2022		Standard & Poor's Long-Term Issuer Rating October 2022	
	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
Balchem Corp.	NA	--	NA	--
Becton, Dickinson	Baa2	9.0	BBB	9.0
Black Knight, Inc.	Ba3	13.0	BB	12.0
Booz Allen Hamilton	NA	--	NA	--
Bristol-Myers Squibb	A2	6.0	A+	5.0
C.H. Robinson	Baa2	9.0	BBB+	8.0
Chemed Corp.	WR	--	NR	--
CSG Systems Int'l	NA	--	BB+	11.0
CSW Industrials	NA	--	NA	--
Heartland Express	NA	--	NA	--
Henry (Jack) & Assoc	NA	--	NA	--
Lilly (Eli)	A2	6.0	A+	5.0
McCormick & Co.	Baa2	9.0	BBB	9.0
Merck & Co.	A1	5.0	A+	5.0
Monster Beverage	NA	--	NA	--
NewMarket Corp.	Baa2	9.0	BBB+	8.0
Northrop Grumman	Baa1	8.0	BBB+	8.0
Oracle Corp.	Baa2	9.0	BBB	9.0
Pfizer, Inc.	A2	6.0	A+	5.0
Progressive Corp.	A2	6.0	A	6.0
Quest Diagnostics	Baa2	9.0	BBB+	8.0
RLI Corp.	Baa2	9.0	BBB	9.0
Rollins, Inc.	NA	--	NA	--
Selective Ins. Group	Baa2	9.0	BBB	9.0
Watsco, Inc.	NA	--	NA	--
Werner Enterprises	NA	--	NA	--
Western Union	Baa2	9.0	BBB	9.0
Average	Baa1	8.2	BBB+	7.9

Notes:

(1) From page 18 of this Schedule.

Source of Information:

Bloomberg Professional Services

Carolina Water Service Inc. of North Carolina
 Derivation of Equity Risk Premium Based on the Total Market Approach
 Using the Beta for
 Proxy Group of Twenty-Seven Non-Price Regulated Companies of Comparable Risk to the
Proxy Group of Six Water Companies

Line No.	Equity Risk Premium Measure	Results using Current Interest Rates	Results using Projected 2023 Interest Rates	Results using Projected 2024 Interest Rates	Results using Projected 2025 Interest Rates
<u>Ibbotson-Based Equity Risk Premiums:</u>					
1.	Ibbotson Equity Risk Premium (1)	6.13 %	6.13 %	6.13 %	6.13 %
2.	Regression on Ibbotson Risk Premium Data (2)	8.11	6.97	7.32	7.45
3.	Ibbotson Equity Risk Premium based on PRPM (3)	10.12	10.12	10.12	10.12
4.	Equity Risk Premium Based on <u>Value Line</u> Summary and Index (4)	11.65	10.75	11.03	11.13
5.	Equity Risk Premium Based on <u>Value Line</u> S&P 500 Companies (5)	12.28	11.38	11.66	11.76
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	<u>8.16</u>	<u>7.26</u>	<u>7.54</u>	<u>7.64</u>
7.	Conclusion of Equity Risk Premium	9.41 %	8.77 %	8.97 %	9.04 %
8.	Adjusted Beta (7)	<u>0.78</u>	<u>0.78</u>	<u>0.78</u>	<u>0.78</u>
9.	Forecasted Equity Risk Premium	<u>7.34 %</u>	<u>6.84 %</u>	<u>7.00 %</u>	<u>7.05 %</u>

Notes:

- (1) From note 1 of page 12 of Schedule DWD-4.
- (2) From note 2 of page 12 of Schedule DWD-4.
- (3) From note 3 of page 12 of Schedule DWD-4.
- (4) From note 4 of page 12 of Schedule DWD-4.
- (5) From note 5 of page 12 of Schedule DWD-4.
- (6) From note 6 of page 12 of Schedule DWD-4.
- (7) Average of mean and median beta from pages 39 to 42 of this Schedule.

Sources of Information:

- Kroll 2022 SBB@ Yearbook Value Line Summary and Index
- Blue Chip Financial Forecasts, June 1, 2022 and September 30, 2022
- Bloomberg Professional Services

