

**STATE OF CONNECTICUT  
PUBLIC UTILITIES REGULATORY AUTHORITY**

**DOCKET NO. 22-07-01**

**APPLICATION OF  
AQUARION WATER COMPANY OF CONNECTICUT  
TO AMEND ITS RATE SCHEDULES**

**DIRECT TESTIMONY OF**

**JOSHUA C. NOWAK**

*Return on Equity*

**On behalf of Aquarion Water Company of Connecticut**

**August 29, 2022**

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**I. INTRODUCTION AND SUMMARY**

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Joshua C. Nowak. I am employed by Concentric Energy Advisors, Inc. (“Concentric”) as an Assistant Vice President. Concentric is a management consulting and economic advisory firm, focused on the North American energy and water industries. Based in Marlborough, Massachusetts and Washington, D.C., Concentric specializes in regulatory and litigation support, financial advisory services, energy market strategies, market assessments, energy commodity contracting and procurement, economic feasibility studies, and capital market analyses. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

**Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

A. I am submitting this Direct Testimony on behalf of Aquarion Water Company of Connecticut (“Aquarion” or the “Company”).

**Q. PLEASE DESCRIBE YOUR EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES AND YOUR EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS.**

A. I earned a Bachelor of Arts degree in Economics from Boston College and have more than 15 years of experience in providing economic, financial and strategic advisory services. As a consultant, I primarily advise clients in regulated utility industries and have provided testimony regarding financial matters before multiple regulatory agencies. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments

1 have included the determination of the cost of capital for valuation and ratemaking  
2 purposes. Prior to joining Concentric in 2018, I was employed by National Grid USA  
3 where I was responsible for regulatory filings related to the cost of capital across the  
4 company's multiple U.S. operating companies and service territories. A summary of my  
5 professional and educational background is presented in Exhibit A-8-JCN-2.

6 **Q. ARE YOU SPONSORING ANY EXHIBITS WITH YOUR TESTIMONY?**

7 A. Yes. My analyses and recommendations are supported by the data presented in Exhibits  
8 A-8-JCN-2 through A-8-JCN-13, which were prepared by me or under my direction.  
9 Specifically, I am sponsoring the following exhibits in addition to my testimony, Exhibit  
10 A-8-JCN-1:

- 11 • Exhibit A-8-JCN-2 – Professional and Educational Background;
- 12 • Exhibit A-8-JCN-3 – Comprehensive Summary of ROE Results;
- 13 • Exhibit A-8-JCN-4 – Proxy Group Screening Analysis;
- 14 • Exhibit A-8-JCN-5 – Constant Growth DCF Analysis;
- 15 • Exhibit A-8-JCN-6 – Market Risk Premium;
- 16 • Exhibit A-8-JCN-7 – CAPM Analysis;
- 17 • Exhibit A-8-JCN-8 – Expected Earnings Analysis;
- 18 • Exhibit A-8-JCN-9 – Proxy Group Capital Expenditure Comparison;
- 19 • Exhibit A-8-JCN-10 – Proxy Group Comparison of Regulatory Rankings;
- 20 • Exhibit A-8-JCN-11 – Flotation Cost Adjustment;
- 21 • Exhibit A-8-JCN-12 – Summary of Recent Acquisitions of Water Systems; and
- 22 • Exhibit A-8-JCN-13 – Capital Structure Analysis

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. The purpose of my Direct Testimony is to present evidence to support a recommendation  
3 regarding the Company's return on equity ("ROE" or "cost of equity"), and to assess the  
4 reasonableness of the proposed capital structure for ratemaking purposes.

5 **II. OVERVIEW AND SUMMARY**

6 **Q. WHAT IS YOUR CONCLUSION REGARDING THE APPROPRIATE COST OF**  
7 **EQUITY FOR AQUARION?**

8 A. I have estimated Aquarion's ROE based on the results of the Discounted Cash Flow  
9 ("DCF") model and the Capital Asset Pricing Model ("CAPM"), which have historically  
10 been relied upon by the Public Utility Regulatory Authority ("PURA") in determining the  
11 cost of equity for utilities. In addition, to assess the reasonableness of the DCF and CAPM  
12 results and evaluate the available returns for alternative investments, I considered the  
13 Expected Earnings analysis. I also considered the general economic and capital market  
14 environment and the influence such conditions exert over the results of the DCF and CAPM  
15 approaches. In addition, I analyze the Company's business and regulatory risk profile that  
16 must be considered in determining where the Company's cost of equity falls with the range  
17 of analytical results. Lastly, I considered various other factors that must be assessed in  
18 determining the Company's authorized ROE, including flotation costs and a premium for  
19 the acquisition of non-viable water systems. A summary of the results of my analyses are  
20 shown below in Figure 1.

1

**Figure 1: Summary of Results**

	<b>Average</b>	<b>Median</b>
<i>Primary Analyses</i>		
DCF Result	9.76%	9.88%
CAPM Result <sup>1</sup>	10.56%	10.64%
Average	10.17%	10.22%
<i>Other Benchmark Analyses</i>		
Expected Earnings	10.68%	10.70%
<i>Other Considerations</i>		
Flotation Costs	0.07%	
Acquisition of Non-Viable Water Systems	0.25%	

2 The DCF, CAPM and Expected Earnings analysis produce a range of estimates of the  
3 Company's cost of equity of 9.76 percent to 10.64 percent. From within that range, and  
4 considering the Company's risk profile, flotation costs, and a premium for the acquisition  
5 of non-viable water systems, I recommend an ROE of 10.35 percent.

6 **Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT YOU**  
7 **CONDUCTED TO SUPPORT YOUR ROE RECOMMENDATION.**

8 A. As noted, my ROE recommendation is based on the range of results produced from the  
9 DCF and CAPM methodologies, as well as an Expect Earnings analysis. Analysts and

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<sup>1</sup> As discussed in more detail in Section VI, this result is derived by applying the more conservative FERC approach to the MRP, including only a subset of S&P 500 companies with growth rates that are between 0 percent and 20 percent.

1 academics understand that ROE models are tools to be used in the ROE estimation process,  
2 and that strict adherence to any single approach, or the specific results of any single  
3 approach, can lead to flawed conclusions. No model can exactly pinpoint the correct cost  
4 of equity, but each is designed to provide an estimate of the return required to attract equity  
5 investment. Therefore, my analysis appropriately considers the range of results produced  
6 by these different models. From within that range, regulators use informed judgment to  
7 select an authorized ROE that takes into consideration the relevant risk factors, as well as  
8 capital market conditions to send appropriate market signals.

9 The DCF analysis estimates the cost of equity based on market data on dividend yields and  
10 analysts' projected earnings per share growth rates from reputable third-party sources. The  
11 CAPM analysis is based on both current and forecasted interest rates and a forward-looking  
12 market risk premium. The Expected Earnings approach is based on projected returns on  
13 book equity that investors expect to receive over the next three to five years. My ROE  
14 recommendation is ultimately based on the range of results produced by these three  
15 methodologies.

16 My recommendation also considers the general economic and capital market environment  
17 that impact the results of the DCF and CAPM approaches. In addition, I consider the  
18 Company's business and regulatory risks in relation to a set of proxy companies to assist  
19 in the determination of the appropriate ROE and capital structure from within the range of  
20 my analytical results. I also considered the effect of flotation costs on the cost of equity as  
21 well as a premium that has been allowed by PURA for the acquisition of water companies  
22 that are not economically viable.

1 **Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?**

2 A. The remainder of my Direct Testimony is organized as follows. Section III provides  
3 background on the regulatory principles that guide the determination of ROE. Section IV  
4 presents a review of current and prospective economic and capital market conditions and  
5 the implications for utility cost of capital. Section V describes the criteria and approach  
6 for the selection of a proxy group of comparable companies. Section VI provides a  
7 description of the data and methodologies used to estimate the cost of equity, as well as the  
8 results of the various ROE estimation models. Section VII provides an assessment of the  
9 business and regulatory risk factors I have considered in arriving at the recommended ROE  
10 for Aquarion. Section VIII reviews Aquarion's capital structure in the context of the proxy  
11 group. Lastly, Section IX summarizes my results, conclusions, and recommendation.

12 **III. REGULATORY PRINCIPLES**

13 **Q. PLEASE DESCRIBE THE GUIDING PRINCIPLES USED IN ESTABLISHING**  
14 **THE COST OF CAPITAL FOR A REGULATED UTILITY.**

15 A. The foundations of public utility regulation require that utilities receive a fair rate of return  
16 sufficient to attract needed capital to maintain service to customers at reasonable rates. The  
17 basic tenets of this regulatory doctrine originate from several bellwether decisions by the  
18 United States Supreme Court, notably *Bluefield Waterworks and Improvement Company*  
19 *v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) (*Bluefield*), and  
20 *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944) (*Hope*).  
21 In *Bluefield*, the Court stated:



1 A public utility is entitled to such rates as will permit it to earn a return on  
2 the value of the property which it employs for the convenience of the public  
3 equal to that generally being made at the same time and in the same general  
4 part of the country on investments in other business undertakings which are  
5 attended by corresponding risks and uncertainties...

6 The return should be reasonably sufficient to assure investor confidence in  
7 the financial soundness of the utility and should be adequate, under efficient  
8 and economical management, to maintain and support its credit and enable  
9 it to raise the money necessary for the proper discharge of its public duties.

10 Later, in *Hope*, the Court established a standard for the ROE that remains the guiding  
11 principle for ratemaking regulatory proceedings to this day:

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

16 **Q. DOES PURA FOLLOW SIMILAR GUIDANCE IN ESTABLISING THE COST OF**  
17 **CAPITAL FOR UTILITIES?**

18 A. Yes. In its ratemaking process, PURA follows Connecticut General Statutes §16-19e (a),  
19 which requires that:

1 [t]he level and structure of rates be sufficient, but no more than sufficient,  
2 to allow public service companies to cover their operating costs including,  
3 but not limited to, appropriate staffing levels, and capital costs, to attract  
4 needed capital and to maintain their financial integrity, and yet provide  
5 appropriate protection for the relevant public interest both existing and  
6 foreseeable...<sup>2</sup>

7 **Q. PLEASE EXPLAIN HOW THESE PRINCIPLES APPLY IN THE CONTEXT OF**  
8 **THE REGULATED RATE OF RETURN.**

9 A. Regulated utilities rely primarily on common stock and long-term debt to finance  
10 permanent property, plant, and equipment. The allowed rate of return for a regulated utility  
11 is based on its weighted average cost of capital, where the costs of the individual sources  
12 of capital (*i.e.*, debt and equity) are weighted by their respective book values. The ROE  
13 represents the cost of raising and retaining equity capital and is estimated with one or more  
14 analytical techniques that use market data to quantify investor requirements for equity  
15 returns. However, the ROE cannot be derived mechanically through quantitative metrics  
16 and models alone. To properly estimate the ROE, the financial, regulatory, and economic  
17 context must also be considered.

18 Based on the standards established in *Hope* and *Bluefield*, the authorized ROE in this  
19 proceeding should provide the Company with the opportunity to earn a fair and reasonable  
20 return that is:

- 21 • Adequate to allow the Company to attract the capital that is necessary to provide  
22 safe and reliable service (the “capital attraction standard”);

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<sup>2</sup> See, e.g., Docket No. 09-12-11, Application of the Connecticut Water Company for Amended Rates (July 14, 2010), Final Decision at 67-68. See also Docket No. 16-06-04, Application of The United Illuminating Company to Increase Its Rates and Charges (Dec. 14, 2016).

- 1           • Sufficient to ensure the Company’s ability to maintain its financial integrity (the
- 2           “financial integrity standard”); and
- 3           • At a level that is comparable to returns required on investments of similar risk (the
- 4           “comparability standard”).

5           Importantly, a “fair” return must satisfy all three of these standards. The allowed ROE  
6           should enable Aquarion to finance capital expenditures on reasonable terms and provide  
7           the Company with the ability to raise capital under a full range of capital market  
8           circumstances to serve its customers. The DCF, CAPM, and Expected Earnings  
9           approaches, while fundamental to the ROE determination, are still only models. The  
10          results of these models cannot be mechanically applied without also using informed  
11          judgment to consider economic and capital market conditions and the relative risk of  
12          Aquarion as compared to the proxy group companies.

13   **Q. DOES THE FACT THAT AQUARION IS ULTIMATELY OWNED BY**  
14   **EVERSOURCE ENERGY AFFECT YOUR ANALYSIS OF THE COST OF**  
15   **EQUITY?**

16   A. No, it does not. Consistent with stand-alone ratemaking principles and PURA’s past  
17   practice,<sup>3</sup> it is appropriate to determine the cost of equity for the operating company,  
18   Aquarion, not Eversource Energy (“Eversource”).

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<sup>3</sup> See, e.g., Final Decision, Docket No. 13-02-20, September 24, 2013, at 100.

**Q. DO THE ROES THAT ARE AUTHORIZED FOR OTHER UTILITIES IMPACT  
AQUARION'S ABILITY TO ATTRACT EQUITY CAPITAL?**

A. Yes. Aquarion competes with other investments of similar risk for equity capital from the market. In addition, Aquarion competes with other investments within Eversource for equity capital from its parent company. Therefore, the ROE awarded to a utility sends an important signal to investors regarding whether there is regulatory support for financial integrity, dividends, growth and fair compensation for business and financial risk. A company's cost of equity is defined by, and equal to, the opportunity cost of investing in that company. In other words, if higher returns are available from other investments of comparable risk, investors have an incentive to direct their capital to those investments. This means that an authorized ROE for Aquarion that is below ROEs authorized for other utilities could inhibit its ability to attract capital on reasonable terms for investments to be made on behalf of customer in Connecticut.

**IV. ECONOMIC AND CAPITAL MARKET CONDITIONS**

**Q. WHY IS IT IMPORTANT TO CONSIDER THE EFFECTS OF CURRENT AND  
EXPECTED ECONOMIC AND FINANCIAL MARKET CONDITIONS WHEN  
SETTING THE APPROPRIATE ROE?**

A. It is important to consider current and expected conditions in the general economy and financial markets because the authorized ROE for a public utility should allow the utility to attract investor capital at a reasonable cost under a variety of economic and financial market conditions, as underscored by the *Hope* and *Bluefield* decisions. In addition, current economic and financial conditions have a bearing on the ROE estimation models and affect

1 the Company's cost of equity. The inputs to the DCF and CAPM are only samples of the  
2 various economic and market forces that determine a utility's required return. The cost of  
3 equity is a forward-looking concept, yet ROE models often rely on historical inputs. To  
4 the extent that those inputs are impacted by or reflect conditions that are expected to change  
5 significantly, it is important to consider those impacts to inform the analyst's judgment  
6 regarding the estimation of ROE. Therefore, an assessment of current and projected market  
7 conditions is integral to any ROE recommendation.

8 **Q. WHAT ARE THE KEY FACTORS AFFECTING THE COST OF EQUITY FOR**  
9 **REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL**  
10 **MARKETS?**

11 A. The cost of equity for regulated utility companies is affected by several key factors  
12 including ongoing uncertainty and volatility in equity markets, as well as the economic  
13 recovery and inflation risk in 2022 and beyond. In this section, I discuss each of these  
14 factors and how it affects the models used to estimate the cost of equity for regulated  
15 utilities.

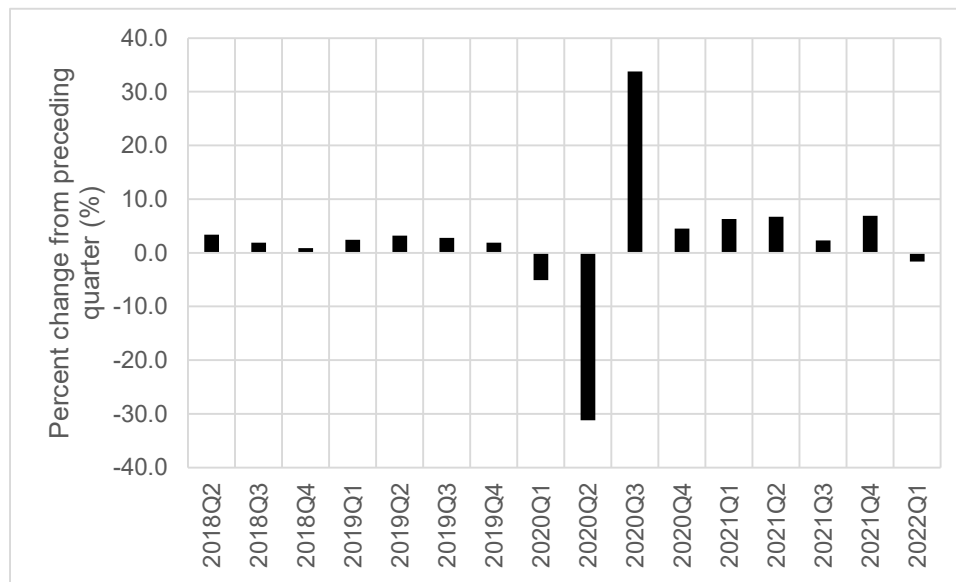
16 **A. Ongoing Uncertainty and Volatility in Capital Markets**

17 **Q. PLEASE DESCRIBE THE CIRCUMSTANCES THAT ARE AFFECTING**  
18 **CAPITAL MARKET CONDITIONS.**

19 A. Capital market conditions are significantly impacted by the economic repercussions of the  
20 COVID-19 pandemic and the subsequent reaction. Federal measures taken to contain the  
21 economic fallout from COVID-19 were extraordinary by any measure. As shown in Figure

2, real gross domestic product (“GDP”) has changed considerably from quarter-to-quarter over the last two years.<sup>4</sup>

**Figure 2: U.S. Real GDP Growth – 2018Q2-2022Q1<sup>5</sup>**



To moderate the economic consequences of the pandemic, the federal government took a series of unprecedented steps to stabilize financial markets.

**Q. WHAT STEPS DID THE FEDERAL RESERVE TAKE TO STABILIZE FINANCIAL MARKETS AND SUPPORT THE ECONOMY IN RESPONSE TO COVID-19?**

A. In response to the economic effects of COVID-19, the Federal Reserve decreased the federal funds rate twice in March 2020, resulting in a target range of 0.00 percent to 0.25

<sup>4</sup> Gross Domestic Product (Third Estimate), GDP by Industry, and Corporate Profits (Revised), 1st Quarter 2022, U.S. Bureau of Economic Analysis (BEA).

<sup>5</sup> Source: U.S. Bureau of Economic Analysis (BEA), <https://www.bea.gov/news/2021/gross-domestic-product-third-estimate-gdp-industry-and-corporate-profits-revised-3rd>.