Carolina Water Service Inc. of North Carolina
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Water Companies
Using Current Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twenty-Seven Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Balchem Corp.	0.75	0.88	0.81	10.59 %	3.26 %	11.84 %	12.34 %	12.09 %
Becton, Dickinson	0.75	0.67	0.71	10.59	3.26	10.78	11.55	11.17
Black Knight, Inc.	0.75	0.65	0.70	10.59	3.26	10.68	11.47	11.07
Booz Allen Hamilton	0.85	0.81	0.83	10.59	3.26	12.05	12.50	12.28
Bristol-Myers Squibb	0.85	0.56	0.71	10.59	3.26	10.78	11.55	11.17
C.H. Robinson	0.70	0.87	0.79	10.59	3.26	11.63	12.19	11.91
Chemed Corp.	0.80	0.72	0.76	10.59	3.26	11.31	11.95	11.63
CSG Systems Int'l	0.70	0.80	0.75	10.59	3.26	11.21	11.87	11.54
CSW Industrials	0.85	0.90	0.87	10.59	3.26	12.48	12.82	12.65
Heartland Express	0.70	0.71	0.70	10.59	3.26	10.68	11.47	11.07
Henry (Jack) & Assoc	0.80	0.77	0.79	10.59	3.26	11.63	12.19	11.91
Lilly (Eli)	0.80	0.78	0.79	10.59	3.26	11.63	12.19	11.91
McCormick & Co.	0.75	0.73	0.74	10.59	3.26	11.10	11.79	11.44
Merck & Co.	0.80	0.52	0.66	10.59	3.26	10.25	11.15	10.70
Monster Beverage	0.85	0.82	0.83	10.59	3.26	12.05	12.50	12.28
NewMarket Corp.	0.75	0.62	0.69	10.59	3.26	10.57	11.39	10.98
Northrop Grumman	0.80	0.66	0.73	10.59	3.26	10.99	11.71	11.35
Oracle Corp.	0.80	0.94	0.87	10.59	3.26	12.48	12.82	12.65
Pfizer, Inc.	0.80	0.74	0.77	10.59	3.26	11.42	12.03	11.72
Progressive Corp.	0.75	0.72	0.74	10.59	3.26	11.10	11.79	11.44
Quest Diagnostics	0.80	0.63	0.72	10.59	3.26	10.89	11.63	11.26
RLI Corp.	0.75	0.81	0.78	10.59	3.26	11.52	12.11	11.81
Rollins, Inc.	0.85	0.86	0.86	10.59	3.26	12.37	12.74	12.56
Selective Ins. Group	0.85	0.76	0.80	10.59	3.26	11.73	12.26	12.00
Watco, Inc.	0.85	0.97	0.91	10.59	3.26	12.90	13.14	13.02
Werner Enterprises	0.75	0.83	0.79	10.59	3.26	11.63	12.19	11.91
Western Union	0.80	0.86	0.83	10.59	3.26	12.05	12.50	12.28
Mean			0.78			11.47 %	12.07 %	11.77 %
Median			0.78			11.52 %	12.11 %	11.81 %
Average of Mean and Median			0.78			11.50 %	12.09 %	11.79 %

Notes:
(1) From page 30, note 1, of this Schedule.
(2) From page 30, note 2, of this Schedule.
(3) Average of CAPM and ECAPM cost rates.

Carolina Water Service Inc. of North Carolina
 Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
 Proxy Group of Six Water Companies
 Using 2023 Projected Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twenty-Seven Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Balchem Corp.	0.75	0.88	0.81	10.17 %	3.88 %	12.12 %	12.60 %	12.36 %
Becton, Dickinson	0.75	0.67	0.71	10.17	3.88	11.10	11.84	11.47
Black Knight, Inc.	0.75	0.65	0.70	10.17	3.88	11.00	11.76	11.38
Booz Allen Hamilton	0.85	0.81	0.83	10.17	3.88	12.32	12.75	12.54
Bristol-Myers Squibb	0.85	0.56	0.71	10.17	3.88	11.10	11.84	11.47
C.H. Robinson	0.70	0.87	0.79	10.17	3.88	11.91	12.45	12.18
Chemed Corp.	0.80	0.72	0.76	10.17	3.88	11.61	12.22	11.91
CSG Systems Int'l	0.70	0.80	0.75	10.17	3.88	11.51	12.14	11.83
CSW Industrials	0.85	0.90	0.87	10.17	3.88	12.73	13.06	12.89
Heartland Express	0.70	0.71	0.70	10.17	3.88	11.00	11.76	11.38
Henry (Jack) & Assoc	0.80	0.77	0.79	10.17	3.88	11.91	12.45	12.18
Lilly (Eli)	0.80	0.78	0.79	10.17	3.88	11.91	12.45	12.18
McCormick & Co.	0.75	0.73	0.74	10.17	3.88	11.41	12.07	11.74
Merck & Co.	0.80	0.52	0.66	10.17	3.88	10.59	11.46	11.02
Monster Beverage	0.85	0.82	0.83	10.17	3.88	12.32	12.75	12.54
NewMarket Corp.	0.75	0.62	0.69	10.17	3.88	10.90	11.69	11.29
Northrop Grumman	0.80	0.66	0.73	10.17	3.88	11.30	11.99	11.65
Oracle Corp.	0.80	0.94	0.87	10.17	3.88	12.73	13.06	12.89
Pfizer, Inc.	0.80	0.74	0.77	10.17	3.88	11.71	12.30	12.00
Progressive Corp.	0.75	0.72	0.74	10.17	3.88	11.41	12.07	11.74
Quest Diagnostics	0.80	0.63	0.72	10.17	3.88	11.20	11.91	11.56
RLI Corp.	0.75	0.81	0.78	10.17	3.88	11.81	12.37	12.09
Rollins, Inc.	0.85	0.86	0.86	10.17	3.88	12.63	12.98	12.80
Selective Ins. Group	0.85	0.76	0.80	10.17	3.88	12.02	12.52	12.27
Watsco, Inc.	0.85	0.97	0.91	10.17	3.88	13.13	13.36	13.25
Werner Enterprises	0.75	0.83	0.79	10.17	3.88	11.91	12.45	12.18
Western Union	0.80	0.86	0.83	10.17	3.88	12.32	12.75	12.54
Mean			0.78			11.76 %	12.34 %	12.05 %
Median			0.78			11.81 %	12.37 %	12.09 %
Average of Mean and Median			0.78			11.79 %	12.36 %	12.07 %