1 percent (which remained in effect until March 2022); announced plans to increase its  
2 holdings of both Treasury and mortgage-backed securities; and supported increased credit  
3 to both businesses and individual borrowers. Specifically, the Federal Reserve employed  
4 the following policy actions:

- 5 • From December 2020 through November 2021, the Federal Reserve purchased  
6 at least \$80 billion per month of Treasury securities and at least \$40 billion per  
7 month of mortgage-backed securities to support the flow of credit to households  
8 and businesses during the pandemic.<sup>6</sup>
- 9 • On March 23, 2020, the Federal Reserve began expansive programs to support  
10 credit to large employers, including the Primary Market Corporate Credit  
11 Facility (“PMCCF”) to provide liquidity for new issuances of corporate bonds,  
12 and the Secondary Market Corporate Credit Facility (“SMCCF”) to provide  
13 liquidity for outstanding corporate debt issuances.
- 14 • The Federal Reserve supported the flow of credit to consumers and businesses  
15 through the Term Asset-Backed Securities Loan Facility (“TALF”).<sup>7</sup>

16 These programs allowed the Federal Reserve to purchase government bonds and  
17 corporate bonds from banks. The banks then received cash from the Federal Reserve,

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<sup>6</sup> CNBC, Fed will aggressively dial back its bond buying, sees three rate hikes next year (December 15, 2020), available at <https://www.cnbc.com/2021/12/15/fed-will-aggressively-dial-back-its-monthly-bond-buying-sees-three-rate-hikes-next-year.html>.

<sup>7</sup> Federal Reserve Board Press Release, “Federal Reserve announces extensive new measures to support the economy,” March 23, 2020.

1 which resulted in an expansion of the money supply. This increase in the money supply  
2 kept short-term interest rates low and increased the ability of banks to lend to consumers  
3 and businesses.

4 **Q. PLEASE SUMMARIZE THE FISCAL POLICY RESPONSE FROM THE U.S.**  
5 **CONGRESS.**

6 A. In addition to the Federal Reserve's response, the U.S. Congress passed approximately  
7 \$4.5 trillion in fiscal stimulus programs. On March 27, 2020, the Coronavirus Aid, Relief,  
8 and Economic Security Act was signed into law, providing a large fiscal stimulus package  
9 aimed at mitigating the economic effects of the coronavirus. Further, in March 2021, the  
10 U.S. Congress approved additional fiscal stimulus of \$1.9 trillion in response to the  
11 ongoing economic effects of COVID-19. The extraordinary measures taken by the Federal  
12 Reserve and U.S. Congress to support the economy and stabilize financial markets  
13 impacted bond markets (deliberately driving government and corporate yields lower) and  
14 equity markets (creating upward pressure on valuations and downward pressure on yields  
15 for dividend paying companies such as utilities). In March 2020, for the first time on  
16 record, the yield on a 10-year treasury bond dropped below 1.0 percent,<sup>8</sup> and remained  
17 below 1.0 percent for the remainder of 2020.<sup>9</sup> The 10-year treasury bond yield remained  
18 low throughout 2021, beginning the year below 1.0 percent, ending the year at 1.52 percent

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<sup>8</sup> FRED, Economic Data, available at <https://fred.stlouisfed.org/series/DGS10>.

<sup>9</sup> U.S. Department of the Treasury, available at <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/TextView.aspx?data=yieldYear&year=2020>.



1 with an average of 1.45 percent.<sup>10</sup> Before the onset of COVID-19, the 10-year Treasury  
2 yield had had reached levels as low as 1.45 percent on only two occasions: July 24-25,  
3 2012, and July 5-11, 2016. Moreover, these fiscal stimulus programs have increased  
4 inflationary pressures, as evidenced in the sharp run-up in inflation and corresponding  
5 upward spike in bond yields since late November 2021.

6 **Q. ARE CONDITIONS EXPECTED TO STABILIZE IN THE NEAR-TERM?**

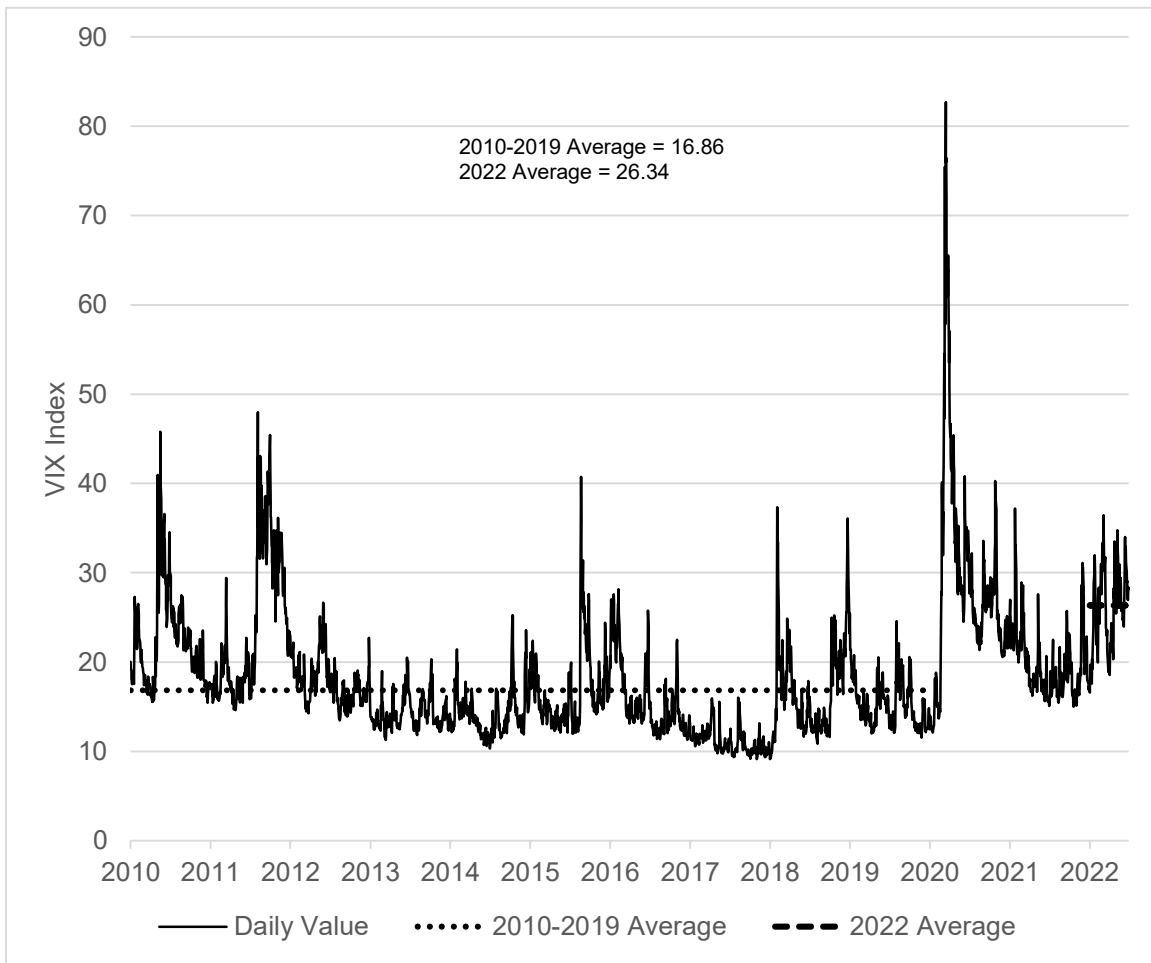
7 A. The economy remains in a tenuous recovery phase of the business cycle. Recent global  
8 events associated with the Russian invasion of Ukraine have caused further uncertainty.  
9 Capital market conditions continue to be unstable with current expectations for interest  
10 rates and inflation to remain elevated. Although expansive monetary and fiscal programs  
11 provided for some price stability, as shown below in Figure 3, the Chicago Board Options  
12 Exchange (“CBOE”) Volatility Index (“VIX”) has remained above long-term historical  
13 levels, indicating stock investors remain anxious about the economy and company  
14 earnings. The VIX, which is a measure of expected price fluctuations in the S&P 500,  
15 reached 82.69 on March 16, 2020 in response to the pandemic. As a point of comparison,  
16 the VIX last traded above 80 in November 2008 during the financial crisis and Great  
17 Recession of 2008/09. The VIX has continued to reach levels above 35.00 in 2021 and  
18 2022. The average level in 2022 has been 26.34 through June 30, 2022, compared to the

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<sup>10</sup> U.S. Department of the Treasury, available at <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/TextView.aspx?data=yieldYear&year=2021>.

average of 16.86 from 2010-2019.<sup>11</sup> This indicates that equity market volatility levels have partially settled but continue to remain above the historical mean.

**Figure 3: CBOE VIX – January 1, 2010 – June 30, 2022<sup>12</sup>**



**Q. HAS THE COST OF EQUITY FOR UTILITY COMPANIES BEEN AFFECTED BY THESE CIRCUMSTANCES?**

**A.** Yes. The cost of equity for regulated utility companies has been affected by the market conditions during this period. In fact, utility company stocks have traded more in-line with

<sup>11</sup> Source: Bloomberg Professional.

<sup>12</sup> Source: Bloomberg Professional.

the broader market since February 2020 when the COVID-19 pandemic became a concern in financial markets. This higher correlation is reflected in the Beta coefficients, which are the measure of risk in the CAPM, where 1.0 is the market average and where higher betas translate to greater risk and higher required equity returns. Beta coefficients increased substantially between January 2020 and May 2022 for the utility companies used in my cost of capital analysis. Figure 4 presents the average Value Line and Bloomberg Beta coefficients for my proxy group companies over this period. Higher Beta coefficients for utilities signal an increase in relative risk, and therefore a higher required return to justify taking on those risks. Investors have not viewed the utilities sector as a safe-haven during the capital market conditions associated with COVID-19, and even though bond yields initially declined, the cost of equity increased.

**Figure 4: Beta Coefficients for Proxy Group**

	<b>January 2020</b>	<b>June 2022</b>
<i>Proxy Group Average</i>		
Value Line Beta	0.64	0.80
Bloomberg Beta	0.706	0.784

**Q. HOW HAS THE CURRENT ECONOMIC ENVIRONMENT AFFECTED THE CREDIT RATINGS FOR UTILITIES?**

A. According to a recent report by Standard and Poor's Global ("S&P"), credit ratings for North American utilities "weakened sharply in 2020." According to S&P, "[t]he percentage of North American regulated utilities with a negative outlook or on

1 CreditWatch with negative implications surged from 18% in 2019 to 36% in 2020.” The  
2 report also indicated “that the number of downgrades exceeded the number of upgrades by  
3 a wide margin in 2020 for the first time since 2010.” On the causes of the weakening credit  
4 profiles, S&P stated: “The main causes of weakening credit quality reflected environment,  
5 social, and governance (ESG) risks, regulatory issues, and companies’ practice of  
6 strategically managing financial measures close to their downgrade threshold with little or  
7 no cushion”, and the COVID-19 pandemic “was not the culprit for weaker credit quality”  
8 the report states.<sup>13</sup> The views of rating agencies represent an important consideration;  
9 however, these views are not the only factor that equity investors consider. The important  
10 distinction is that credit-rating agencies are primarily focused on the ability of a utility to  
11 pay its debts, while equity analysts and institutional investors are more concerned with  
12 profitability and value creation.

13 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECTS OF THE**  
14 **CURRENT MARKET ENVIRONMENT ON THE COST OF EQUITY FOR**  
15 **AQUARION?**

16 A. Given the uncertainty and volatility that have characterized capital markets since February  
17 2020; the increase in relative risk of the utility industry (as measured by Beta) compared  
18 to the broader market; and the pressures cited by S&P on utility credit quality, it is  
19 reasonable that equity investors would require a higher ROE to compensate them for the  
20 additional risk associated with owning common stock.

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<sup>13</sup> <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/012121-utility-sectors-credit-ratings-weakened-sharply-in-2020-sampp-global-ratings>

**B. Economic Recovery and Inflation Risk**

**Q. ARE THERE INDICATIONS THE FEDERAL RESERVE IS NORMALIZING MONETARY POLICY?**

A. Yes. As a result of these substantially higher inflation rates, the Federal Reserve has been left little choice but to pull back on its COVID-related monetary policies and battle inflation with its only effective tool: higher interest rates. In response to the economic effects of COVID-19, the Federal Reserve had decreased the federal funds rate in March 2020 to a target range of 0.00 percent to 0.25 percent (which remained in effect until March 2022) in addition to other stimulus measures which increased the supply of money in the economy. Since the point at which I prepared my cost of capital analysis provided in Direct Testimony (with market data updated through February 28, 2022), the Federal Reserve has begun unwinding its quantitative easing policy and increased the target rate four times, beginning with 25 basis points on March 17, another 50 basis points on May 5, 75 basis points on June 16, and 75 basis points on July 27 to a target range of 2.25-2.50 percent. Expectations are for further increases this year, bringing the target rate to 3.25 – 3.50 percent by the end of 2022.<sup>14</sup>

Also, while the Federal Reserve has increased interest rates, it has simultaneously pulled back on its bond purchasing actions. Beginning in January, the Federal Reserve began to reduce purchases of Treasury securities by \$20 billion and mortgage-backed securities by

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<sup>14</sup> Reuters, *Fed to lift rates by 75 basis points in July, 50 bps in September - Reuters poll* (June 21, 2022).

1 \$10 billion on a monthly basis.<sup>15</sup> This change is double the initial plan previously outlined  
2 at the November 2, 2021 meeting.<sup>16</sup> After the May 4 meeting, the FOMC issued its broader  
3 plans for reducing the size of the Federal Reserve's balance sheet, by reducing its holdings  
4 of Treasury securities, agency debt, and mortgage back securities on June 1. The Federal  
5 Reserve intends to reduce Treasury securities at a pace capped at \$30 billion per month for  
6 three months and increase the cap to \$60 billion per month thereafter.<sup>17</sup> Similarly, agency  
7 debt and mortgage-backed securities will be reduced at a pace capped at \$17.5 billion per  
8 month for the first three months and increase to \$35 billion per month thereafter.<sup>18</sup>

9 **Q. WHY HAS THE FEDERAL RESERVE DECIDED TO NORMALIZE MONETARY**  
10 **POLICY?**

11 A. The Federal Reserve has accelerated plans to normalize monetary policy in response to  
12 increasing inflation. Although the Federal Reserve initially viewed inflation as transitory,  
13 it has been higher and more persistent than target levels and is expected to continue in  
14 2022. Specifically, Federal Reserve Chairman Jerome Powell stated:

15 [T]he inflation outlook had deteriorated significantly this year even before  
16 Russia's invasion of Ukraine.

17 \*\*\*

18 The rise in inflation has been much greater and more persistent than  
19 forecasters generally expected. For example, at the time of our June 2021  
20 meeting, every Federal Open Market Committee (FOMC) participant and  
21 all but one of 35 submissions in the Survey of Professional Forecasters

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<sup>15</sup> Federal Reserve, Press Release, (Dec. 15, 2021).

<sup>16</sup> Federal Reserve, Press Release, (Nov. 3, 2021).

<sup>17</sup> Federal Reserve, Plans for Reducing the Size of the Federal Reserve's Balance Sheet (May 4, 2022).

<sup>18</sup> *Ibid.*

1 predicted that 2021 inflation would be below 4 percent. Inflation came in  
2 at 5.5 percent.

3 \*\*\*

4 For a time, moderate inflation forecasts looked plausible—the one-month  
5 headline and core inflation rates declined steadily from April through  
6 September. But inflation moved up sharply in the fall, and, just since our  
7 December meeting, the median FOMC projection for year-end 2022 jumped  
8 from 2.6 percent to 4.3 percent.<sup>19</sup>

9  
10 **Q. PLEASE DESCRIBE THE SIGNIFICANCE OF CURRENT INFLATIONARY**  
11 **PRESSURES AND EXPECTATIONS OVER THE NEAR-TERM.**

12 A. Inflation is currently at its highest level in approximately 40 years and interest rates have  
13 recently increased from historic low levels observed at the onset of the pandemic. The  
14 year-over-year (“YOY”) change in the Consumer Price Index (“CPI”) published by the  
15 Bureau of Labor Statistics has increased steadily in 2021 rising from 1.37 percent in  
16 January 2021 to 7.0 percent in December 2021. This trend has continued with the YOY  
17 change in CPI rising inflation levels reaching 8.5 percent in July of 2022. These changes  
18 in CPI are the largest 12-month increases experienced since the early 1980s. Goldman  
19 Sachs opined: “A very high inflation path in 2022 should make an easy case for steady rate  
20 hikes at all seven remaining FOMC meetings.”<sup>20</sup> Further, as noted, the Federal Reserve  
21 decided to reduce the pace of its net asset purchases of Treasury and mortgage-backed

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<sup>19</sup> Jerome H. Powell’s speech at the 38<sup>th</sup> Annual Economic Policy Conference, National Association for Business Economists (March 21, 2022), <https://www.federalreserve.gov/newsevents/speech/powell20220321a.htm>.

<sup>20</sup> Curran, Edna. “Goldman Sachs Sees Fed Hiking More Times in 2023 Amid Inflation.” Bloomberg.com, Bloomberg, 28 Feb. 2022, <https://www.bloomberg.com/news/articles/2022-02-28/goldman-raises-u-s-inflation-forecasts-sees-more-hikes-in-2023>.

1 securities.<sup>21</sup> This means that the historic low interest rate environment has come to an  
2 abrupt end in 2022.

3 **Q. WHAT EFFECT WILL INFLATION HAVE ON LONG-TERM INTEREST**  
4 **RATES?**

5 A. Inflation and the Federal Reserve's normalization of monetary policy will result in  
6 increases in long-term interest rates. Specifically, inflation reduces the purchasing power  
7 of the future interest payments an investor expects to receive over the duration of the bond.  
8 This risk increases the longer the duration of the bond. As a result, if investors expect  
9 increased levels of inflation, they will require higher yields to compensate for the increased  
10 risk of inflation which means interest rates will increase.

11 **C. Conclusions**

12 **Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR ANALYSIS OF**  
13 **CAPITAL MARKET CONDITIONS?**

14 A. Investors are increasingly faced with inflationary pressures, and the Federal Reserve is  
15 unwinding its pandemic response measures. Long-term interest rates have increased  
16 substantially since the historic lows of 2020 and are expected to continue to increase.  
17 Importantly, this requires the use of both current and forecast bond yields in the CAPM  
18 approach. Fluctuations in utility valuations impact the results of the DCF model. The  
19 dividend yield is calculated using historical average stock prices which may not fully

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<sup>21</sup> Federal Reserve, Press Release, December 15, 2021,  
<https://www.federalreserve.gov/monetarypolicy/files/monetary20211215a1.pdf>.



1 reflect forward market expectations. These circumstances collectively reinforce the  
2 importance of using multiple models, as I have with the CAPM, DCF, and Expected  
3 Earnings approaches.