Notes:
 (1) From page 30, note 1, of this Schedule.
 (2) From page 30, note 2, of this Schedule.
 (3) Average of CAPM and ECAPM cost rates.

Carolina Water Service Inc. of North Carolina
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the Proxy Group of Six Water Companies Using 2024 Projected Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twenty-Seven Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Balchem Corp.	0.75	0.88	0.81	10.22 %	3.80 %	12.08 %	12.57 %	12.32 %
Becton, Dickinson	0.75	0.67	0.71	10.22	3.80	11.06	11.80	11.43
Black Knight, Inc.	0.75	0.65	0.70	10.22	3.80	10.96	11.72	11.34
Booz Allen Hamilton	0.85	0.81	0.83	10.22	3.80	12.29	12.72	12.50
Bristol-Myers Squibb	0.85	0.56	0.71	10.22	3.80	11.06	11.80	11.43
C.H. Robinson	0.70	0.87	0.79	10.22	3.80	11.88	12.41	12.15
Chemed Corp.	0.80	0.72	0.76	10.22	3.80	11.57	12.18	11.88
CSG Systems Int'l	0.70	0.80	0.75	10.22	3.80	11.47	12.11	11.79
CSW Industrials	0.85	0.90	0.87	10.22	3.80	12.70	13.03	12.86
Heartland Express	0.70	0.71	0.70	10.22	3.80	10.96	11.72	11.34
Henry (Jack) & Assoc	0.80	0.77	0.79	10.22	3.80	11.88	12.41	12.15
Lilly (Eli)	0.80	0.78	0.79	10.22	3.80	11.88	12.41	12.15
McCormick & Co.	0.75	0.73	0.74	10.22	3.80	11.37	12.03	11.70
Merck & Co.	0.80	0.52	0.66	10.22	3.80	10.55	11.42	10.98
Monster Beverage	0.85	0.82	0.83	10.22	3.80	12.29	12.72	12.50
NewMarket Corp.	0.75	0.62	0.69	10.22	3.80	10.85	11.65	11.25
Northrop Grumman	0.80	0.66	0.73	10.22	3.80	11.26	11.95	11.61
Oracle Corp.	0.80	0.94	0.87	10.22	3.80	12.70	13.03	12.86
Pfizer, Inc.	0.80	0.74	0.77	10.22	3.80	11.67	12.26	11.97
Progressive Corp.	0.75	0.72	0.74	10.22	3.80	11.37	12.03	11.70
Quest Diagnostics	0.80	0.63	0.72	10.22	3.80	11.16	11.88	11.52
RLI Corp.	0.75	0.81	0.78	10.22	3.80	11.78	12.34	12.06
Rollins, Inc.	0.85	0.86	0.86	10.22	3.80	12.59	12.95	12.77
Selective Ins. Group	0.85	0.76	0.80	10.22	3.80	11.98	12.49	12.24
Watsco, Inc.	0.85	0.97	0.91	10.22	3.80	13.10	13.33	13.22
Werner Enterprises	0.75	0.83	0.79	10.22	3.80	11.88	12.41	12.15
Western Union	0.80	0.86	0.83	10.22	3.80	12.29	12.72	12.50
Mean			<u>0.78</u>			<u>11.73 %</u>	<u>12.30 %</u>	<u>12.01 %</u>
Median			<u>0.78</u>			<u>11.78 %</u>	<u>12.34 %</u>	<u>12.06 %</u>
Average of Mean and Median			<u>0.78</u>			<u>11.76 %</u>	<u>12.32 %</u>	<u>12.04 %</u>

Notes:
(1) From page 30, note 1, of this Schedule.
(2) From page 30, note 2, of this Schedule.
(3) Average of CAPM and ECAPM cost rates.