4 **V. PROXY GROUP SELECTION**

5 **Q. WHY IS IT NECESSARY TO SELECT A PROXY GROUP TO ESTIMATE THE**  
6 **COST OF EQUITY FOR AQUARION?**

7 A. Because the ROE is a market-based concept and Aquarion is not publicly traded, it is  
8 necessary to establish a group of companies that is both publicly traded and comparable to  
9 the Company. Even if Aquarion were a publicly traded entity, it is possible that transitory  
10 events could bias the Company's market value in one way or another in a given period of  
11 time. A significant benefit of using a proxy group is the ability to mitigate the effects of  
12 short-term events that may be associated with any one company. The proxy companies  
13 used in my ROE analyses possess a set of business and operating characteristics similar to  
14 Aquarion's utility operations, and thus provide a reasonable basis for estimating the  
15 Company's ROE.

16 **Q. PLEASE PROVIDE A SUMMARY PROFILE OF AQUARION.**

17 A. Aquarion is a wholly owned subsidiary of Eversource, providing water distribution service  
18 to approximately 200,000 customers in Connecticut.<sup>22</sup> Aquarion has long-term issuer  
19 ratings from Moody's Investors Service ("Moody's") of A3 (Outlook: Stable).<sup>23</sup>

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<sup>22</sup> Eversource Energy, 2021 SEC Form 10-K, at 10.

<sup>23</sup> Source: S&P Global Capital IQ Pro.

1 **Q. PLEASE DESCRIBE THE SPECIFIC SCREENING CRITERIA YOU HAVE**  
2 **UTILIZED TO SELECT A PROXY GROUP.**

3 A. I began with the 17 investor-owned domestic “Water Utilities” and “Natural Gas  
4 Distribution Companies” covered by Value Line and then screened companies according  
5 to the following criteria:

- 6 1. Consistently pays quarterly cash dividends;
- 7 2. Maintains an investment grade long-term issuer rating (BBB- or higher) from  
8 S&P;<sup>24</sup>
- 9 3. Is covered by more than one equity analyst;
- 10 4. Has positive earnings growth rates published by at least two of the following  
11 sources: Value Line, First Call (as reported by Yahoo! Finance), and Zacks  
12 Investment Research (“Zacks”);
- 13 5. Regulated assets make up more than 60 percent of the consolidated company’s assets  
14 (based on a 3-year average from 2019-2021); and
- 15 6. Is not involved in a merger or other transformative transaction for an approximate  
16 six-month period prior to my analysis.

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<sup>24</sup> If a potential proxy company was not rated by S&P, I reviewed comparable Moody’s ratings for the company, as well as S&P and Moody’s ratings of the primary operating utilities.

**Q. WHAT IS THE COMPOSITION OF YOUR RESULTING PROXY GROUP?**

A. Based on the screening criteria discussed above, I arrived at a proxy group consisting of the companies shown in Figure 5. The results of my screening process are shown in Exhibit A-8-JCN-4.

**Figure 5: Proxy Group**

<b>Company</b>	<b>Ticker</b>
American Water Works Company Inc.	AWK
American States Water Co	AWR
Atmos Energy Corporation	ATO
California Water Service Group	CWT
Essential Utilities, Inc.	WTRG
Middlesex Water Company	MSEX
New Jersey Resources Corporation	NJR
NiSource Inc.	NI
Northwest Natural Gas Company	NWN
ONE Gas Inc.	OGS
SJW Group	SJW
Spire, Inc.	SR
York Water Company	YORW

**Q. DO YOUR SCREENING CRITERIA RESULT IN A GROUP OF COMPANIES THAT INVESTORS WOULD VIEW AS COMPARABLE TO AQUARION?**

A. Yes, the water and natural gas utilities in my proxy group best align with the financial and operational characteristics of Aquarion. The proxy group screening criterion requiring an investment grade credit rating ensures that the proxy group companies, like Aquarion, are in sound financial condition. Additionally, I have screened on the percent of assets from

1 regulated operations to differentiate between utilities that are regulated and those with  
2 substantial unregulated operations or market-related risks. These screens collectively  
3 reflect key risk factors that investors consider in making investments in water utilities.

4 **Q. WHAT IS YOUR CONCLUSION REGARDING THE PROXY GROUP FOR**  
5 **AQUARION?**

6 A. My conclusion is that my group of thirteen water and natural gas utilities adequately  
7 reflects the broad set of risks that investors consider when investing in a U.S. regulated  
8 water utility such as Aquarion. Later in my testimony, I will evaluate Aquarion-specific  
9 risks relative to the proxy group companies.

10 **VI. DETERMINATION OF THE APPROPRIATE COST OF EQUITY**

11 **Q. WHAT MODELS DID YOU USE IN YOUR ROE ANALYSES?**

12 A. I have utilized three ROE estimation models: the Constant Growth DCF, the CAPM, and  
13 Expected Earnings. The following describes each of the models and inputs I have utilized  
14 to estimate Aquarion's cost of equity.

15 **A. Constant Growth DCF Model**

16 **Q. PLEASE DESCRIBE THE DCF APPROACH.**

17 A. The DCF approach is based on the theory that a stock's current price represents the present  
18 value of all expected future cash flows, which for purposes of the model, are assumed to  
19 be equal to all expected future dividends. Thus, the return required by investors is implied  
20 by the per share price of a company's common stock. In its most general form, the DCF  
21 model is expressed as follows:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

Where  $P_0$  represents the current stock price,  $D_1 \dots D_\infty$  are all expected future dividends, and  $k$  is the discount rate, or required ROE. Equation [1] is a standard present value calculation, which can be simplified and rearranged, to the Constant Growth form of the DCF model, expressed as the sum of the expected dividend yield and long-term growth rate:

$$k = \frac{D(1+g)}{P_0} + g \quad [2]$$

Where “ $k$ ” equals the required return, “ $D$ ” is the current dividend, “ $g$ ” is the expected growth rate, and “ $P_0$ ” represents the current stock price. Stated in this manner, the cost of common equity is equal to the expected dividend yield plus the dividend growth rate.

**Q. WHAT ARE THE ASSUMPTIONS UNDERLYING THE CONSTANT GROWTH DCF MODEL?**

A. The Constant Growth DCF model is based on the following assumptions: (1) a constant average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a

1 constant price-to-earnings multiple; and (4) a discount rate greater than the expected  
2 growth rate.

3 **Q. PLEASE SUMMARIZE YOUR APPLICATION OF THE CONSTANT GROWTH**  
4 **DCF MODEL.**

5 A. I calculated DCF results for each of the proxy group companies using the following inputs:

- 6 1. Average stock prices for the historical period, over 30-, 90-, and 180-trading days  
7 through June 30, 2022;
- 8 2. Annualized dividend per share as of June 30, 2022; and
- 9 3. Company-specific earnings growth forecasts for the term g.

10 My application of the Constant Growth DCF model is provided in Exhibit A-8-JCN-5.

11 **Q. WHY DID YOU USE AVERAGING PERIODS OF 30, 90, AND 180 TRADING**  
12 **DAYS?**

13 A. It is important to use an average of recent trading days to calculate the term P in the DCF  
14 model to ensure that the calculated ROE is not skewed by anomalous events that may affect  
15 stock prices on any given trading day. At the same time, it is important to reflect the  
16 conditions that have defined the financial markets over the recent past. In my view,  
17 consideration of those three averaging periods reasonably balances these interests.

18 **Q. DID YOU ADJUST THE DIVIDEND YIELD TO ACCOUNT FOR PERIODIC**  
19 **GROWTH IN DIVIDENDS?**

20 A. Yes, I did. Utility companies tend to increase their quarterly dividends at different times  
21 throughout the year, so it is reasonable to assume that such increases will be evenly

1 distributed over calendar quarters. Given that assumption, it is reasonable to apply one-  
2 half of the expected annual dividend growth rate for the purposes of calculating this  
3 component of the DCF model. This adjustment ensures that the expected dividend yield is  
4 representative of the coming 12-month period. Accordingly, the DCF estimates reflect  
5 one-half of the expected growth in the dividend yield.<sup>25</sup>

6 **Q. WHAT SOURCES OF GROWTH HAVE YOU USED IN YOUR DCF ANALYSIS?**

7 A. I have used the consensus analyst five-year growth estimates in earnings per share (“EPS”)  
8 from First Call and Zacks, as well as EPS growth rate estimates published by Value Line.

9 **Q. WHY DID YOU FOCUS ON EARNINGS PER SHARE GROWTH?**

10 A. The Constant Growth DCF model assumes that dividends grow at a constant rate in  
11 perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure,  
12 one must assume a constant payout ratio, and that earnings per share, dividends per share,  
13 and book value per share all grow at the same constant rate. Over the long term, however,  
14 dividend growth can only be sustained by earnings growth, that is, “Growth in dividends  
15 occurs primarily as a result of growth in *earnings per share* (EPS).”<sup>26</sup> It is therefore

---

<sup>25</sup> The expected dividend yield is calculated as  $d_1 = d_0 (1 + \frac{1}{2} g)$ .

<sup>26</sup> Eugene F. Brigham and Joel F. Houston, *Fundamentals of Financial Management* (Concise Fourth Edition, Thomson South-Western), at 317 (emphasis added).

1 important to focus on measures of long-term earnings growth from credible sources as an  
2 appropriate measure of long-term growth in the DCF model.

3 **Q. ARE OTHER SOURCES OF DIVIDEND GROWTH AVAILABLE TO**  
4 **INVESTORS?**

5 A. Yes, although that does not mean that investors incorporate such estimates into their  
6 investment decisions. Academic studies suggest that investors base their investment  
7 decisions on analysts' expectations of growth in earnings.<sup>27</sup> I am not aware of any similar  
8 findings regarding non-earnings-based growth estimates. In addition, the only forward-  
9 looking growth rates that are available on a consensus basis are analysts' EPS growth rates.  
10 The fact that earnings growth projections are the only widely-accepted estimates of growth  
11 provides further support that earnings growth is the most meaningful measure of growth  
12 among the investment community.

13 **Q. DID YOU MAKE ANY ADJUSTMENTS TO THE ROE RESULTS PRODUCED**  
14 **BY YOUR CONSTANT GROWTH DCF ANALYSIS?**

15 A. Yes, I did. The mean DCF results for Middlesex Water Company ("Middlesex") fell below  
16 the current cost of debt for utility companies as measured by the Moody's Baa Utility Bond  
17 Index. As of June 30, 2022, the 30-day average yield for the Moody's Baa Utility Bond  
18 Index was 5.17 percent compared to the 30-day average mean DCF result of 4.99 percent

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<sup>27</sup> See, e.g., Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts*, Financial Management, Summer 1992, at 65; and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of that updated study are consistent with Vander Weide and Carleton's original conclusions.



for Middlesex. Debt investors require a return commensurate with the risk that the company will fail to meet that obligation. However, equity investors bear the residual risk associated with ownership, and have a claim on cash flows only after debt holders are paid. As such, equity holders bear greater risk and therefore require a higher return. An equity return lower than a debt return fails to meet this basic test of reasonableness, so I have excluded Middlesex from my Constant Growth DCF analysis.

**Q. WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF ANALYSIS?**

A. The results of my Constant Growth DCF analysis are provided in Exhibit A-8-JCN-5 and summarized in Figure 6.

**Figure 6: Constant Growth DCF Results**

	<b>Mean Low</b>	<b>Mean</b>	<b>Mean High</b>
30-day average	8.73%	9.76%	11.10%
90-day average	8.69%	9.73%	11.06%
180-day average	8.75%	9.78%	11.12%
	<b>Median Low</b>	<b>Median</b>	<b>Median High</b>
30-day average	8.38%	9.84%	10.70%
90-day average	8.38%	9.86%	10.71%
180-day average	8.48%	9.81%	10.90%

1 **Q. HOW DID YOU CALCULATE THE MEAN HIGH, MEAN LOW, AND**  
2 **OVERALL MEAN DCF RESULTS?**

3 A. I calculated the Mean High DCF result using the maximum growth rate (*i.e.*, the maximum  
4 of the First Call, Value Line, and Zacks EPS growth rates) in combination with the  
5 expected dividend yield for each of the proxy group companies. I used a similar method  
6 to calculate the Mean Low DCF results, using the minimum growth rate for each company.  
7 The Mean results reflect the average growth rate from each source for each company in  
8 combination with the expected dividend yield. I applied the same method to derive the  
9 Median High, Median, and Median Low results.

10 **B. CAPM Analysis**

11 **Q. PLEASE BRIEFLY DESCRIBE THE GENERAL FORM OF THE CAPITAL**  
12 **ASSET PRICING MODEL.**

13 A. The CAPM is a risk premium approach that estimates the cost of equity for a given security  
14 as a function of a risk-free return plus a risk premium (to compensate investors for the non-  
15 diversifiable or “systematic” risk of that security).<sup>28</sup> As shown in Equation [3], the CAPM  
16 is defined by four components, each of which must theoretically be a forward-looking  
17 estimate:

18 
$$K_e = r_f + \beta(r_m - r_f) \quad [3]$$

19 where:

---

<sup>28</sup> Systematic risks are fundamental market risks that reflect aggregate economic measures and therefore cannot be mitigated through diversification. Unsystematic risks reflect company-specific risks that can be mitigated and ultimately eliminated through investments in a portfolio of companies and/or market sectors.

1  $K_e$  = the required ROE for a given security;

2  $r_f$  = the risk-free rate of return;

3  $\beta$  = the Beta of an individual security; and

4  $r_m$  = the required return for the market as a whole.

5 The term  $(r_m - r_f)$  represents the Market Risk Premium (“MRP”). According to the theory  
6 underlying the CAPM, unsystematic risk can be diversified away, therefore investors  
7 should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk  
8 is measured by Beta, which is defined as:

9 
$$\beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} [4]$$

10 where:

11  $r_e$  = the rate of return for the individual security or portfolio.

12 The variance of the market return, noted in Equation [4], is a measure of the uncertainty of  
13 the general market, and the covariance between the return on a specific security and the  
14 market reflects the extent to which the return on that security will respond to a given change  
15 in the market return. Thus, Beta represents the risk that the selected security will not be  
16 effective in diversifying systematic market risks.

17 **Q. HAVE ECONOMIC AND FINANCIAL MARKET CONDITIONS ALSO**  
18 **AFFECTED THE CAPM?**

19 **A.** Yes. As the Federal Reserve is taking steps to normalize monetary policy, it is important  
20 to consider both current and projected bond yields. Using the 5-year forecast of bond yields  
21 helps alleviate short-term market factors affecting the risk-free rate, or “ $r_f$ ” in the CAPM

1 formula. As discussed in Section IV, interest rates have increased in recent months and  
2 are expected to continue to increase as the economy recovers from the effects of the  
3 COVID-19 pandemic. Further, due to the fiscal and monetary stimulus provided to the  
4 U.S. economy in recent months, inflation risk is elevated. Aquarion is financing long-lived  
5 assets, and the cost of capital should be forward looking to reflect that perspective.

6 **Q. WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?**

7 A. I considered three estimates of the expected risk-free rate: (1) the current 30-day average  
8 yield on 30-year U.S. Treasury bonds (i.e., 3.18 percent);<sup>29</sup> (2) the projected 30-year U.S.  
9 Treasury bond yield for Q4 2022 through Q4 2023 (i.e., 3.74 percent);<sup>30</sup> and (3) the  
10 projected 30-year U.S. Treasury bond yield for 2024 through 2028 (i.e., 3.80 percent).<sup>31</sup>

11 **Q. WHAT MEASURES OF BETA DID YOU USE IN YOUR CAPM ANALYSIS?**

12 A. As shown in Exhibit A-8-JCN-7, I considered two measures of Beta for the proxy group  
13 companies: (1) the reported Beta coefficients from Bloomberg (which are calculated using  
14 ten years of weekly data against the S&P 500 Index); and (2) the reported Beta coefficients

---

<sup>29</sup> Bloomberg Professional, as of June 30, 2022.

<sup>30</sup> Blue Chip Financial Forecasts, Vol. 41, No. 7, July 1, 2022, at 2.

<sup>31</sup> Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14.

1 from Value Line (which are calculated using five years of weekly data against the New  
2 York Stock Exchange Composite Index).

3 **Q. WHAT MARKET RISK PREMIUM DID YOU USE IN YOUR CAPM ANALYSIS?**

4 A. Consistent with the approach adopted by FERC, I used the Constant Growth DCF model  
5 to estimate the market capitalization-weighted total market return for the S&P 500 Index,  
6 using projected earnings growth rates and dividend yields. To calculate the Constant  
7 Growth DCF estimate for each company in the S&P 500, I relied on dividend yields as of  
8 June 30, 2022 as reported by Bloomberg Professional, and projected EPS growth rates from  
9 Value Line. In my initial analysis, I included all companies in the S&P 500. When  
10 investors purchase the S&P 500 Index or a mutual fund or exchange traded fund that  
11 mirrors the S&P Index, their total return is based on the returns for all 500 companies in  
12 the S&P Index. As such, this methodology provides the best indication as to the expected  
13 return for the overall market using the S&P 500 as a proxy. Applying this methodology  
14 suggests an expected market return of 13.41 percent. However, I also considered FERC's  
15 convention to consider only a subset of S&P 500 companies with growth rates that are  
16 between 0 percent and 20 percent. This methodology suggests an expected market return  
17 of 12.37 percent.

18 **Q. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSES?**

19 A. The results of my CAPM analysis are provided in Exhibit A-8-JCN-7 and summarized in  
20 Figure 7.

**Figure 7: CAPM Results**

	MRP: Constant Growth DCF Methodology	MRP: Constant Growth DCF FERC Methodology (Subset of S&P 500 Companies)
Value Line Betas		
Current Risk-Free Rate	11.41%	10.57%
2022-23 Projected Risk-Free Rate	11.52%	10.68%
2024-28 Projected Risk-Free Rate	11.53%	10.69%
Bloomberg Betas		
Current Risk-Free Rate	11.20%	10.38%
2022-23 Projected Risk-Free Rate	11.32%	10.51%
2024-28 Projected Risk-Free Rate	11.33%	10.52%

**C. Expected Earning Analysis**

**Q. HAVE YOU CONDUCTED ANY OTHER ANALYSIS TO ESTIMATE THE COST OF EQUITY FOR AQUARION?**

A. Yes. I have also conducted an Expected Earnings analysis to estimate the cost of equity for Aquarion based on the projected ROEs for the proxy group companies.

**Q. WHAT IS AN EXPECTED EARNINGS ANALYSIS?**

A. The Expected Earnings methodology is a comparable earnings analysis that calculates the earnings that an investor expects to receive on the book value of a stock. The Expected Earnings analysis is a forward-looking estimate of investors' expected returns. The use of an Expected Earnings approach based on the proxy companies provides a range of the expected returns on a group of risk-comparable companies to the subject company. This

1 range is useful in helping to determine the opportunity cost of investing in the subject  
2 company, which is relevant in determining a company's ROE.

3 The Expected Earnings approach relying on expected returns for like-risk companies is a  
4 core strength of the model and consistent with the basic tenets of *Hope*: "the return to the  
5 equity owner should be commensurate with returns on investments in other enterprises  
6 having corresponding risks." Since the Expected Earnings model provides an accounting-  
7 based approach that relies on investment analysts' projections of earnings on book equity,  
8 it affords the benefit of analyst insights, knowledge and expertise in interpreting a given  
9 company's earnings prospects in the context of current market conditions.

10 **Q. HOW IS THE EXPECTED EARNINGS APPROACH CALCULATED?**

11 A. I relied primarily on the projected ROE for the proxy companies as reported by Value Line  
12 for the period from 2025-2027. I then adjusted those projected ROEs to account for the  
13 fact that the ROEs reported by Value Line are calculated on the basis of common shares  
14 outstanding at the end of the period, as opposed to average shares outstanding over the  
15 entire period. As shown in Exhibit A-8-JCN-8, the Expected Earnings analysis results in  
16 a mean of 10.68 percent and a median of 10.70 percent.

**D. Evaluating Model Results**

**Q. PLEASE EXPLAIN HOW YOU HAVE CONSIDERED THE RESULTS OF THE DCF, CAPM AND EXPECTED EARNINGS ANALYSIS TO ARRIVE AT YOUR ROE RECOMMENDATION.**

A. As shown in Figure 8, I have considered the results of the DCF, CAPM, and Expected Earnings analyses. For the DCF result, I included the average of the 30-day, 90-day, and 180-day analyses. For the CAPM result, I relied on the average of current and projected Treasury yields, the average of Value Line and Bloomberg Betas coefficients, and the MRP derived from a subset of the S&P 500 companies.

**Figure 8: Base ROE Results**

	Average	Median
<i>Primary Analyses</i>		
DCF Result	9.76%	9.88%
CAPM Result <sup>32</sup>	10.56%	10.64%
Average	10.17%	10.22%
<i>Other Benchmark Analyses</i>		
Expected Earnings	10.68%	10.70%

<sup>32</sup> This result is derived by applying the more conservative FERC approach to the MRP, including only a subset of S&P 500 companies with growth rates that are between 0 percent and 20 percent.



1 As discussed in the next Section of my testimony, this estimate serves as a base prior to  
2 consideration of flotation costs and relative business and financial risks and any appropriate  
3 premium for the acquisition of water companies that are not economically viable.

4 **VII. BUSINESS AND FINANCIAL RISKS**

5 **Q. ARE THERE FACTORS SPECIFIC TO AQUARION'S RISK PROFILE THAT**  
6 **YOU ALSO CONSIDERED IN DEVELOPING YOUR ROE**  
7 **RECOMMENDATION?**

8 A. Yes, there are several factors that have a direct bearing on Aquarion's risk profile in relation  
9 to the proxy group. Those risk factors include: (1) the Company's capital expenditure  
10 program; (2) regulatory risk relative to the proxy group companies; (3) flotation costs; and  
11 (4) the potential for an ROE premium for the acquisition of non-viable water systems. In  
12 addition, I considered the effect of flotation costs on the cost of equity as well as a premium  
13 that has been allowed by PURA for the acquisition of water companies that are not  
14 economically viable.

15 **A. Capital Expenditure Program**

16 **Q. PLEASE DISCUSS AQUARION'S CAPITAL SPENDING PROGRAM.**

17 A. Aquarion plans a major capital investment program over the 2023-2027 period, totaling  
18 approximately \$954.8 million.<sup>33</sup> As with any utility facing substantial capital expenditure  
19 requirements, the Company's risk profile is affected in two significant and related ways:  
20 (1) the heightened level of investment increases the risk of under recovery or delayed

---

<sup>33</sup> Source: Company provided data.

1 recovery of the invested capital; and (2) an inadequate return would put downward pressure  
2 on key credit metrics. The absolute level of investment required will put significant  
3 pressure on the Company's ability to raise capital, and the terms will have lasting impacts  
4 for the Company's customers.

5 **Q. DO CREDIT RATING AGENCIES RECOGNIZE THE RISKS ASSOCIATED**  
6 **WITH ELEVATED LEVELS OF CAPITAL EXPENDITURES?**

7 A. Yes. From a credit perspective, the additional pressure on cash flows associated with  
8 higher levels of capital expenditures exerts corresponding pressure on credit metrics and,  
9 therefore, credit ratings. To that point, S&P explains the importance of regulatory support  
10 for large capital projects:

11 When applicable, a jurisdiction's willingness to support large capital  
12 projects with cash during construction is an important aspect of our analysis.  
13 This is especially true when the project represents a major addition to rate  
14 base and entails long lead times and technological risks that make it  
15 susceptible to construction delays. Broad support for all capital spending is  
16 the most credit-sustaining. Support for only specific types of capital  
17 spending, such as specific environmental projects or system integrity plans,  
18 is less so, but still favorable for creditors. Allowance of a cash return on  
19 construction work-in-progress or similar ratemaking methods historically  
20 were extraordinary measures for use in unusual circumstances, but when  
21 construction costs are rising, cash flow support could be crucial to maintain  
22 credit quality through the spending program. Even more favorable are those  
23 jurisdictions that present an opportunity for a higher return on capital  
24 projects as an incentive to investors.<sup>34</sup>

25 With regard to Aquarion's credit profile, Moody's acknowledged the Company's elevated  
26 capital expenditure program as a "credit challenge" and observed that "We expect AWC-

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<sup>34</sup> S&P Global Ratings, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

1 CT's financial profile to modestly weaken compared to historical results primarily due to  
2 an elevated capital expenditure program.”<sup>35</sup> To the extent that Aquarion's rates do not  
3 permit the Company an opportunity to recover its full cost of doing business, Aquarion  
4 will face increased recovery risk and thus increased pressure on its credit metrics. Moody's  
5 acknowledged that Aquarion will require additional debt issuances to fund its capital  
6 investment program.<sup>36</sup> Maintaining access to capital markets on favorable terms is  
7 especially important for utilities and their customers, during periods of significant capital  
8 investment.

9 **Q. HAVE YOU ANALYZED HOW AQUARION'S CAPITAL SPENDING PROGRAM**  
10 **COMPARES TO THOSE OF THE PROXY GROUP COMPANIES?**

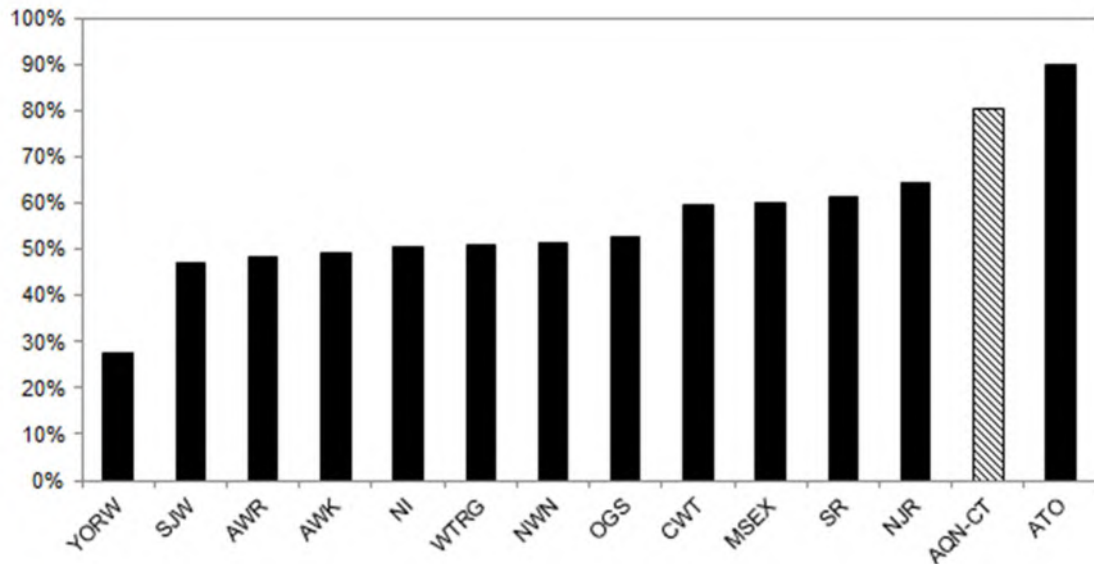
11 A. Yes. As shown in Exhibit A-8-JCN-9, I compared the ratio of projected capital  
12 expenditures to net utility plant for Aquarion to the ratios for the proxy group companies.  
13 Figure 9 shows that Aquarion's ratio of projected capital expenditures to net utility plant  
14 is higher than all but one of the proxy companies, and higher than the median ratio for the  
15 proxy group of approximately 57 percent.

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<sup>35</sup> Moody's Investor Service, "Aquarion Water Company of Connecticut, Update to credit analysis," May 19, 2022, at 1 and 2.

<sup>36</sup> Moody's Investor Service, "Aquarion Water Company of Connecticut, Update to credit analysis," May 19, 2022, at 4.

**Figure 9: Ratio of 2022-26 Capital Expenditures to 2021 Net Utility Plant**



**Q. WHAT IS YOUR CONCLUSION REGARDING HOW AQUARION'S PROJECTED CAPITAL EXPENDITURE PROGRAM AFFECTS THE COMPANY'S RISK PROFILE AND COST OF EQUITY?**

A. My primary conclusion is that Aquarion is projecting a substantial capital spending program through 2027 that will require the Company to maintain access to capital markets on favorable terms and conditions. The magnitude of Aquarion's capital program places pressure on the Company's cash flows and credit metrics. For these reasons, it is important that the authorized ROE be set at a level that allows Aquarion to continue to attract both debt and equity under favorable terms under a variety of economic and financial market conditions.

**B. Regulatory Risk**

**Q. PLEASE EXPLAIN HOW THE REGULATORY FRAMEWORK AFFECTS INVESTORS' RISK ASSESSMENTS.**

A. The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, the utility must have the opportunity to recover invested capital and the market-required return on such capital. Regulatory commissions recognize that, because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, thereby balancing the long-term interests of investors and customers. In that respect, the regulatory framework in which a utility operates is one of the most important factors in both debt and equity investors' risk assessments. Because investors have many investment alternatives, even within a given market sector, the Company's authorized return must be adequate on a relative basis to ensure its ability to attract capital under a variety of economic and financial market conditions.

**Q. PLEASE EXPLAIN HOW CREDIT-RATING AGENCIES CONSIDER THE REGULATORY FRAMEWORK IN ESTABLISHING A COMPANY'S CREDIT RATING.**

A. Moody's and S&P both consider the overall regulatory framework in establishing credit ratings. Moody's establishes credit ratings based on four key factors:

**Figure 10: Moody's Rating Factors**

Factor	Weighting
Regulatory Framework	25%
Ability to Recover Costs and Earn Returns	25%
Diversification	10%
Financial Strength	40%
Total	100%

Two of these factors (*i.e.*, regulatory framework and the ability to recover costs and earn returns) are based on the regulatory environment such that half of Moody's overall assessment of business and financial risk for regulated utilities is based upon the regulatory environment.<sup>37</sup> Moody's further subdivides the first two factors, Regulatory Framework and the Ability to Recover Costs and Earn Returns, into sub-factors to help "provide more granularity and transparency on the overall regulatory environment, which is the most important consideration for this sector."<sup>38</sup> Similarly, S&P has identified the regulatory environment as an important factor, stating, "we believe the fundamental regulatory environment in the jurisdictions in which a utility operates often influence credit quality the most."<sup>39</sup>

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<sup>37</sup> Moody's Investor Service, Rating Methodology, Regulated Electric and Gas Utilities, December 23, 2013, at 1,2.

<sup>38</sup> *Id.*, at 3.

<sup>39</sup> S&P, *Assessing U.S. Utility Regulatory Environments*, March 11, 2010, at 2.

1 **Q. PLEASE EXPLAIN THE EFFECT OF REGULATORY RISK ON THE**  
2 **COMPANY’S ABILITY TO RAISE CAPITAL AND THE IMPACT ON**  
3 **CUSTOMERS.**

4 A. Given the Company’s capital spending requirements, and the consequent need to raise  
5 capital, it is important that the Company be able to maintain access to the capital markets  
6 at reasonable rates. In other states, the regulatory environment and political risks have  
7 been subject to increased scrutiny. For example, in New York, several of the state’s  
8 operating utilities have experienced an erosion in credit metrics and received credit rating  
9 downgrades as a result of rate of return determinations. Figure 11 below summarizes the  
10 recent credit-rating actions by Moody’s on New York utilities.

11 **Figure 11: Moody’s Rating Actions on New York Utilities<sup>40</sup>**

<b>Credit Action</b>	<b>Date</b>
Brooklyn Union Gas (“KEDNY”) and KeySpan Gas East (“KEDLI”) - put on review for downgrade	November 2019
KEDNY and KEDLI - ratings confirmed with negative outlooks	December 2019
ConEd and CECONY downgraded	March 2020
Niagara Mohawk - negative outlook	June 2020
KEDNY - review for downgrade	August 2020
New York State Electric & Gas and Rochester Gas and Electric - negative outlooks	September 2020
Central Hudson Gas & Electric - negative outlook	October 2020
KEDNY - downgraded to Baa1	November 2020

12 Moody’s has pointed to recent political intervention in regulatory oversight as an  
13 incremental “credit negative.” However, Moody’s also acknowledged that New York

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<sup>40</sup> Moody’s Investors Service, “Latest political intervention into regulatory oversight is credit negative for New York utilities,” November 13, 2020, at 1.

1 utilities financial metrics were already under pressure despite “credit friendly” regulatory  
2 provisions including multiyear rate plans, and revenue decoupling mechanisms.<sup>41</sup> For  
3 example, CECONY was downgraded from A3 to Baa1 and Moody’s specifically pointed  
4 to “weaker financial metrics in the coming years following the New York Public Service  
5 Commission's (NYPSC) January 2020 approval of a three-year rate plan,” in its rationale.<sup>42</sup>  
6 In the case of Niagara Mohawk’s outlook change to “negative,” Moody’s pointed to “New  
7 York offering a lower-than-average return on equity, compared to other state regulators”  
8 as a “credit challenge.”<sup>43</sup> Declining credit ratings will increase costs to customers by  
9 increasing the cost of debt as the New York utilities continue to raise capital to support  
10 their capital programs.

11 **Q. HOW DOES AQUARION’S REGULATORY ENVIRONMENT COMPARE TO**  
12 **THAT OF THE PROXY COMPANIES?**

13 A. Connecticut is ranked “Below Average / 1” by Regulatory Research Associates (“RRA”).  
14 In its evaluation, RRA specifically points to ROEs as a concern:

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<sup>41</sup> *Ibid*, at 1-2.

<sup>42</sup> Moody’s Investors Service, “Rating Action: Moody's downgrades ConEd to Baa2 and CECONY to Baa1; outlooks stable; affirms O&R at Baa1 and maintains negative outlook,” March 17, 2020.

<sup>43</sup> Moody’s Investors Service, “Niagara Mohawk Power Corporation: Update following outlook change to negative,” June 9, 2020, at 2.



Regulatory Research Associates views the Connecticut regulatory environment as relatively restrictive from an investor perspective. Historically, authorized returns on equity have been well below the average of returns accorded energy utilities nationwide at the time established. Authorized ROEs in recent years for both the electric and gas utilities have been considerably below national averages, however, the PURA has adopted these returns as part of multi-year rate plans that streamline the regulatory process and provide an enhanced degree of certainty with respect to the rate recognition of planned investments.<sup>44</sup>

As shown in Exhibit A-8-JCN-10, there are 64 distinct jurisdictional operations held by the proxy companies. Of the 64 jurisdictional operations, 54 are ranked as “Average” or “Above Average” by RRA. Therefore, Aquarion is exposed to a higher degree of regulatory risk as compared to the proxy group average.

**Q. WHAT IS YOUR CONCLUSION WITH REGARD TO AQUARION’S REGULATORY RISK?**

A. As shown in Figure 12, the Company’s efforts to maintain financial integrity are hindered by the inability to earn a reasonable return in recent years.

**Figure 12: Authorized vs. Earned ROE<sup>45</sup>**

	2019	2020	2021
Authorized ROE	9.63%	9.63%	9.63%
Earned ROE	8.81%	8.68%	7.70%
Underearning	-0.82%	-0.95%	-1.93%

As such, it is important that the decision in this case is credit supportive, including the authorized ROE. As discussed above, the Company’s significant capital expenditure

<sup>44</sup> S&P Capital IQ Pro, Regulatory Research Associates, Connecticut Public Utilities Regulatory Authority profile, RRA Evaluation, updated August 31, 2021

<sup>45</sup> Source: Compliance filing in 86-09-06RE01 Order #2.

1 program is designed to benefit customers. Any decline in credit ratings will increase costs  
2 to customers by increasing the cost of debt. Given the level of planned capital  
3 expenditures, any increases in borrowing costs could have a significant effect on the costs  
4 to customers.

5 **C. Flotation Cost Adjustment**

6 **Q. WHAT ARE FLOTATION COSTS?**

7 A. Flotation costs are the costs associated with the sale of new issues of common stock. These  
8 costs include out-of-pocket expenditures for preparation, filing, underwriting, and other  
9 costs of issuance of common stock. To the extent that a company is denied the opportunity  
10 to recover prudently incurred flotation costs, actual returns will fall short of expected (or  
11 required) returns, thereby diminishing the utility's ability to attract adequate capital on  
12 reasonable terms.

13 **Q. WHY IS IT IMPORTANT TO RECOGNIZE FLOTATION COSTS IN THE**  
14 **ALLOWED ROE?**

15 A. Allowed ROE is the only ratemaking mechanism through which these necessary costs are  
16 recovered. Flotation costs are reflected on the utility's balance sheet as "paid in capital"  
17 and are not expensed on the utility's income statement. When a company issues common  
18 stock, flotation costs are incurred and netted against the proceeds from the issuance  
19 reducing the amount available for investment in rate base by the amount of the flotation  
20 costs. If Aquarion is denied the opportunity to recover its prudently incurred flotation  
21 costs through its ROE, its allowed return will be insufficient and equity share value will be  
22 diluted.