Carolina Water Service Inc. of North Carolina
 Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
 Proxy Group of Six Water Companies
 Using 2025 Projected Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twenty-Seven Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Balchem Corp.	0.75	0.88	0.81	10.22 %	3.80 %	12.08 %	12.57 %	12.32 %
Becton, Dickinson	0.75	0.67	0.71	10.22	3.80	11.06	11.80	11.43
Black Knight, Inc.	0.75	0.65	0.70	10.22	3.80	10.96	11.72	11.34
Booz Allen Hamilton	0.85	0.81	0.83	10.22	3.80	12.29	12.72	12.50
Bristol-Myers Squibb	0.85	0.56	0.71	10.22	3.80	11.06	11.80	11.43
C.H. Robinson	0.70	0.87	0.79	10.22	3.80	11.88	12.41	12.15
Chemed Corp.	0.80	0.72	0.76	10.22	3.80	11.57	12.18	11.88
CSG Systems Int'l	0.70	0.80	0.75	10.22	3.80	11.47	12.11	11.79
CSW Industrials	0.85	0.90	0.87	10.22	3.80	12.70	13.03	12.86
Heartland Express	0.70	0.71	0.70	10.22	3.80	10.96	11.72	11.34
Henry (Jack) & Assoc	0.80	0.77	0.79	10.22	3.80	11.88	12.41	12.15
Lilly (Eli)	0.80	0.78	0.79	10.22	3.80	11.88	12.41	12.15
McCormick & Co.	0.75	0.73	0.74	10.22	3.80	11.37	12.03	11.70
Merck & Co.	0.80	0.52	0.66	10.22	3.80	10.55	11.42	10.98
Monster Beverage	0.85	0.82	0.83	10.22	3.80	12.29	12.72	12.50
NewMarket Corp.	0.75	0.62	0.69	10.22	3.80	10.85	11.65	11.25
Northrop Grumman	0.80	0.66	0.73	10.22	3.80	11.26	11.95	11.61
Oracle Corp.	0.80	0.94	0.87	10.22	3.80	12.70	13.03	12.86
Pfizer, Inc.	0.80	0.74	0.77	10.22	3.80	11.67	12.26	11.97
Progressive Corp.	0.75	0.72	0.74	10.22	3.80	11.37	12.03	11.70
Quest Diagnostics	0.80	0.63	0.72	10.22	3.80	11.16	11.88	11.52
RLI Corp.	0.75	0.81	0.78	10.22	3.80	11.78	12.34	12.06
Rollins, Inc.	0.85	0.86	0.86	10.22	3.80	12.59	12.95	12.77
Selective Ins. Group	0.85	0.76	0.80	10.22	3.80	11.98	12.49	12.24
Watco, Inc.	0.85	0.97	0.91	10.22	3.80	13.10	13.33	13.22
Werner Enterprises	0.75	0.83	0.79	10.22	3.80	11.88	12.41	12.15
Western Union	0.80	0.86	0.83	10.22	3.80	12.29	12.72	12.50
Mean			<u>0.78</u>			<u>11.73 %</u>	<u>12.30 %</u>	<u>12.01 %</u>
Median			<u>0.78</u>			<u>11.78 %</u>	<u>12.34 %</u>	<u>12.06 %</u>
Average of Mean and Median			<u>0.78</u>			<u>11.76 %</u>	<u>12.32 %</u>	<u>12.04 %</u>

Notes:
 (1) From page 30, note 1, of this Schedule.
 (2) From page 30, note 2, of this Schedule.
 (3) Average of CAPM and ECAPM cost rates.

Carolina Water Service Inc. of North Carolina
 Derivation of Investment Risk Adjustment Based upon
 Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.	[1] Market Capitalization on October 14, 2022 (millions)	[2] Applicable Decile of the NYSE/AMEX/NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1.	Carolina Water Service Inc. of North Carolina \$ 275.065	10	4.80%	
2.	Proxy Group of Six Water Companies \$ 3,035.903	6	1.18%	3.62%

Decile	Market Capitalization of (millions)		Market Capitalization of Largest Company (millions)	Size Premium (Return in Excess of CAPM)*
	Smallest Company	Largest Company		
1	\$ 36,160.584	\$ 2,324,390.219		-0.22%
2	16,759.390	36,099.221		0.43%
3	8,216.356	16,738.364		0.55%
4	5,019.883	8,212.638		0.54%
5	3,281.009	5,003.747		0.89%
6	2,170.315	3,276.553		1.18%
7	1,306.402	2,164.524		1.34%
8	629.118	1,306.038		1.21%
9	290.002	627.803		2.10%
10	10.588	289.007		4.80%

*From 2022 Duff & Phelps Cost of Capital Navigator

Notes:

- (1) From page 44 of this Schedule.
- (2) Gleaned from Columns [B] and [C] on the bottom of this page. The appropriate decile (Column [A]) corresponds to the market capitalization of the proxy group, which is found in Column [1].
- (3) Corresponding risk premium to the decile is provided in Column [D] on the bottom of this page.
- (4) Line No. 1 Column [3] – Line No. 2 Column [3]. For example, the 3.62% in Column [4], Line No. 2 is derived as follows 3.62% = 4.8% - 1.18%.