1 **Q. DO ACADEMIC AND FINANCIAL EXPERTS RECOGNIZE THE NEED TO**  
2 **CONSIDER FLOTATION COSTS IN A UTILITY'S COST OF EQUITY?**

3 A. Yes. Dr. Roger Morin, a recognized expert in regulatory economics and finance,  
4 summarizes:

5 The costs of issuing these securities are just as real as operating and  
6 maintenance expenses or costs incurred to build utility plants, and fair  
7 regulatory treatment must permit recovery of these costs.... The simple fact  
8 of the matter is that common equity capital is not free....[Flotation costs]  
9 must be recovered through a rate of return adjustment.<sup>46</sup>

10 According to Dr. Shannon Pratt, a published expert in cost of capital estimation:

11 Flotation costs occur when new issues of stock or debt are sold to the public.  
12 The firm usually incurs several kinds of flotation or transaction costs, which  
13 reduce the actual proceeds received by the firm. Some of these are direct  
14 out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and  
15 prospectus preparation costs. Because of this reduction in proceeds, the  
16 firm's required returns on these proceeds equate to a higher return to  
17 compensate for the additional costs. Flotation costs can be accounted for  
18 either by amortizing the cost, thus reducing the cash flow to discount, or by  
19 incorporating the cost into the cost of capital. Because flotation costs are  
20 not typically applied to operating cash flow, one must incorporate them into  
21 the cost of capital.<sup>47</sup>

22 **Q. HAS PURA ACCEPTED FLOTATION COST ADJUSTMENTS IN PRIOR**  
23 **CASES?**

24 A. Yes, in Connecticut Water's most recent case, PURA allowed a 0.15 percent flotation cost  
25 adjustment recognizing the costs associated with the sale of new issues of common stock.<sup>48</sup>

26 In the case of Connecticut Water, SJW Group incurs flotation costs issue equity on the

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<sup>46</sup> Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 321.

<sup>47</sup> Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition, at 220-221.

<sup>48</sup> Docket No. 20-12-30, Decision, July 28, 2021, at 43.

1 market, and passes these costs along to Connecticut Water when it infuses equity to the  
2 operating utility. Similarly, Eversource, as the ultimate parent of Aquarion, issues equity  
3 and then in-turn infuses equity down to Aquarion. Eversource recently announced a \$1.2  
4 billion equity offering program on May 11, 2022. As observed by Moody's, given  
5 Aquarion's capital investment program, any shortfall will require equity contributions from  
6 Eversource to maintain Aquarion's stand-alone target capital structure.<sup>49</sup> As such, the costs  
7 of issuing equity at the parent level should be recognized at the utility level.

8 **Q. WHAT IS YOUR RECOMMENDED FLOTATION COST ADJUSTMENT AND**  
9 **HOW DID YOU CALCULATE IT?**

10 A. Based on Eversource's historical issuance costs shown in Exhibit A-8-JCN-11, I conclude  
11 that flotation costs for the proxy companies have equaled 2.63 percent of gross equity  
12 raised. To properly reflect these issuance costs in my cost of capital estimates, it would  
13 require a 7-basis point addition to the ROE results produced by my ROE estimates for  
14 Aquarion, as shown in Exhibit A-8-JCN-11, which I have considered in my  
15 recommendation.

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<sup>49</sup> Moody's Investor Service, "Aquarion Water Company of Connecticut, Update to credit analysis," May 19, 2022, at 7.

**D. Acquisition of Non-Economically Viable Water Companies**

**Q. IS THERE PRECEDENT FOR AN ROE PREMIUM FOR THE ACQUISITION OF NON-VIABLE SYSTEMS?**

A. Yes, an ROE premium for the acquisition water systems that are not economically viable are expressly allowed in Connecticut General Statue Section 16-262 s (b):

In the case of a proposed acquisition of a water company that is not economically viable, as determined by the Public Utilities Regulatory Authority in accordance with the criteria provided in subsection (b) of section 16-262n, by a water company that is economically viable, as determined by the authority in accordance with said criteria, the authority, may, as part of the acquiring water company's next general rate case, award a premium rate of return to such acquiring water company when it is demonstrated that such proposed acquisition will provide benefits to customers by (1) enhancing system viability, or (2) avoiding capital costs or saving in operating costs.<sup>50</sup>

In the Company's most recent case, Docket No. 13-02-20, PURA authorized a 50-basis point premium to be added to the Company's base determination of its allowed ROE in recognition of the allowance under Connecticut General Statue Section 16-262 s (b).

**Q. PLEASE PROVIDE AN OVERVIEW OF AQUARION'S RECENT ACQUISITIONS.**

A. As shown in Exhibit A-8-JCN-12, since Aquarion's last rate case, the Company has closed on the acquisition of 17 water and wastewater systems. In four of these acquisitions, PURA has made a specific finding that the acquired system lacked the technical, managerial, and

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<sup>50</sup> Connecticut General Statue Section 16-262s (b).

1 financial resources to continue to own and operate its water system prior to Aquarion's  
2 acquisition.<sup>51</sup>

3 **Q. WHY IS A PREMIUM FOR THE ACQUISITION OF NON-VIABLE WATER**  
4 **SYSTEMS APPROPRIATE?**

5 A. As provided by statute, a premium rate of return may be authorized by the PURA when it  
6 is demonstrated that the acquisition will provide benefits to customers by enhancing the  
7 viability of the system, or avoiding capital costs, or saving on operating costs, or as  
8 otherwise determined by the PURA. The acquisitions of Interlaken Water Company,  
9 Bedrock Water Association, Hickory Hills Corporation, and Litchfield Hills Condominium  
10 Association and Magnolia Gardens, LLC included systems that did not have consistent  
11 revenue sufficient to pay the cost of operations. Aquarion's acquisition of these systems  
12 provided a direct benefit to customers by providing financial stability to ensure safe and  
13 reliable water utility service to customers as well as the financial strength needed to access  
14 capital markets to make necessary investments to provide benefits to customers. To  
15 remunerate the Company for the risk that is inherent in acquiring a system that is nonviable  
16 or financially unstable, an ROE premium is reasonable and appropriate.

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<sup>51</sup> Docket No. 14-05-11, Decision, October 4, 2017, at 2; Docket No. 10-01-16, Decision, June 15, 2017 at 2; Docket No. 14-05-11, Decision, October 4, 2017 at 2; Docket No. 10-03-18, First Amended Memorandum of Decision, March 5, 2014 at 7; Docket No. 14-04-22, Decision, May 15, 2019 at 4.

1 **Q. WHAT IS AN APPROPRIATE ROE PREMIUM FOR AQUARION'S**  
2 **ACQUISITION OF SYSTEMS THAT WERE NOT ECONOMICALLY VIABLE?**

3 A. The recent acquisitions of Interlaken Water Company, Bedrock Water Association,  
4 Hickory Hills Corporation, and Litchfield Hills Condominium Association and Magnolia  
5 Gardens, LLC will require incremental investment to provide safe and reliable service to  
6 customers. Absent the transactions, it is not clear that these entities would have been able  
7 to make the necessary investments to provide or maintain the quality of service for their  
8 customers. As such, these particular acquisitions meet the standards established in Section  
9 16-262s (b) of the Connecticut General Statutes. As discussed above, PURA allowed for a  
10 premium of 50 basis points for Aquarion's acquisition of non-viable systems in Docket  
11 No. 13-02-20. Given that the quantity of water systems acquired by Aquarion since the  
12 last rate case has been reduced to 17 systems, as compared to 56 at the time of the last rate  
13 case, the Company is proposing to reduce the ROE premium from 50 basis points to 25  
14 basis points.

15 **VIII. CAPITAL STRUCTURE**

16 **Q. WHAT IS AQUARION'S PROPOSED CAPITAL STRUCTURE?**

17 A. Aquarion is proposing a financial capital structure consisting of 53.06 percent common  
18 equity and 46.94 percent debt.

1   **Q.   HOW HAVE YOU ASSESSED THE REASONABLENESS OF AQUARION'S**  
2       **PROPOSED CAPITAL STRUCTURE WITH RESPECT TO THE PROXY**  
3       **GROUP?**

4   A.   The proxy group has been selected to reflect comparable companies in terms of business  
5       and financial risks. Therefore, it is appropriate to compare the financial capital structures  
6       of the proxy group companies to the financial capital structure proposed by Aquarion in  
7       order to assess whether the Company's capital structure is reasonable and consistent with  
8       industry standards for companies with commensurate risk. I calculated the weighted  
9       average capital structures for each of the proxy group operating companies for the most  
10      recent year reported. As shown in Exhibit A-8-JCN-13 and Figure 13, the Company's  
11      recent actual equity ratio, and its proposed equity ratio of 53.06 percent, are within the  
12      range of actual common equity ratios of 41.92 percent to 63.28 percent for the operating  
13      companies held by the proxy group over this period.



1

**Figure 13: Proxy Group Equity Ratios**

<b>Company</b>	<b>2019</b>	<b>2020</b>	<b>Proposed</b>
American Water Works Company Inc.	51.42%	51.01%	
American States Water Co	55.40%	56.76%	
Atmos Energy Corporation	57.85%	58.31%	
California Water Service Group	43.23%	45.08%	
Essential Utilities, Inc.	53.27%	53.00%	
Middlesex Water Company	61.72%	59.10%	
New Jersey Resources Corporation	57.55%	55.13%	
NiSource Inc.	54.33%	54.43%	
Northwest Natural Gas Company	45.77%	41.92%	
ONE Gas Inc.	63.28%	60.04%	
SJW Group	51.70%	51.16%	
Spire, Inc.	53.20%	52.64%	
York Water Company	56.50%	53.27%	
<b>Proxy Group Range</b>	43.23%- 63.28%	41.92%- 60.04%	
<b>Aquarion</b>	<b>54.06%</b>	<b>54.01%</b>	<b>53.06%</b>

2

3 **Q. WHAT IS YOUR CONCLUSION REGARDING THE APPROPRIATENESS OF**  
4 **AQUARION’S PROPOSED CAPITAL STRUCTURE IN THIS PROCEEDING?**

5 A. Based on the analysis presented in Exhibit A-8-JCN-13, my conclusion is that Aquarion’s  
6 proposed financial capital structure is reasonable. Sufficient equity in the capital structure  
7 is an important factor for maintaining Aquarion’s financial integrity and investment grade

1 credit rating and it is an essential component of Aquarion's financial policies enabling  
2 access to capital on favorable terms in a variety of market circumstances.

3 **IX. CONCLUSIONS**

4 **Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR AND REASONABLE**  
5 **ROE FOR AQUARION?**

6 A. Based on the quantitative analyses provided in my Direct Testimony, I have established a  
7 range of ROE results shown previously in Figure 1 (also see Exhibit A-8-JCN-3 for  
8 summary table). The DCF, CAPM and the Expected Earnings analysis produce a range of  
9 estimates of the Company's cost of equity of 9.76 percent to 10.64 percent. From within  
10 that range, and considering the Company's risk profile, flotation costs, and a premium for  
11 the acquisition of non-viable water systems, I recommend an ROE of 10.35 percent.

12 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE CAPITAL**  
13 **STRUCTURE FOR AQUARION IN THIS PROCEEDING?**

14 A. I support Aquarion's actual financial capital structure of 53.06 percent common equity and  
15 46.94 percent debt as reasonable relative to the range of capital structures for the operating  
16 companies held by the proxy group companies.

17 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

18 A. Yes, it does.

**JOSHUA C. NOWAK**

Assistant Vice President

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Mr. Nowak is a financial and economic consultant with more than ten years of experience in the energy industry. He has provided expert testimony on regulatory issues in several proceedings before the Federal Energy Regulatory Commission and regulatory commissions in Alaska, New Hampshire, New York, and Texas. Mr. Nowak specializes in providing rate case services on cost of capital matters related to return on equity and financial market issues. He is also experienced in providing strategic direction on financing activities including bond offerings, credit rating analysis, and investor relations. Previously, Josh was the Director of Regulatory Strategy & Integrated Analytics at National Grid where he was responsible for issues related to the cost of capital across its federal and state jurisdictional operating companies. He holds a Bachelor's Degree in Economics and History from Boston College.

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**REPRESENTATIVE EXPERIENCE**

Expert Testimony and Litigation Support

Mr. Nowak's work includes regulatory project management, research, and analysis for expert witness testimony. His work has included:

- Expert testimony on cost of capital, return on equity, capital structure, and debt financing issues
- Regulatory strategy in return on equity proceedings, including coordination across several utilities in joint-party proceedings
- Extensive support for expert testimony in cost of capital and return on equity proceedings through research, financial analysis, and testimony development
- Expert testimony, sponsoring lead-lag studies, in support of utility cash working capital requirements
- Project management of expert testimony assignments, including all phases of the regulatory schedule
- Performing analysis to support expert testimony regarding affiliate expenses and allocations

Policy Analysis

Mr. Nowak has contributed to projects related to policy review including:

- A review of natural gas capacity options and a cost-benefit analysis for state regulators seeking to reduce energy costs for ratepayers
- Analysis of the economic and environmental benefits of changes to natural gas ratemaking/expansion policy

### Management and Operations Consulting

Mr. Nowak has taken a lead analytical role in developing benchmarking analyses and process reviews. Specifically, he has:

- Developed benchmarking analyses, in support of expert testimony, comparing electric and gas utilities' cost and operational efficiency, taking into account a situational assessment of exogenous factors
- Performed a process review of a gas utility's expansion projects, including an evaluation of policies, procedures, and financial models
- Supported analysis for a report of the reasonableness of a shared service company's administrative and general costs

### Financial Analysis

Other financial analysis Mr. Nowak has conducted include:

- Extensive analysis on issues related to utilities' cost of capital
- Developing dispatch models to estimate revenues for merchant powerplants
- Estimating damages for breach of contract in fuel delivery commitment
- Researching strategic investment opportunities for merchant generators
- A report on the profitability of various generation technologies in a deregulated energy market
- Reviewing internal financial models used by utility clients
- Supporting utility asset appraisals, including research and analysis for income approach, cost approach, and sales comparison approach

### Other Experience

In his previous work, Mr. Nowak contributed to the evaluation of regulatory policy for government clients. His experience included performing policy analysis, including economic impact assessments, for federal regulations.

## PROFESSIONAL HISTORY

### **Concentric Energy Advisors, Inc. (2018 – Present)**

Assistant Vice President

### **National Grid USA (2017 – 2018)**

Director, Regulatory Strategy & Integrated Analytics

### **ScottMadden, Inc. (formerly Sussex Economic Advisors, LLC) (2012 – 2016)**

Director

Principal

**Concentric Energy Advisors, Inc. (2007 – 2012)**

Senior Consultant

Consultant

Assistant Consultant

Analyst

**RTI International (2006 – 2007)**

Economist

**EDUCATION**

**Boston College**

B.A., Economics and History, 2006



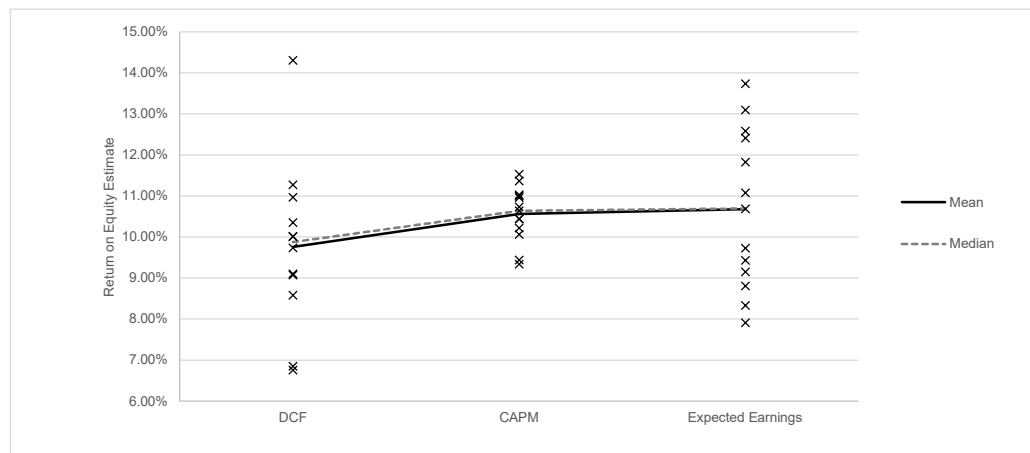
SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
<b>Regulatory Commission of Alaska</b>				
ENSTAR Natural Gas Company, a Division of Semco Energy, Inc.	06/16	ENSTAR Natural Gas Company, a Division of Semco Energy, Inc.	TA 285-4	Cash Working Capital
<b>Connecticut Public Utilities Regulatory Authority</b>				
Aquarion Water Company of Connecticut	01/22	Aquarion Water Company of Connecticut	Docket No. 13-02-20RE06	Return on Equity and Cost of Debt
<b>Federal Energy Regulatory Commission</b>				
Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation	04/21	Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation	EL21-66-000, ER21-1647-000	Transmission Ownership Risk and Returns
Central Hudson Gas & Electric Corporation	12/19	Central Hudson Gas & Electric Corporation	ER20-715-000	Return on Equity
<b>Public Utilities Commission of New Hampshire</b>				
Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities	04/16	Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities	Docket No. DE 16-383	Cash Working Capital
<b>New York Public Service Commission</b>				
Niagara Mohawk Power Corporation d/b/a National Grid	07/20	Niagara Mohawk Power Corporation d/b/a National Grid	Case 20-E-0380 / Case 20-G- 0381	Return on Equity
Niagara Mohawk Power Corporation d/b/a National Grid	07/17	Niagara Mohawk Power Corporation d/b/a National Grid	Case 17-E-0238 / Case 17-G- 0239	Capital Structure and Overall Cost of Capital
<b>Public Utility Commission of Texas</b>				
Wind Energy Transmission Texas, LLC	05/15	Wind Energy Transmission Texas, LLC	Docket No. 44746	Cash Working Capital
Lone Star Transmission, LLC	05/14	Lone Star Transmission, LLC	Docket No. 42469	Cash Working Capital



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
<b>Railroad Commission of Texas</b>				
Texas Gas Service Company, a Division of One Gas, Inc.	06/16	Texas Gas Service Company, a Division of One Gas, Inc.	GUD No. 10526	Cash Working Capital
Texas Gas Service Company, a Division of One Gas, Inc.	03/16	Texas Gas Service Company, a Division of One Gas, Inc.	GUD No. 10506	Cash Working Capital
Texas Gas Service Company, a Division of One Gas, Inc.	12/15	Texas Gas Service Company, a Division of One Gas, Inc.	GUD No. 10488	Cash Working Capital
CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	03/14	CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD No. 10432	Cash Working Capital

SUMMARY OF RESULTS

Company	Ticker	DCF				CAPM							Expected Earnings	DCF and CAPM Average
						Value Line Beta			Bloomberg Beta			Average		
		30-Day	90-Day	180-Day	Average	Current Yield	Near-Term Projected Yield	Long-Term Projected Yield	Current Yield	Near-Term Projected Yield	Long-Term Projected Yield			
American Water Works Company Inc.	AWK	9.83%	9.74%	9.65%	9.74%	10.99%	11.08%	11.09%	10.89%	10.98%	10.99%	11.00%	10.70%	10.37%
American States Water Co	AWR	6.87%	6.77%	6.65%	6.76%	9.16%	9.35%	9.37%	9.25%	9.44%	9.47%	9.34%	13.74%	8.05%
Atmos Energy Corporation	ATO	10.33%	10.28%	10.45%	10.35%	10.53%	10.65%	10.66%	10.20%	10.33%	10.35%	10.45%	9.44%	10.40%
California Water Service Group	CWT	11.07%	11.00%	10.86%	10.97%	9.16%	9.35%	9.37%	9.48%	9.65%	9.67%	9.45%	11.08%	10.21%
Essential Utilities, Inc.	WTRG	10.10%	10.01%	9.96%	10.02%	11.91%	11.94%	11.95%	11.07%	11.15%	11.16%	11.53%	8.82%	10.78%
Middlesex Water Company	MSEX	NA	NA	NA	NA	9.62%	9.78%	9.80%	10.32%	10.45%	10.46%	10.07%	12.59%	10.07%
New Jersey Resources Corporation	NJR	8.99%	9.01%	9.22%	9.07%	11.91%	11.94%	11.95%	10.74%	10.84%	10.85%	11.37%	12.42%	10.22%
NiSource Inc.	NI	11.24%	11.20%	11.40%	11.28%	10.99%	11.08%	11.09%	10.81%	10.91%	10.92%	10.97%	11.83%	11.12%
Northwest Natural Gas Company	NWN	8.99%	9.07%	9.27%	9.11%	10.53%	10.65%	10.66%	9.72%	9.88%	9.90%	10.22%	9.73%	9.67%
ONE Gas Inc.	OGS	8.55%	8.49%	8.73%	8.59%	10.53%	10.65%	10.66%	10.59%	10.70%	10.71%	10.64%	7.91%	9.61%
SJW Group	SJW	14.42%	14.31%	14.20%	14.31%	10.53%	10.65%	10.66%	10.79%	10.89%	10.90%	10.74%	9.15%	12.52%
Spire, Inc.	SR	9.84%	9.97%	10.23%	10.01%	10.53%	10.65%	10.66%	10.18%	10.32%	10.33%	10.45%	8.34%	10.23%
York Water Company	YORW	6.95%	6.87%	6.75%	6.86%	10.99%	11.08%	11.09%	10.96%	11.05%	11.05%	11.04%	13.11%	8.95%
Low		6.87%	6.77%	6.65%	6.76%	9.16%	9.35%	9.37%	9.25%	9.44%	9.47%	9.34%	7.91%	8.05%
Median		9.84%	9.86%	9.81%	9.88%	10.53%	10.65%	10.66%	10.59%	10.70%	10.71%	10.64%	10.70%	10.22%
Mean		9.76%	9.73%	9.78%	9.76%	10.57%	10.68%	10.69%	10.38%	10.51%	10.52%	10.56%	10.68%	10.17%
High		14.42%	14.31%	14.20%	14.31%	11.91%	11.94%	11.95%	11.07%	11.15%	11.16%	11.53%	13.74%	12.52%





PROXY GROUP SCREENING DATA AND RESULTS - PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]
			S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	% Regulated Operating Assets > 70%	Announced Merger
Company	Ticker	Dividends					
American Water Works Company Inc.	AWK	Yes	A	Yes	Yes	90%	No
American States Water Co	AWR	Yes	A+	Yes	Yes	98%	No
Atmos Energy Corporation	ATO	Yes	A-	Yes	Yes	100%	No
California Water Service Group	CWT	Yes	A+	Yes	Yes	100%	No
Essential Utilities, Inc.	WTRG	Yes	A	Yes	Yes	91%	No
Middlesex Water Company	MSEX	Yes	A	Yes	Yes	100%	No
New Jersey Resources Corporation	NJR	Yes	A+ [7]	Yes	Yes	78%	No
NiSource Inc.	NI	Yes	BBB+	Yes	Yes	91%	No
Northwest Natural Gas Company	NWN	Yes	A+	Yes	Yes	96%	No
ONE Gas Inc.	OGS	Yes	BBB+	Yes	Yes	100%	No
SJW Group	SJW	Yes	A-	Yes	Yes	97%	No
Spire, Inc.	SR	Yes	A-	Yes	Yes	81%	No
York Water Company	YORW	Yes	A-	Yes	Yes	100%	No

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional

[3] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks

[4] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks

[5] Source: Form 10-K's for 2021, 2020, and 2019

[6] Source: SNL Financial News Releases

[7] New Jersey Resources ("NJR") is not rated by S&P, its primary subsidiary utility company, New Jersey Natural Gas Co. is rated A1 by Moody's

30-DAY CONSTANT GROWTH DCF

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	All Proxy Group			With Exclusions		
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
American Water Works Company Inc.	AWK	\$2.62	\$146.06	1.79%	1.87%	7.50%	8.30%	8.10%	7.97%	9.36%	9.83%	10.17%	9.36%	9.83%	10.17%
American States Water Co	AWR	\$1.46	\$78.09	1.87%	1.92%	5.50%	4.40%	n/a	4.95%	6.31%	6.87%	7.42%	6.31%	6.87%	7.42%
Atmos Energy Corporation	ATO	\$2.72	\$111.77	2.43%	2.53%	7.50%	8.61%	7.30%	7.80%	9.82%	10.33%	11.15%	9.82%	10.33%	11.15%
California Water Service Group	CWT	\$1.00	\$53.14	1.88%	1.97%	6.50%	11.70%	n/a	9.10%	8.44%	11.07%	13.69%	8.44%	11.07%	13.69%
Essential Utilities, Inc.	WTRG	\$1.07	\$45.22	2.37%	2.46%	10.00%	6.80%	6.10%	7.63%	8.54%	10.10%	12.49%	8.54%	10.10%	12.49%
Middlesex Water Company	MSEX	\$1.16	\$84.96	1.37%	1.39%	4.50%	2.70%	n/a	3.60%	4.08%	4.99%	5.90%	NA	NA	NA
New Jersey Resources Corporation	NJR	\$1.45	\$44.84	3.23%	3.33%	5.00%	6.00%	6.00%	5.67%	8.31%	8.99%	9.33%	8.31%	8.99%	9.33%
NiSource Inc.	NI	\$0.94	\$29.81	3.15%	3.28%	9.50%	7.18%	7.20%	7.96%	10.45%	11.24%	12.80%	10.45%	11.24%	12.80%
Northwest Natural Gas Company	NWN	\$1.93	\$53.17	3.63%	3.73%	6.50%	4.60%	4.70%	5.27%	8.31%	8.99%	10.25%	8.31%	8.99%	10.25%
ONE Gas Inc.	OGS	\$2.48	\$83.66	2.96%	3.05%	6.50%	5.00%	5.00%	5.50%	8.04%	8.55%	9.56%	8.04%	8.55%	9.56%
SJW Group	SJW	\$1.44	\$60.64	2.37%	2.52%	14.00%	9.80%	n/a	11.90%	12.29%	14.42%	16.54%	12.29%	14.42%	16.54%
Spire, Inc.	SR	\$2.74	\$75.49	3.63%	3.74%	9.00%	4.30%	5.00%	6.10%	8.01%	9.84%	12.79%	8.01%	9.84%	12.79%
York Water Company	YORW	\$0.78	\$40.02	1.95%	2.00%	5.00%	4.90%	n/a	4.95%	6.90%	6.95%	7.00%	6.90%	6.95%	7.00%
Median				2.37%	2.52%	6.50%	6.00%	6.05%	6.10%	8.31%	9.83%	10.25%	8.38%	9.84%	10.70%
Mean				2.51%	2.60%	7.46%	6.48%	6.18%	6.80%	8.37%	9.40%	10.70%	8.73%	9.76%	11.10%

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, equals 30-day average as of June 30, 2022  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.50 x [8])  
[5] Source: Value Line  
[6] Source: Yahoo! Finance  
[7] Source: Zacks  
[8] Equals Average ([5], [6], [7])  
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])  
[12] Equals [9] excluding Middlesex Water Company  
[13] Equals [10] excluding Middlesex Water Company  
[14] Equals [11] excluding Middlesex Water Company

90-DAY CONSTANT GROWTH DCF

										All Proxy Group			With Exclusions		
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
							Yahoo!								
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
American Water Works Company Inc.	AWK	\$2.62	\$153.44	1.71%	1.78%	7.50%	8.30%	8.10%	7.97%	9.27%	9.74%	10.08%	9.27%	9.74%	10.08%
American States Water Co	AWR	\$1.46	\$82.16	1.78%	1.82%	5.50%	4.40%	n/a	4.95%	6.22%	6.77%	7.33%	6.22%	6.77%	7.33%
Atmos Energy Corporation	ATO	\$2.72	\$114.24	2.38%	2.47%	7.50%	8.61%	7.30%	7.80%	9.77%	10.28%	11.09%	9.77%	10.28%	11.09%
California Water Service Group	CWT	\$1.00	\$55.15	1.81%	1.90%	6.50%	11.70%	n/a	9.10%	8.37%	11.00%	13.62%	8.37%	11.00%	13.62%
Essential Utilities, Inc.	WTRG	\$1.07	\$46.92	2.29%	2.37%	10.00%	6.80%	6.10%	7.63%	8.46%	10.01%	12.40%	8.46%	10.01%	12.40%
Middlesex Water Company	MSEX	\$1.16	\$93.40	1.24%	1.26%	4.50%	2.70%	n/a	3.60%	3.96%	4.86%	5.77%	NA	NA	NA
New Jersey Resources Corporation	NJR	\$1.45	\$44.65	3.25%	3.34%	5.00%	6.00%	6.00%	5.67%	8.33%	9.01%	9.35%	8.33%	9.01%	9.35%
NiSource Inc.	NI	\$0.94	\$30.17	3.12%	3.24%	9.50%	7.18%	7.20%	7.96%	10.41%	11.20%	12.76%	10.41%	11.20%	12.76%
Northwest Natural Gas Company	NWN	\$1.93	\$52.04	3.71%	3.81%	6.50%	4.60%	4.70%	5.27%	8.39%	9.07%	10.33%	8.39%	9.07%	10.33%
ONE Gas Inc.	OGS	\$2.48	\$85.24	2.91%	2.99%	6.50%	5.00%	5.00%	5.50%	7.98%	8.49%	9.50%	7.98%	8.49%	9.50%
SJW Group	SJW	\$1.44	\$63.42	2.27%	2.41%	14.00%	9.80%	n/a	11.90%	12.18%	14.31%	16.43%	12.18%	14.31%	16.43%
Spire, Inc.	SR	\$2.74	\$72.95	3.76%	3.87%	9.00%	4.30%	5.00%	6.10%	8.14%	9.97%	12.92%	8.14%	9.97%	12.92%
York Water Company	YORW	\$0.78	\$41.72	1.87%	1.92%	5.00%	4.90%	n/a	4.95%	6.81%	6.87%	6.92%	6.81%	6.87%	6.92%
Median				2.29%	2.41%	6.50%	6.00%	6.05%	6.10%	8.37%	9.74%	10.33%	8.38%	9.86%	10.71%
Mean				2.47%	2.55%	7.46%	6.48%	6.18%	6.80%	8.33%	9.35%	10.65%	8.69%	9.73%	11.06%

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, equals 90-day average as of June 30, 2022  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.50 x [8])  
[5] Source: Value Line  
[6] Source: Yahoo! Finance  
[7] Source: Zacks  
[8] Equals Average ([5], [6], [7])  
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])  
[12] Equals [9] excluding Middlesex Water Company  
[13] Equals [10] excluding Middlesex Water Company  
[14] Equals [11] excluding Middlesex Water Company

180-DAY CONSTANT GROWTH DCF

100-DAY CONSTANT GROWTH BCI										All Proxy Group			With Exclusions		
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
							Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate						
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth				Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
American Water Works Company Inc.	AWK	\$2.62	\$161.57	1.62%	1.69%	7.50%	8.30%	8.10%	7.97%	9.18%	9.65%	9.99%	9.18%	9.65%	9.99%
American States Water Co	AWR	\$1.46	\$87.97	1.66%	1.70%	5.50%	4.40%	n/a	4.95%	6.10%	6.65%	7.21%	6.10%	6.65%	7.21%
Atmos Energy Corporation	ATO	\$2.72	\$106.80	2.55%	2.65%	7.50%	8.61%	7.30%	7.80%	9.94%	10.45%	11.27%	9.94%	10.45%	11.27%
California Water Service Group	CWT	\$1.00	\$59.50	1.68%	1.76%	6.50%	11.70%	n/a	9.10%	8.24%	10.86%	13.48%	8.24%	10.86%	13.48%
Essential Utilities, Inc.	WTRG	\$1.07	\$47.81	2.24%	2.33%	10.00%	6.80%	6.10%	7.63%	8.41%	9.96%	12.36%	8.41%	9.96%	12.36%
Middlesex Water Company	MSEX	\$1.16	\$99.12	1.17%	1.19%	4.50%	2.70%	n/a	3.60%	3.89%	4.79%	5.70%	NA	NA	NA
New Jersey Resources Corporation	NJR	\$1.45	\$41.92	3.46%	3.56%	5.00%	6.00%	6.00%	5.67%	8.55%	9.22%	9.56%	8.55%	9.22%	9.56%
NiSource Inc.	NI	\$0.94	\$28.39	3.31%	3.44%	9.50%	7.18%	7.20%	7.96%	10.61%	11.40%	12.97%	10.61%	11.40%	12.97%
Northwest Natural Gas Company	NWN	\$1.93	\$49.51	3.90%	4.00%	6.50%	4.60%	4.70%	5.27%	8.59%	9.27%	10.52%	8.59%	9.27%	10.52%
ONE Gas Inc.	OGS	\$2.48	\$78.99	3.14%	3.23%	6.50%	5.00%	5.00%	5.50%	8.22%	8.73%	9.74%	8.22%	8.73%	9.74%
SJW Group	SJW	\$1.44	\$66.20	2.18%	2.30%	14.00%	9.80%	n/a	11.90%	12.08%	14.20%	16.33%	12.08%	14.20%	16.33%
Spire, Inc.	SR	\$2.74	\$68.41	4.01%	4.13%	9.00%	4.30%	5.00%	6.10%	8.39%	10.23%	13.19%	8.39%	10.23%	13.19%
York Water Company	YORW	\$0.78	\$44.27	1.76%	1.80%	5.00%	4.90%	n/a	4.95%	6.70%	6.75%	6.81%	6.70%	6.75%	6.81%
Median				2.24%	2.33%	6.50%	6.00%	6.05%	6.10%	8.41%	9.65%	10.52%	8.48%	9.81%	10.90%
Mean				2.51%	2.60%	7.46%	6.48%	6.18%	6.80%	8.38%	9.40%	10.70%	8.75%	9.78%	11.12%

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, equals 180-day average as of June 30, 2022  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.50 x [8])  
[5] Source: Value Line  
[6] Source: Yahoo! Finance  
[7] Source: Zacks  
[8] Equals Average ([5], [6], [7])  
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])  
[12] Equals [9] excluding Middlesex Water Company  
[13] Equals [10] excluding Middlesex Water Company  
[14] Equals [11] excluding Middlesex Water Company

MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES

[1] Estimate of the S&P 500 Dividend Yield	1.73%
[2] Estimate of the S&P 500 Growth Rate	11.58%
[3] S&P 500 Estimated Required Market Return	13.41%

Notes:

- [1] Sum of [9]  
[2] Sum of [11]  
[3] Equals  $((1) \times (1 + 0.5 \times [2])) + [2]$