Carolina Water Service Inc. of North Carolina
Market Capitalization of Carolina Water Service Inc. of North Carolina and the
Proxy Group of Six Water Companies

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2021 (millions)	[2] Book Value per Share at Fiscal Year End 2021 (1)	[3] Total Common Equity at Fiscal Year End 2021 (millions)	[4] Closing Stock Market Price on October 14, 2022	[5] Market-to-Book Ratio on October 14, 2022 (2)	[6] Market Capitalization on October 14, 2022 (3) (millions)
Carolina Water Service Inc. of North Carolina		NA	NA	\$ 96,888 (4)	NA		
Based upon Proxy Group of Six Water Companies						283.9 (5)	\$ 275,065 (6)
Proxy Group of Six Water Companies							
American States Water Company	NYSE	36,936	\$ 18,571	\$ 685,947	\$ 84,880	457.1 %	\$ 3,135,152
American Water Works Company, Inc.	NYSE	181,611	40,185	7,298,000	128,440	319.6	23,326,128
California Water Service Group	NYSE	53,716	22,023	1,182,980	54,670	248.2	2,936,654
Essential Utilities Inc.	NYSE	252,868	20,503	5,184,450	39,910	194.7	10,091,947
Middlesex Water Company	NASDAQ	17,522	20,987	367,726	81,020	386.0	1,419,632
SIW Group	NYSE	30,181	34,277	1,034,519	62,200	181.5	1,877,280
Median		45,326	\$ 21,505	\$ 1,108,750	\$ 71,610	283.9 %	\$ 3,035,903

NA= Not Available

- Notes: (1) Column 3 / Column 1.
(2) Column 4 / Column 2.
(3) Column 1 * Column 4.
(4) Combined book common equity from Company 2021 annual report filed with the Commission.
(5) The market-to-book ratio of Carolina Water Service Inc. of North Carolina on October 14, 2022 is assumed to be equal to the market-to-book ratio of Proxy Group of Six Water Companies on October 14, 2022 as appropriate.
(6) Column [3] multiplied by Column [5].

Source of Information: 2021 Annual Forms 10K
Bloomberg Financial Services

Carolina Water Service Inc of North Carolina
 Mr. Hinton's DCF Analysis using only Projected Growth in EPS

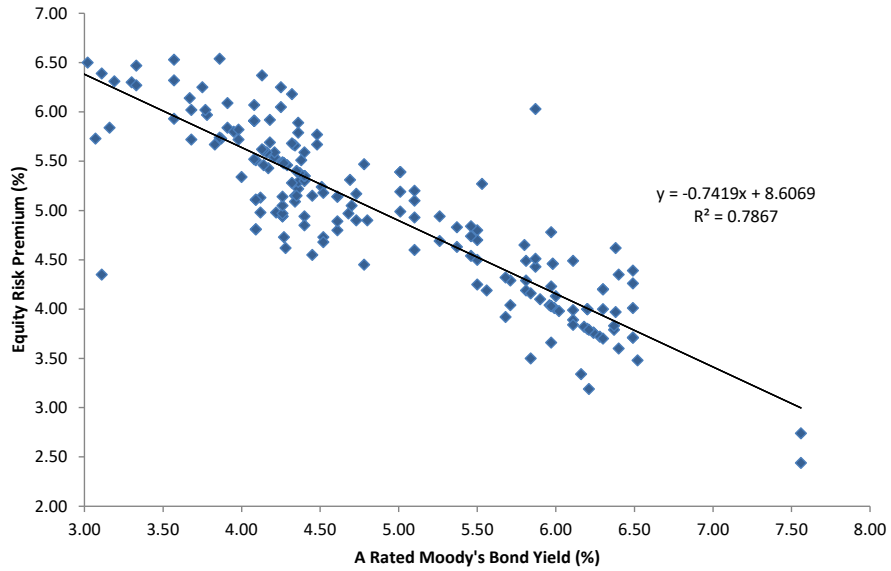
DCF ANALYSIS

Company Name	Yield ¹	Value Line ²		Yahoo Forecast ³		Average Growth ²	Value Line Indicated ROE	Yahoo Indicated ROE	Average Indicated ROE		
		EPS	5-Yr	EPS	5-Yr						
1 American States Water Company	1.9	%	5.5	%	4.4	%	7.4	%	6.3	%	6.9
2 American Water Works Company, Inc.	1.8		3.0		8.3		4.8		10.1		7.5
3 California Water Service Group	1.7		6.5		11.7		8.2		13.4		10.8
4 Essential Utilities, Inc.	2.4		10.0		6.8		12.4		9.2		10.8
5 Middlesex Water Company	1.3		4.5		2.7		5.8		4.0		4.9
6 SJW Group	2.2		14.0		9.8		16.2		12.0		14.1
Average	1.9	%	7.3	%	7.3	%	7.3	%	7.3	%	7.3
Median	1.9	%	6.0	%	7.6	%	7.0	%	7.0	%	7.0
Average DCF Result			9.1	%	9.2	%	9.2	%	10.0	%	10.0
Median DCF Result			7.9	%	9.4	%	8.9	%	8.2	%	10.1

Sources:

1. From Hinton Exhibit 3.
2. From Hinton Exhibit 3.
3. From Hinton Exhibit 3.
4. Excluding the DCF model results for indicated ROEs less than the yield on A-rated utility bonds.