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	87.46	328	28,654	0.09%	5.44%	0.01%	3.50%	0.00%
Signature Bank/New York NY	SBNY	179.21	63	11,302	0.04%	1.25%	0.00%	24.50%	0.01%
American Express Co	AXP	138.62	753	104,389	0.34%	1.50%	0.01%	10.00%	0.03%
Verizon Communications Inc	VZ	50.75	4,200	213,132	0.70%	5.04%	0.04%	3.00%	0.02%
Broadcom Inc	AVGO	485.81	404	196,179	0.64%	3.38%	0.02%	23.00%	0.15%
Boeing Co/The	BA	136.72	592	Excl.	0.00%	n/a	n/a	n/a	n/a
Caterpillar Inc	CAT	178.76	533	95,346	0.31%	2.69%	0.01%	8.00%	0.03%
JPMorgan Chase & Co	JPM	112.61	2,937	330,741	1.09%	3.55%	0.04%	5.00%	0.05%
Chevron Corp	CVX	144.78	1,965	284,466	0.93%	3.92%	0.04%	26.00%	0.24%
Coca-Cola Co/The	KO	62.91	4,335	272,717	0.90%	2.80%	0.03%	7.00%	0.06%
AbbVie Inc	ABBV	153.16	1,767	270,651	0.89%	3.68%	0.03%	4.50%	0.04%
Walt Disney Co/The	DIS	94.40	1,821	171,948	0.56%	n/a	n/a	30.50%	0.17%
FleetCor Technologies Inc	FLT	210.11	77	16,250	0.05%	n/a	n/a	10.50%	0.01%
Extra Space Storage Inc	EXR	170.12	134	22,844	0.08%	3.53%	0.00%	4.00%	0.00%
Exxon Mobil Corp	XOM	85.64	4,213	Excl.	0.00%	4.11%	0.00%	n/a	n/a
Phillips 66	PSX	81.99	481	39,445	0.13%	4.73%	0.01%	85.00%	0.11%
General Electric Co	GE	63.67	1,101	70,079	0.23%	0.50%	0.00%	15.00%	0.03%
HP Inc	HPQ	32.78	1,034	33,899	0.11%	3.05%	0.00%	12.50%	0.01%
Home Depot Inc/The	HD	274.27	1,028	281,882	0.93%	2.77%	0.03%	9.00%	0.08%
Monolithic Power Systems Inc	MPWR	384.04	47	17,913	0.06%	0.78%	0.00%	18.00%	0.01%
International Business Machines Corp	IBM	141.19	899	126,991	0.42%	4.67%	0.02%	3.00%	0.01%
Johnson & Johnson	JNJ	177.51	2,631	467,100	1.53%	2.55%	0.04%	8.00%	0.12%
McDonald's Corp	MCD	246.88	740	182,579	0.60%	2.24%	0.01%	10.50%	0.06%
Merck & Co Inc	MRK	91.17	2,529	230,551	0.76%	3.03%	0.02%	8.00%	0.06%
3M Co	MMM	129.41	569	73,642	0.24%	4.61%	0.01%	5.50%	0.01%
American Water Works Co Inc	AWK	148.77	182	27,039	0.09%	1.76%	0.00%	8.50%	0.01%
Bank of America Corp	BAC	31.13	8,057	250,811	0.82%	2.70%	0.02%	9.00%	0.07%
Pfizer Inc	PFE	52.43	5,611	294,179	0.97%	3.05%	0.03%	6.50%	0.06%
Procter & Gamble Co/The	PG	143.79	2,399	344,995	1.13%	2.54%	0.03%	6.50%	0.07%
AT&T Inc	T	20.96	7,159	150,053	0.49%	5.30%	0.03%	0.50%	0.00%
Travelers Cos Inc/The	TRV	169.13	240	40,585	0.13%	2.20%	0.00%	8.00%	0.01%
Raytheon Technologies Corp	RTX	96.11	1,487	142,936	0.47%	2.29%	0.01%	7.50%	0.04%
Analog Devices Inc	ADI	146.09	520	75,938	0.25%	2.08%	0.01%	14.00%	0.03%
Walmart Inc	WMT	121.58	2,741	333,269	1.09%	1.84%	0.02%	7.50%	0.08%
Cisco Systems Inc	CSCO	42.64	4,141	176,571	0.58%	3.56%	0.02%	8.00%	0.05%
Intel Corp	INTC	37.41	4,089	152,969	0.50%	3.90%	0.02%	6.00%	0.03%
General Motors Co	GM	31.76	1,458	46,307	0.15%	n/a	n/a	11.00%	0.02%
Microsoft Corp	MSFT	256.83	7,479	1,920,840	6.31%	0.97%	0.06%	17.50%	1.10%
Dollar General Corp	DG	245.44	227	55,714	0.18%	0.90%	0.00%	10.00%	0.02%
Cigna Corp	CI	263.52	317	83,608	0.27%	1.70%	0.00%	10.00%	0.03%
Kinder Morgan Inc	KMI	16.76	2,267	38,003	0.12%	6.62%	0.01%	19.00%	0.02%
Citigroup Inc	C	45.99	1,942	89,309	0.29%	4.44%	0.01%	4.50%	0.01%
American International Group Inc	AIG	51.13	792	40,505	0.13%	2.50%	0.00%	31.50%	0.04%
Altria Group Inc	MO	41.77	1,811	75,627	0.25%	8.62%	0.02%	5.50%	0.01%
HCA Healthcare Inc	HCA	168.06	295	49,659	0.16%	1.33%	0.00%	12.50%	0.02%
International Paper Co	IP	41.83	371	15,503	0.05%	4.42%	0.00%	33.00%	0.02%
Hewlett Packard Enterprise Co	HPE	13.26	1,299	17,229	0.06%	3.62%	0.00%	12.50%	0.01%
Abbott Laboratories	ABT	108.65	1,751	190,240	0.62%	1.73%	0.01%	7.50%	0.05%
Aflac Inc	AFL	55.33	644	35,642	0.12%	2.89%	0.00%	8.00%	0.01%
Air Products and Chemicals Inc	APD	240.48	222	53,332	0.18%	2.69%	0.00%	9.00%	0.02%
Royal Caribbean Cruises Ltd	RCL	34.91	255	8,901	0.03%	n/a	n/a	12.00%	0.00%
Hess Corp	HES	105.94	311	Excl.	0.00%	1.42%	0.00%	n/a	n/a
Archer-Daniels-Midland Co	ADM	77.60	563	Excl.	0.00%	2.06%	0.00%	n/a	n/a
Automatic Data Processing Inc	ADP	210.04	418	87,744	0.29%	1.98%	0.01%	13.00%	0.04%
Verisk Analytics Inc	VRSK	173.09	158	27,331	0.09%	0.72%	0.00%	9.00%	0.01%
AutoZone Inc	AZO	2,149.12	19	41,882	0.14%	n/a	n/a	10.50%	0.01%
Avery Dennison Corp	AVY	161.87	82	13,227	0.04%	1.85%	0.00%	14.00%	0.01%
Enphase Energy Inc	ENPH	195.24	135	26,363	0.09%	n/a	n/a	12.00%	0.01%
MSCI Inc	MSCI	412.15	81	33,495	0.11%	1.01%	0.00%	26.50%	0.03%
Ball Corp	BALL	68.77	320	21,992	0.07%	1.16%	0.00%	14.50%	0.01%
Ceridian HCM Holding Inc	CDAY	47.08	153	7,187	0.02%	n/a	n/a	21.50%	0.01%

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Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Carrier Global Corp	CARR	35.66	848	Excl.	0.00%	1.68%	0.00%		n/a
Bank of New York Mellon Corp/The	BK	41.71	808	Excl.	0.00%	3.26%	0.00%		n/a
Otis Worldwide Corp	OTIS	70.67	423	29,879	0.10%	1.64%	0.00%	6.50%	0.01%
Baxter International Inc	BAX	64.23	504	Excl.	0.00%	1.81%	0.00%		n/a
Becton Dickinson and Co	BDX	246.53	285	70,277	0.23%	1.41%	0.00%	10.00%	0.02%
Berkshire Hathaway Inc	BRK/B	273.02	1,286	351,036	1.15%	n/a	n/a	5.50%	0.06%
Best Buy Co Inc	BBY	65.19	225	14,679	0.05%	5.40%	0.00%	6.00%	0.00%
Boston Scientific Corp	BSX	37.27	1,430	53,280	0.18%	n/a	n/a	9.50%	0.02%
Bristol-Myers Squibb Co	BMJ	77.00	2,129	163,938	0.54%	2.81%	0.02%	16.00%	0.09%
Fortune Brands Home & Security Inc	FBHS	59.88	131	Excl.	0.00%	1.87%	0.00%		n/a
Brown-Forman Corp	BF/B	70.16	310	21,743	0.07%	1.07%	0.00%	10.00%	0.01%
Coterra Energy Inc	CTRA	25.79	806	20,782	0.07%	2.33%	0.00%	12.00%	0.01%
Campbell Soup Co	CPB	48.05	301	Excl.	0.00%	3.08%	0.00%		n/a
Hilton Worldwide Holdings Inc	HLT	111.44	278	31,017	0.10%	0.54%	0.00%	5.00%	0.01%
Carnival Corp	CCL	8.65	995	Excl.	0.00%	n/a	n/a		n/a
Qorvo Inc	QRVO	94.32	104	Excl.	0.00%	n/a	n/a		n/a
Lumen Technologies Inc	LUMN	10.91	1,033	11,271	0.04%	9.17%	0.00%	14.50%	0.01%
UDR Inc	UDR	46.04	318	14,659	0.05%	3.30%	0.00%	3.50%	0.00%
Clorox Co/The	CLX	140.98	123	17,352	0.06%	3.29%	0.00%	10.50%	0.01%
Paycom Software Inc	PAYC	280.12	60	16,878	0.06%	n/a	n/a	4.50%	0.00%
CMS Energy Corp	CMS	67.50	290	19,584	0.06%	2.73%	0.00%	20.00%	0.01%
Newell Brands Inc	NWL	19.04	414	7,873	0.03%	4.83%	0.00%	6.50%	0.00%
Colgate-Palmolive Co	CL	80.14	838	Excl.	0.00%	2.35%	0.00%		n/a
EPAM Systems Inc	EPAM	294.78	57	16,847	0.06%	n/a	n/a	6.50%	0.00%
Comerica Inc	CMA	73.38	131	9,595	0.03%	3.71%	0.00%	20.50%	0.01%
Conagra Brands Inc	CAG	34.24	480	16,431	0.05%	3.65%	0.00%	6.00%	0.00%
Consolidated Edison Inc	ED	95.10	354	33,693	0.11%	3.32%	0.00%	18.50%	0.02%
Corning Inc	GLW	31.51	845	26,614	0.09%	3.43%	0.00%	4.00%	0.00%
Cummins Inc	CMI	193.53	141	27,307	0.09%	3.00%	0.00%	4.50%	0.00%
Caesars Entertainment Inc	CZR	38.30	214	8,210	0.03%	n/a	n/a	17.50%	0.00%
Danaher Corp	DHR	253.52	727	184,329	0.61%	0.39%	0.00%	8.00%	0.05%
Target Corp	TGT	141.23	464	Excl.	0.00%	3.06%	0.00%		n/a
Deere & Co	DE	299.47	306	91,529	0.30%	1.51%	0.00%	17.00%	0.05%
Dominion Energy Inc	D	79.81	811	64,747	0.21%	3.35%	0.01%	13.00%	0.03%
Dover Corp	DOV	121.32	144	17,490	0.06%	1.65%	0.00%	15.00%	0.01%
Alliant Energy Corp	LNT	58.61	251	14,700	0.05%	2.92%	0.00%	14.00%	0.01%
Duke Energy Corp	DUK	107.21	770	82,552	0.27%	3.68%	0.01%	9.00%	0.02%
Regency Centers Corp	REG	59.31	172	10,223	0.03%	4.22%	0.00%	6.00%	0.00%
Eaton Corp PLC	ETN	125.99	399	50,270	0.17%	2.57%	0.00%	6.00%	0.01%
Ecolab Inc	ECL	153.76	286	43,922	0.14%	1.33%	0.00%	12.50%	0.02%
PerkinElmer Inc	PKI	142.22	126	17,941	0.06%	0.20%	0.00%	12.00%	0.01%
Emerson Electric Co	EMR	79.54	594	47,247	0.16%	2.59%	0.00%	10.50%	0.02%
EOG Resources Inc	EOG	110.44	586	64,686	0.21%	2.72%	0.01%	5.00%	0.01%
Aon PLC	AON	269.68	212	57,276	0.19%	0.83%	0.00%	10.00%	0.02%
Entergy Corp	ETR	112.64	203	22,908	0.08%	3.59%	0.00%	18.00%	0.01%
Equifax Inc	EFX	182.78	122	22,360	0.07%	0.85%	0.00%	7.50%	0.01%
IQVIA Holdings Inc	IQV	216.99	189	41,072	0.13%	n/a	n/a	4.00%	0.01%
Gartner Inc	IT	241.83	81	19,477	0.06%	n/a	n/a	10.00%	0.01%
FedEx Corp	FDX	226.71	259	58,758	0.19%	2.03%	0.00%	14.50%	0.03%
FMC Corp	FMC	107.01	126	13,477	0.04%	1.98%	0.00%	15.50%	0.01%
Brown & Brown Inc	BRO	58.34	282	16,468	0.05%	0.70%	0.00%	13.00%	0.01%
Ford Motor Co	F	11.13	3,949	43,951	0.14%	3.59%	0.01%	11.00%	0.02%
NextEra Energy Inc	NEE	77.46	1,965	152,170	0.50%	2.19%	0.01%	10.50%	0.05%
Franklin Resources Inc	BEN	23.31	500	11,653	0.04%	4.98%	0.00%	33.50%	0.01%
Garmin Ltd	GRMN	98.25	193	18,975	0.06%	2.97%	0.00%	12.50%	0.01%
Freeport-McMoRan Inc	FCX	29.26	1,449	42,405	0.14%	2.05%	0.00%	9.00%	0.01%
Dexcom Inc	DXCM	74.53	393	29,253	0.10%	n/a	n/a	8.00%	0.01%
General Dynamics Corp	GD	221.25	278	61,442	0.20%	2.28%	0.00%	29.00%	0.06%
General Mills Inc	GIS	75.45	597	Excl.	0.00%	2.86%	0.00%		n/a
Genuine Parts Co	GPC	133.00	142	18,832	0.06%	2.69%	0.00%	8.00%	0.00%
Atmos Energy Corp	ATO	112.10	139	15,584	0.05%	2.43%	0.00%	4.00%	0.00%
WW Grainger Inc	GWV	454.43	51	23,222	0.08%	1.51%	0.00%	8.50%	0.01%
Halliburton Co	HAL	31.36	902	28,286	0.09%	1.53%	0.00%	7.50%	0.01%
L3Harris Technologies Inc	LHX	241.70	193	46,618	0.15%	1.85%	0.00%	7.00%	0.01%
Healthpeak Properties Inc	PEAK	25.91	540	13,980	0.05%	4.63%	0.00%	26.00%	0.01%
Catalent Inc	CTLT	107.29	179	19,228	0.06%	n/a	n/a	18.50%	0.01%
Fortive Corp	FTV	54.38	358	19,492	0.06%	0.51%	0.00%	17.00%	0.01%
Hershey Co/The	HSY	215.16	146	31,411	0.10%	1.68%	0.00%	21.00%	0.02%
Synchrony Financial	SYF	27.62	501	13,851	0.05%	3.19%	0.00%	12.00%	0.01%
Hormel Foods Corp	HRL	47.36	546	25,861	0.08%	2.20%	0.00%	6.50%	0.01%
Arthur J Gallagher & Co	AJG	163.04	210	34,249	0.11%	1.25%	0.00%	9.50%	0.01%
Mondelez International Inc	MDLZ	62.09	1,384	85,928	0.28%	2.25%	0.01%	6.50%	0.02%
CenterPoint Energy Inc	CNP	29.58	629	18,619	0.06%	2.30%	0.00%	16.50%	0.01%
Humana Inc	HUM	468.07	126	59,208	0.19%	0.67%	0.00%	9.50%	0.02%
Willis Towers Watson PLC	WTW	197.39	111	22,007	0.07%	1.66%	0.00%	6.50%	0.00%
Illinois Tool Works Inc	ITW	182.25	311	56,760	0.19%	2.68%	0.00%	11.00%	0.02%

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		Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
CDW Corp/DE	CDW	157.56	135	21,289	0.07%	1.27%	0.00%	8.00%	0.01%
Trane Technologies PLC	TT	129.87	234	30,371	0.10%	2.06%	0.00%	11.00%	0.01%
Interpublic Group of Cos Inc/The	IPG	27.53	394	10,838	0.04%	4.21%	0.00%	11.00%	0.00%
International Flavors & Fragrances Inc	IFF	119.12	255	Excl.	0.00%	2.65%	0.00%	n/a	n/a
Jacobs Engineering Group Inc	J	127.13	129	16,352	0.05%	0.72%	0.00%	12.00%	0.01%
Generac Holdings Inc	GNRC	210.58	64	13,441	0.04%	n/a	n/a	7.50%	0.00%
NXP Semiconductors NV	NXPI	148.03	263	38,867	0.13%	2.28%	0.00%	15.00%	0.02%
Kellogg Co	K	71.34	338	24,104	0.08%	3.25%	0.00%	23.50%	0.02%
Broadridge Financial Solutions Inc	BR	142.55	117	16,711	0.05%	1.80%	0.00%	12.00%	0.01%
Kimberly-Clark Corp	KMB	135.15	337	45,535	0.15%	3.43%	0.01%	3.50%	0.01%
Kimco Realty Corp	KIM	19.77	618	12,218	0.04%	4.05%	0.00%	9.00%	0.00%
Oracle Corp	ORCL	69.87	2,665	186,198	0.61%	1.83%	0.01%	5.50%	0.03%
Kroger Co/The	KR	47.33	716	33,867	0.11%	2.20%	0.00%	8.50%	0.01%
Lennar Corp	LEN	70.57	259	18,251	0.06%	2.13%	0.00%	9.00%	0.01%
Eli Lilly & Co	LLY	324.23	950	308,070	1.01%	1.21%	0.01%	6.50%	0.07%
Bath & Body Works Inc	BBWI	26.92	229	6,158	0.02%	2.97%	0.00%	9.00%	0.00%
Charter Communications Inc	CHTR	468.53	161	75,305	0.25%	n/a	n/a	11.50%	0.03%
Lincoln National Corp	LNC	46.77	172	8,042	0.03%	3.85%	0.00%	26.50%	0.01%
Loews Corp	L	59.26	246	14,584	0.05%	0.42%	0.00%	21.50%	0.01%
Lowe's Cos Inc	LOW	174.67	639	111,637	0.37%	2.40%	0.01%	11.50%	0.04%
IDEX Corp	IEX	181.63	76	13,805	0.05%	1.32%	0.00%	16.00%	0.01%
Marsh & McLennan Cos Inc	MMC	155.25	503	78,045	0.26%	1.38%	0.00%	12.50%	0.03%
Masco Corp	MAS	50.60	236	11,939	0.04%	2.21%	0.00%	10.00%	0.00%
S&P Global Inc	SPGI	337.06	340	114,567	0.38%	1.01%	0.00%	11.50%	0.04%
Medtronic PLC	MDT	89.75	1,329	119,252	0.39%	3.03%	0.01%	8.50%	0.03%
Viatris Inc	VTRS	10.47	1,212	12,693	0.04%	4.58%	0.00%	9.50%	0.00%
CVS Health Corp	CVS	92.66	1,311	121,506	0.40%	2.37%	0.01%	8.50%	0.03%
DuPont de Nemours Inc	DD	55.58	509	Excl.	0.00%	2.37%	0.00%	n/a	n/a
Micron Technology Inc	MU	55.28	1,117	61,729	0.20%	0.83%	0.00%	6.00%	0.01%
Motorola Solutions Inc	MSI	209.60	167	35,065	0.12%	1.51%	0.00%	10.00%	0.01%
Cboe Global Markets Inc	CBOE	113.19	106	12,020	0.04%	1.70%	0.00%	24.00%	0.01%
Laboratory Corp of America Holdings	LH	234.36	93	21,837	0.07%	1.23%	0.00%	8.00%	0.01%
Newmont Corp	NEM	59.67	794	47,357	0.16%	3.69%	0.01%	10.00%	0.02%
NIKE Inc	NKE	102.20	1,269	129,667	0.43%	1.19%	0.01%	6.00%	0.03%
NiSource Inc	NI	29.49	406	11,967	0.04%	3.19%	0.00%	9.50%	0.00%
Norfolk Southern Corp	NSC	227.29	238	54,171	0.18%	2.18%	0.00%	24.00%	0.04%
Principal Financial Group Inc	PFGE	66.79	253	16,877	0.06%	3.83%	0.00%	9.50%	0.01%
Eversource Energy	ES	84.47	345	29,132	0.10%	3.02%	0.00%	10.00%	0.01%
Northrop Grumman Corp	NOC	478.57	155	74,391	0.24%	1.45%	0.00%	6.00%	0.01%
Wells Fargo & Co	WFC	39.17	3,790	148,468	0.49%	2.55%	0.01%	6.00%	0.03%
Nucor Corp	NUE	104.41	266	27,773	0.09%	1.92%	0.00%	7.50%	0.01%
PVH Corp	PVH	56.90	67	3,810	0.01%	0.26%	0.00%	7.50%	0.00%
Occidental Petroleum Corp	OXY	58.88	937	55,182	0.18%	0.88%	0.00%	10.00%	0.02%
Omnicom Group Inc	OMC	63.61	206	13,087	0.04%	4.40%	0.00%	13.50%	0.01%
ONEOK Inc	OKE	55.50	447	Excl.	0.00%	6.74%	0.00%	n/a	n/a
Raymond James Financial Inc	RJF	89.41	217	19,371	0.06%	1.52%	0.00%	6.00%	0.00%
Parker-Hannifin Corp	PH	246.05	128	31,586	0.10%	2.16%	0.00%	11.00%	0.01%
Rollins Inc	ROL	34.92	492	17,197	0.06%	1.15%	0.00%	10.50%	0.01%
PPL Corp	PPL	27.13	736	19,965	0.07%	3.32%	0.00%	12.50%	0.01%
ConocoPhillips	COP	89.81	1,293	116,165	0.38%	2.05%	0.01%	10.50%	0.04%
PulteGroup Inc	PHM	39.63	238	Excl.	0.00%	1.51%	0.00%	n/a	n/a
Pinnacle West Capital Corp	PNW	73.12	113	8,263	0.03%	4.65%	0.00%	20.00%	0.01%
PNC Financial Services Group Inc/The	PNC	157.77	414	65,251	0.21%	3.80%	0.01%	11.00%	0.02%
PPG Industries Inc	PPG	114.34	236	27,001	0.09%	2.06%	0.00%	1.50%	0.00%
Progressive Corp/The	PGR	116.27	585	68,006	0.22%	0.34%	0.00%	11.50%	0.03%
Public Service Enterprise Group Inc	PEG	63.28	499	31,593	0.10%	3.41%	0.00%	4.00%	0.00%
Robert Half International Inc	RHI	74.89	111	8,276	0.03%	2.30%	0.00%	4.50%	0.00%
Edison International	EIX	63.24	381	24,107	0.08%	4.43%	0.00%	4.00%	0.00%
Schlumberger NV	SLB	35.76	1,413	50,545	0.17%	1.96%	0.00%	7.50%	0.01%
Charles Schwab Corp/The	SCHW	63.18	1,817	Excl.	0.00%	1.27%	0.00%	n/a	n/a
Sherwin-Williams Co/The	SHW	223.91	260	58,246	0.19%	1.07%	0.00%	23.00%	0.04%
West Pharmaceutical Services Inc	WST	302.37	74	22,398	0.07%	0.24%	0.00%	9.00%	0.01%
J M Smucker Co/The	SJM	128.01	107	13,640	0.04%	3.09%	0.00%	11.50%	0.01%
Snap-on Inc	SNA	197.03	53	10,516	0.03%	2.88%	0.00%	17.00%	0.01%
AMETEK Inc	AME	109.89	231	25,375	0.08%	0.80%	0.00%	4.00%	0.00%
Southern Co/The	SO	71.31	1,063	75,769	0.25%	3.81%	0.01%	4.50%	0.01%
Truist Financial Corp	TFC	47.43	1,331	63,149	0.21%	4.05%	0.01%	10.00%	0.02%
Southwest Airlines Co	LUV	36.12	593	21,418	0.07%	n/a	n/a	6.50%	0.00%
W R Berkley Corp	WRB	68.26	265	18,102	0.06%	0.59%	0.00%	7.00%	0.00%
Stanley Black & Decker Inc	SWK	104.86	151	15,830	0.05%	3.01%	0.00%	29.50%	0.02%
Public Storage	PSA	312.67	176	54,883	0.18%	2.56%	0.00%	15.50%	0.03%
Arista Networks Inc	ANET	93.74	308	28,897	0.09%	n/a	n/a	6.00%	0.01%
Sysco Corp	SY	84.71	509	43,158	0.14%	2.31%	0.00%	8.00%	0.01%
Corteva Inc	CTVA	54.14	725	39,269	0.13%	1.03%	0.00%	4.50%	0.01%
Texas Instruments Inc	TXN	153.65	922	141,686	0.47%	2.99%	0.01%	17.50%	0.08%
Textron Inc	TXT	61.07	215	13,135	0.04%	0.13%	0.00%	16.50%	0.01%