Carolina Water Service Inc of North Carolina
 Prediction of Equity Risk Premiums Relative to
Moody's A Rated Utility Bond Yields



<u>Constant</u> 8.60686 %	<u>Slope</u> -0.74187	<u>Prospective A2 Rated Utility Bond (1)</u> 5.88 %	<u>Prospective Equity Risk Premium</u> 4.24 %	<u>Indicated ROE</u> 10.12 %
<u>Constant</u> 8.60686 %	<u>Slope</u> -0.74187	<u>Current A2 Rated Utility Bond (2)</u> 4.93 %	<u>Current Equity Risk Premium</u> 4.95 %	<u>Indicated ROE</u> 9.88 %

Carolina Water Service Inc of North Carolina
 Prediction of Equity Risk Premiums Relative to
Moody's A Rated Utility Bond Yields

Notes:

- (1) The prospective A2 rated utility bond is the average forecast of Aaa rated corporate bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts, adjusted to reflect the average yield spread of A2 rated public utility bonds over Aaa rated corporate bonds (see pages 3 and 4 of this Schedule). The prospective A2 rated utility bond is illustrated below:

Fourth Quarter 2022	5.00 %
First Quarter 2023	5.40
Second Quarter 2023	5.40
Third Quarter 2023	5.40
Fourth Quarter 2023	5.20
First Quarter 2024	5.10
2024-2028	4.90
2029-2033	5.00
Average:	5.18 %

	Aaa Rated Corporate Bond	A2 Rated Public Utility Bond
Sep-2022	4.57 %	5.26 %
Aug-2022	4.07	4.76
Jul-2022	4.06	4.78
Average	4.23 %	4.93 %

A2 Rated Public Utility Bonds Over Aaa Rated Corporate Bonds: 0.70 %

Adjusted Prospective Yield on A2 Rated Public Utility Bonds: 5.88 %

- (2) Three-month average on Moody's A-rated Utility bond yield ended September, 2022 as shown below:

Sep-2022	5.26 %
Aug-2022	4.76
Jul-2022	4.78
Average	4.93 %

Sources of Information:

Blue Chip Financial Forecasts September 30, 2022 and June 1, 2022
 Regulatory Research Associates
 Bloomberg Professional Services

Carolina Water Service Inc. of North Carolina
Mr. Hinton's CEM Analysis

CEM ANALYSIS

Company Name	2016	2017	2018	2019	2020	2021	2022	2023	2025-2027
1 Amer. States Water	12.1	13.1	11.4	14.0	13.5	13.8	12.5	12.5	13.5
2 Amer. Water Works	9.0	7.9	9.7	10.1	11.0	17.3	10.5	10.5	10.5
3 California Water	7.4	9.7	9.0	8.1	10.5	8.6	7.5	9.0	10.0
4 Essential Util.	12.7	12.2	9.6	5.8	6.1	8.3	8.5	8.5	8.5
5 Middlesex Water	10.3	9.9	13.0	10.4	11.1	9.9	11.5	11.0	12.0
6 SJW Group	12.5	12.8	4.4	2.6	6.7	5.8	5.5	6.5	8.0
							Projected ROEs		
							Average	Median	
							10.01	10.00	
							9.81	10.25	

Sources:

1. Value Line Investment Survey, October 7, 2022.

Carolina Water Service, Inc. of North Carolina
Portfolio Ranks by Size and Risk Premiums over CAPM Results
as Compiled by Kroll 2022 Valuation Handbook Guide to Cost of Capital

Portfolio Rank by Size	B-1		B-2		B-3		B-4		B-5		B-6		B-7		B-8	
	Market Val. of Equity (in \$Millions)	RP	Average Book Val. (in \$Millions)	RP	5-yr. Net Income (in \$Millions)	RP	Market Value of Invested Capital (in \$Millions)	RP	Total Assets (in \$Millions)	RP	5-yr. EBITDA (in \$Millions)	RP	Sales (in \$Millions)	RP	Average Number of Employees	RP
1	\$327,375 and Up	-0.98%	\$48,552 and Up	1.18%	\$7,602 and Up	0.83%	\$371,743 and Up	-0.51%	\$1,257,52 and Up	0.86%	\$15,760 and Up	0.92%	\$93,399 and Up	1.11%	231,203 and Up	0.61%
2	\$77,985 - \$327,375	0.47%	\$17,943 - \$48,552	1.77%	\$2,533 - \$7,602	1.64%	\$100,161 - \$371,743	0.71%	\$56,658 - \$125,752	1.51%	\$5,692 - \$15,760	1.70%	\$31,788 - \$93,399	1.92%	88,575 - 231,203	1.5%
3	\$47,040 - \$77,985	0.94%	\$10,843 - \$17,943	2.09%	\$1,581 - \$2,533	1.94%	\$60,342 - \$100,161	1.18%	\$38,314 - \$56,658	1.74%	\$3,751 - \$5,692	2.00%	\$20,386 - \$31,788	2.26%	61,445 - 88,575	1.87%
4	\$32,207 - \$47,040	1.29%	\$7,886 - \$10,843	2.26%	\$1,090 - \$1,581	2.20%	\$44,265 - \$60,342	1.46%	\$25,760 - \$38,314	2.01%	\$2,798 - \$3,751	2.20%	\$15,525 - \$20,386	2.4%	47,209 - 61,445	2.08%
5	\$24,317 - \$32,207	1.56%	\$6,098 - \$7,886	2.41%	\$831 - \$1,090	2.37%	\$34,274 - \$44,265	1.66%	\$19,484 - \$25,760	2.23%	\$2,166 - \$2,798	2.37%	\$12,379 - \$15,525	2.60%	36,996 - 47,209	2.27%
6	\$19,482 - \$24,317	1.75%	\$4,901 - \$6,098	2.52%	\$661 - \$831	2.52%	\$26,180 - \$34,274	1.87%	\$15,916 - \$19,484	2.36%	\$1,713 - \$2,166	2.52%	\$10,462 - \$12,379	2.73%	29,306 - 36,996	2.46%
7	\$15,882 - \$19,482	1.93%	\$3,932 - \$4,901	2.63%	\$542 - \$661	2.64%	\$21,040 - \$26,180	2.08%	\$12,920 - \$15,916	2.48%	\$1,379 - \$1,713	2.66%	\$9,043 - \$10,462	2.81%	24,168 - 29,306	2.63%
8	\$13,166 - \$15,882	2.09%	\$3,242 - \$3,932	2.74%	\$449 - \$542	2.76%	\$17,707 - \$21,040	2.20%	\$10,563 - \$12,920	2.62%	\$1,145 - \$1,379	2.79%	\$7,737 - \$9,043	2.91%	20,191 - 24,168	2.75%
9	\$10,839 - \$13,166	2.24%	\$2,809 - \$3,242	2.83%	\$375 - \$449	2.87%	\$14,685 - \$17,707	2.35%	\$8,847 - \$10,563	2.74%	\$975 - \$1,145	2.89%	\$6,603 - \$7,737	3.01%	16,820 - 20,191	2.91%
10	\$8,851 - \$10,839	2.42%	\$2,508 - \$2,809	2.89%	\$312 - \$375	2.98%	\$12,329 - \$14,685	2.49%	\$7,598 - \$8,847	2.85%	\$835 - \$975	2.99%	\$5,667 - \$6,603	3.11%	14,606 - 16,820	3.03%
11	\$7,364 - \$8,851	2.58%	\$2,210 - \$2,508	2.94%	\$264 - \$312	3.09%	\$10,316 - \$12,329	2.63%	\$6,719 - \$7,598	2.93%	\$720 - \$835	3.08%	\$4,920 - \$5,667	3.20%	12,851 - 14,606	3.12%
12	\$6,201 - \$7,364	2.73%	\$1,921 - \$2,210	3.02%	\$226 - \$264	3.18%	\$8,617 - \$10,316	2.77%	\$5,936 - \$6,719	3.00%	\$614 - \$720	3.17%	\$4,227 - \$4,920	3.29%	11,248 - 12,851	3.23%
13	\$5,274 - \$6,201	2.87%	\$1,678 - \$1,921	3.09%	\$194 - \$226	3.27%	\$7,480 - \$8,617	2.91%	\$5,166 - \$5,936	3.09%	\$528 - \$614	3.28%	\$3,599 - \$4,227	3.39%	9,938 - 11,248	3.33%
14	\$4,547 - \$5,274	3.00%	\$1,465 - \$1,678	3.16%	\$166 - \$194	3.37%	\$6,632 - \$7,480	2.99%	\$4,364 - \$5,166	3.18%	\$466 - \$528	3.36%	\$3,138 - \$3,599	3.49%	8,586 - 9,938	3.42%
15	\$3,954 - \$4,547	3.11%	\$1,289 - \$1,465	3.23%	\$144 - \$166	3.46%	\$5,777 - \$6,632	3.10%	\$3,637 - \$4,364	3.31%	\$407 - \$466	3.44%	\$2,763 - \$3,138	3.56%	7,225 - 8,586	3.56%
16	\$3,376 - \$3,954	3.24%	\$1,139 - \$1,289	3.29%	\$125 - \$144	3.54%	\$4,986 - \$5,777	3.21%	\$3,145 - \$3,637	3.41%	\$355 - \$407	3.53%	\$2,400 - \$2,763	3.65%	6,168 - 7,225	3.69%
17	\$2,884 - \$3,376	3.38%	\$996 - \$1,139	3.35%	\$107 - \$125	3.63%	\$4,247 - \$4,986	3.33%	\$2,719 - \$3,145	3.49%	\$304 - \$355	3.61%	\$2,098 - \$2,400	3.73%	5,359 - 6,168	3.80%
18	\$2,471 - \$2,884	3.50%	\$873 - \$996	3.42%	\$90 - \$107	3.73%	\$3,613 - \$4,247	3.46%	\$2,322 - \$2,719	3.59%	\$248 - \$304	3.73%	\$1,813 - \$2,098	3.82%	4,582 - 5,359	3.91%
19	\$2,083 - \$2,471	3.64%	\$764 - \$873	3.49%	\$73 - \$90	3.84%	\$3,029 - \$3,613	3.58%	\$1,983 - \$2,322	3.69%	\$201 - \$248	3.87%	\$1,518 - \$1,813	3.92%	3,844 - 4,582	4.05%
20	\$1,702 - \$2,083	3.79%	\$653 - \$764	3.56%	\$58 - \$73	3.99%	\$2,486 - \$3,029	3.74%	\$1,668 - \$1,983	3.80%	\$166 - \$201	3.99%	\$1,243 - \$1,518	4.04%	3,198 - 3,844	4.18%
21	\$1,327 - \$1,702	3.99%	\$536 - \$653	3.65%	\$46 - \$58	4.11%	\$1,989 - \$2,486	3.89%	\$1,366 - \$1,668	3.91%	\$135 - \$166	4.11%	\$1,027 - \$1,243	4.17%	2,568 - 3,198	4.33%
22	\$993 - \$1,327	4.21%	\$424 - \$536	3.77%	\$36 - \$46	4.26%	\$1,487 - \$1,989	4.09%	\$1,044 - \$1,366	4.05%	\$105 - \$135	4.24%	\$887 - \$1,027	4.28%	1,966 - 2,568	4.52%
23	\$682 - \$993	4.48%	\$327 - \$424	3.89%	\$24 - \$36	4.42%	\$1,008 - \$1,487	4.26%	\$709 - \$1,044	4.26%	\$74 - \$105	4.44%	\$608 - \$827	4.45%	1,433 - 1,966	4.75%
24	\$348 - \$682	4.86%	\$197 - \$327	4.03%	\$12 - \$24	4.75%	\$511 - \$1,008	4.72%	\$369 - \$709	4.56%	\$40 - \$74	4.69%	\$335 - \$608	4.68%	793 - 1,433	5.01%
25	Up To \$348	5.84%	Up To \$197	4.52%	Up To \$12	5.47%	Up To \$511	5.63%	Up To \$369	5.22%	Up To \$40	5.33%	Up To \$335	5.35%	Up to 793	5.88%
Combined Proxy Group	\$ 9,957	Portfolio Ranking 10	\$ 2,626	Portfolio Ranking 10	\$ 205	Portfolio Ranking 13	\$ 13,643	Portfolio Ranking 10	\$ 8,493	Portfolio Ranking 10	\$ 531	Portfolio Ranking 13	\$ 1,302	Portfolio Ranking 20	\$ 2,117	Portfolio Ranking 22
Carolina Water Service, Inc. of North Carolina	\$ 149	25	\$ 52	25	\$ 2.7	25	\$ 207	25	\$ 167	25	\$ 12	25	\$ 40	25	86	25
Indicated Risk Premium - Water Proxy Group	3.42%	1.63%	2.20%	3.14%	2.37%	2.05%	1.31%	1.36%								

Sources of Information:
Kroll Risk Premium Report Size Study Size Premia as of December 31, 2021.
S&P Financial
SEC Form 10-K
Company financial statements

Carolina Water Service Inc of North Carolina
 Calculation of Range of ROEs needed
 to Obtain a Single "A" Rating

	Capitalization Ratio (1) (a)	Embedded Cost (b)	Overall Cost Rate (2) (c)	Pre-Tax Cost of Capital (d)
<u>Company Proposed Rates</u>				
Long-term Debt	50.00%	4.64% (3)	2.32%	2.32%
Equity	50.00%	10.45% (3)	5.23%	6.78% (4)
Total	<u>100.00%</u>		<u>7.55%</u>	<u>9.10%</u>
			Pre-Tax Interest Coverage	3.9
<u>Public Staff Proposed Rates</u>				
Long-term Debt	50.00%	4.64% (1)	2.32%	2.32%
Equity	50.00%	9.45% (1)	4.73%	6.13% (4)
Total	<u>100.00%</u>		<u>7.05%</u>	<u>8.45%</u>
			Pre-Tax Interest Coverage	3.6
<u>Highest Rate Scenario</u>				
Long-term Debt	50.00%	4.64% (1)	2.32%	2.32%
Equity	50.00%	17.87%	8.94%	11.60% (4)
Total	<u>100.00%</u>		<u>11.26%</u>	<u>13.92%</u>
			Pre-Tax Interest Coverage	6.0
<u>Lowest Rate Scenario</u>				
Long-term Debt	50.00%	4.64% (1)	2.32%	2.32%
Equity	50.00%	7.15%	3.57%	4.64% (4)
Total	<u>100.00%</u>		<u>5.89%</u>	<u>6.96%</u>
			Pre-Tax Interest Coverage	3.0

Notes

- (1) Hinton Direct Testimony
- (2) Column (a) x Column (b)
- (3) Recommended ROE as shown on Direct Schedule DWD-1, page 1.
- (4) Overall Equity Cost Rate x Tax Conversion Factor