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Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Thermo Fisher Scientific Inc	TMO	543.28	391	212,673	0.70%	0.22%	0.00%	9.00%	0.06%
TJX Cos Inc/The	TJX	55.85	1,172	65,436	0.21%	2.11%	0.00%	8.50%	0.02%
Globe Life Inc	GL	97.47	99	9,611	0.03%	0.85%	0.00%	15.50%	0.00%
Johnson Controls International plc	JCI	47.88	696	33,309	0.11%	2.92%	0.00%	20.00%	0.02%
Ulta Beauty Inc	ULTA	385.48	52	19,975	0.07%	n/a	n/a	8.00%	0.01%
Union Pacific Corp	UNP	213.28	628	133,945	0.44%	2.44%	0.01%	14.00%	0.06%
Keysight Technologies Inc	KEYS	137.85	180	24,806	0.08%	n/a	n/a	15.00%	0.01%
UnitedHealth Group Inc	UNH	513.63	938	481,873	1.58%	1.28%	0.02%	9.50%	0.15%
Marathon Oil Corp	MRO	22.48	708	15,909	0.05%	1.42%	0.00%	13.00%	0.01%
Bio-Rad Laboratories Inc	BIO	495.00	25	12,314	0.04%	n/a	n/a	12.00%	0.00%
Ventas Inc	VTR	51.43	400	Excl.	0.00%	3.50%	0.00%		n/a
VF Corp	VFC	44.17	388	17,159	0.06%	4.53%	0.00%	11.50%	0.01%
Vornado Realty Trust	VNO	28.59	192	5,482	0.02%	7.42%	0.00%	10.50%	0.00%
Vulcan Materials Co	VMC	142.10	133	18,885	0.06%	1.13%	0.00%	9.50%	0.01%
Weyerhaeuser Co	WY	33.12	744	24,658	0.08%	2.17%	0.00%	-20.50%	-0.02%
Whirlpool Corp	WHR	154.87	56	8,704	0.03%	4.52%	0.00%	8.50%	0.00%
Williams Cos Inc/The	WMB	31.21	1,218	38,014	0.12%	5.45%	0.01%	6.00%	0.01%
Constellation Energy Corp	CEG	57.26	327	18,705	0.06%	0.98%	0.00%	9.50%	0.01%
WEC Energy Group Inc	WEC	100.64	315	31,745	0.10%	2.89%	0.00%	8.50%	0.01%
Adobe Inc	ADBE	366.06	468	Excl.	0.00%	n/a	n/a		n/a
AES Corp/The	AES	21.01	668	14,032	0.05%	3.01%	0.00%	6.00%	0.00%
Amgen Inc	AMGN	243.30	534	129,971	0.43%	3.19%	0.01%	14.50%	0.06%
Apple Inc	AAPL	136.72	16,185	2,212,838	7.27%	0.67%	0.05%	14.00%	1.02%
Autodesk Inc	ADSK	171.96	217	37,362	0.12%	n/a	n/a	5.50%	0.01%
Cintas Corp	CTAS	373.53	102	38,221	0.13%	1.02%	0.00%	14.00%	0.02%
Comcast Corp	CMCSA	39.24	4,471	175,425	0.58%	2.75%	0.02%	14.00%	0.08%
Molson Coors Beverage Co	TAP	54.51	201	10,931	0.04%	2.79%	0.00%	13.50%	0.00%
KLA Corp	KLAC	319.08	149	47,618	0.16%	1.32%	0.00%	9.50%	0.01%
Marriott International Inc/MD	MAR	136.01	327	44,516	0.15%	0.88%	0.00%	49.50%	0.07%
McCormick & Co Inc/MD	MKC	83.25	250	20,852	0.07%	1.78%	0.00%	21.00%	0.01%
PACCAR Inc	PCAR	82.34	348	28,628	0.09%	1.65%	0.00%	17.50%	0.02%
Costco Wholesale Corp	COST	479.28	443	212,303	0.70%	0.75%	0.01%	6.00%	0.04%
First Republic Bank/CA	FRC	144.20	180	25,910	0.09%	0.75%	0.00%	5.00%	0.00%
Stryker Corp	SYK	198.93	378	75,226	0.25%	1.40%	0.00%	10.50%	0.03%
Tyson Foods Inc	TSN	86.06	292	25,090	0.08%	2.14%	0.00%	11.00%	0.01%
Lamb Weston Holdings Inc	LW	71.46	144	10,322	0.03%	1.37%	0.00%	8.50%	0.00%
Applied Materials Inc	AMAT	90.98	870	79,148	0.26%	1.14%	0.00%	6.00%	0.02%
American Airlines Group Inc	AAL	12.68	650	8,236	0.03%	n/a	n/a	5.00%	0.00%
Cardinal Health Inc	CAH	52.27	272	14,240	0.05%	3.79%	0.00%	14.50%	0.01%
Cincinnati Financial Corp	CINF	118.98	160	Excl.	0.00%	2.32%	0.00%		n/a
Paramount Global	PARA	24.68	608	15,015	0.05%	3.89%	0.00%	5.00%	0.00%
DR Horton Inc	DHI	66.19	352	Excl.	0.00%	1.36%	0.00%		n/a
Electronic Arts Inc	EA	121.65	279	33,978	0.11%	0.62%	0.00%	7.00%	0.01%
Expeditors International of Washington Inc	EXPD	97.46	168	16,349	0.05%	1.37%	0.00%	4.50%	0.00%
Fastenal Co	FAST	49.92	576	28,732	0.09%	2.48%	0.00%	13.00%	0.01%
M&T Bank Corp	MTB	159.39	179	28,597	0.09%	3.01%	0.00%	9.00%	0.01%
Xcel Energy Inc	XEL	70.76	545	38,540	0.13%	2.76%	0.00%	10.00%	0.01%
Fiserv Inc	FISV	88.97	646	57,510	0.19%	n/a	n/a	8.50%	0.02%
Fifth Third Bancorp	FITB	33.60	686	23,053	0.08%	3.57%	0.00%	8.00%	0.01%
Gilead Sciences Inc	GILD	61.81	1,254	77,529	0.25%	4.72%	0.01%	6.00%	0.02%
Hasbro Inc	HAS	81.88	139	11,418	0.04%	3.42%	0.00%	11.00%	0.00%
Huntington Bancshares Inc/OH	HBAN	12.03	1,439	17,313	0.06%	5.15%	0.00%	11.00%	0.01%
Welltower Inc	WELL	82.35	454	37,384	0.12%	2.96%	0.00%	13.50%	0.02%
Biogen Inc	BIIB	203.94	146	29,867	0.10%	n/a	n/a	11.50%	0.01%
Northern Trust Corp	NTRS	96.48	208	20,105	0.07%	2.90%	0.00%	12.50%	0.01%
Packaging Corp of America	PKG	137.50	94	12,884	0.04%	3.64%	0.00%	3.50%	0.00%
Paychex Inc	PAYX	113.87	360	40,982	0.13%	2.78%	0.00%	-10.50%	-0.01%
QUALCOMM Inc	QCOM	127.74	1,120	143,069	0.47%	2.35%	0.01%	8.00%	0.04%
Roper Technologies Inc	ROP	394.65	106	41,799	0.14%	0.63%	0.00%	11.00%	0.02%
Ross Stores Inc	ROST	70.23	350	24,575	0.08%	1.77%	0.00%	9.50%	0.01%
IDEXX Laboratories Inc	IDXX	350.73	84	29,464	0.10%	n/a	n/a	19.00%	0.02%
Starbucks Corp	SBUX	76.39	1,147	87,612	0.29%	2.57%	0.01%	8.50%	0.02%
KeyCorp	KEY	17.23	932	16,066	0.05%	4.53%	0.00%	14.00%	0.01%
Fox Corp	FOXA	32.16	312	10,024	0.03%	1.49%	0.00%	12.00%	0.00%
Fox Corp	FOX	29.70	245	7,278	0.02%	1.62%	0.00%	16.50%	0.00%
State Street Corp	STT	61.65	367	22,633	0.07%	3.70%	0.00%	9.50%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	11.12	419	4,660	0.02%	n/a	n/a	10.50%	0.00%
US Bancorp	USB	46.02	1,486	Excl.	0.00%	4.00%	0.00%		n/a
A O Smith Corp	AOS	54.68	130	7,110	0.02%	2.05%	0.00%	9.50%	0.00%
NortonLifeLock Inc	NLOK	21.96	571	Excl.	0.00%	2.28%	0.00%		n/a
T Rowe Price Group Inc	TROW	113.61	227	25,823	0.08%	4.22%	0.00%	6.00%	0.01%
Waste Management Inc	WM	152.98	415	63,511	0.21%	1.70%	0.00%	11.00%	0.02%
Constellation Brands Inc	STZ	233.06	159	37,133	0.12%	1.37%	0.00%	9.50%	0.01%
DENTSPLY SIRONA Inc	XRAY	35.73	215	7,698	0.03%	1.40%	0.00%	9.50%	0.00%
Zions Bancorp NA	ZION	50.90	151	7,704	0.03%	2.99%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	40.05	126	5,050	0.02%	n/a	n/a	5.00%	0.00%



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Invesco Ltd	IVZ	16.13	455	7,340	0.02%	4.65%	0.00%	12.00%	0.00%
Linde PLC	LIN	287.53	502	144,319	0.47%	1.63%	0.01%	7.50%	0.04%
Intuit Inc	INTU	385.44	282	Excl.	0.00%	0.71%	0.00%		n/a
Morgan Stanley	MS	76.06	1,749	133,051	0.44%	3.68%	0.02%	15.50%	0.07%
Microchip Technology Inc	MCHP	58.08	555	32,205	0.11%	1.90%	0.00%	12.00%	0.01%
Chubb Ltd	CB	196.58	424	83,293	0.27%	1.69%	0.00%	17.50%	0.05%
Hologic Inc	HOLX	69.30	249	17,282	0.06%	n/a	n/a	10.50%	0.01%
Citizens Financial Group Inc	CFG	35.69	495	17,682	0.06%	4.37%	0.00%	10.00%	0.01%
O'Reilly Automotive Inc	ORLY	631.76	66	41,522	0.14%	n/a	n/a	11.00%	0.02%
Allstate Corp/The	ALL	126.73	275	34,849	0.11%	2.68%	0.00%	25.00%	0.03%
Equity Residential	EQR	72.22	376	27,158	0.09%	3.46%	0.00%	8.50%	0.01%
BorgWarner Inc	BWA	33.37	240	7,995	0.03%	2.04%	0.00%	13.00%	0.00%
Keurig Dr Pepper Inc	KDP	35.39	1,419	50,202	0.16%	2.12%	0.00%	4.50%	0.01%
Organon & Co	OGN	33.75	254	8,560	0.03%	3.32%	0.00%	-6.00%	0.00%
Host Hotels & Resorts Inc	HST	15.68	715	11,208	0.04%	1.53%	0.00%	9.50%	0.00%
Incyte Corp	INCY	75.97	222	Excl.	0.00%	n/a	n/a		n/a
Simon Property Group Inc	SPG	94.92	329	31,194	0.10%	7.16%	0.01%	59.50%	0.06%
Eastman Chemical Co	EMN	89.77	129	11,576	0.04%	3.39%	0.00%	25.50%	0.01%
Twitter Inc	TWTR	37.39	764	28,573	0.09%	n/a	n/a	3.00%	0.00%
AvalonBay Communities Inc	AVB	194.25	140	27,160	0.09%	3.27%	0.00%	9.50%	0.01%
Prudential Financial Inc	PRU	95.68	375	Excl.	0.00%	5.02%	0.00%		n/a
United Parcel Service Inc	UPS	182.54	734	134,064	0.44%	3.33%	0.01%	6.50%	0.03%
Walgreens Boots Alliance Inc	WBA	37.90	864	32,755	0.11%	5.04%	0.01%	5.50%	0.01%
STERIS PLC	STE	206.15	100	20,631	0.07%	0.83%	0.00%	11.50%	0.01%
McKesson Corp	MCK	326.21	144	46,838	0.15%	0.58%	0.00%	7.50%	0.01%
Lockheed Martin Corp	LMT	429.96	266	114,415	0.38%	2.60%	0.01%	11.50%	0.04%
AmerisourceBergen Corp	ABC	141.48	209	29,635	0.10%	1.30%	0.00%	10.00%	0.01%
Capital One Financial Corp	COF	104.19	393	40,952	0.13%	2.30%	0.00%	7.00%	0.01%
Waters Corp	WAT	330.98	60	19,937	0.07%	n/a	n/a	8.50%	0.01%
Nordson Corp	NDSN	202.44	58	Excl.	0.00%	1.01%	0.00%		n/a
Dollar Tree Inc	DLTR	155.85	225	34,997	0.11%	n/a	n/a	6.00%	0.01%
Darden Restaurants Inc	DRI	113.12	125	14,110	0.05%	4.28%	0.00%	12.00%	0.01%
Match Group Inc	MTCH	69.69	286	19,903	0.07%	n/a	n/a	12.00%	0.01%
Domino's Pizza Inc	DPZ	389.71	36	14,047	0.05%	1.13%	0.00%	19.50%	0.01%
NVR Inc	NVR	4,004.14	3	13,174	0.04%	n/a	n/a	21.00%	0.01%
NetApp Inc	NTAP	65.24	221	14,430	0.05%	3.07%	0.00%	15.50%	0.01%
Citrix Systems Inc	CTXS	97.17	127	12,300	0.04%	n/a	n/a	5.50%	0.00%
DXC Technology Co	DXC	30.31	230	6,961	0.02%	n/a	n/a	8.00%	0.00%
Old Dominion Freight Line Inc	ODFL	256.28	113	29,050	0.10%	0.47%	0.00%	7.50%	0.01%
DaVita Inc	DVA	79.96	95	7,564	0.02%	n/a	n/a	5.00%	0.00%
Hartford Financial Services Group Inc/The	HIG	65.43	329	21,518	0.07%	2.35%	0.00%	12.00%	0.01%
Iron Mountain Inc	IRM	48.69	291	14,147	0.05%	5.08%	0.00%	12.00%	0.01%
Estee Lauder Cos Inc/The	EL	254.67	232	59,034	0.19%	0.94%	0.00%	6.50%	0.01%
Cadence Design Systems Inc	CDNS	150.03	276	41,372	0.14%	n/a	n/a	11.00%	0.01%
Tyler Technologies Inc	TYL	332.48	41	13,789	0.05%	n/a	n/a	14.00%	0.01%
Universal Health Services Inc	UHS	100.71	67	6,760	0.02%	0.79%	0.00%	12.00%	0.00%
Skyworks Solutions Inc	SWKS	92.64	161	14,908	0.05%	2.42%	0.00%	14.00%	0.01%
Quest Diagnostics Inc	DGX	132.98	117	15,607	0.05%	1.99%	0.00%	9.00%	0.00%
Activision Blizzard Inc	ATVI	77.86	782	60,877	0.20%	0.60%	0.00%	15.50%	0.03%
Rockwell Automation Inc	ROK	199.31	116	23,172	0.08%	2.25%	0.00%	7.00%	0.01%
Kraft Heinz Co/The	KHC	38.14	1,224	46,682	0.15%	4.20%	0.01%	14.00%	0.02%
American Tower Corp	AMT	255.59	466	118,985	0.39%	2.24%	0.01%	9.50%	0.04%
Regeneron Pharmaceuticals Inc	REGN	591.13	108	63,859	0.21%	n/a	n/a	5.50%	0.01%
Amazon.com Inc	AMZN	106.21	10,174	1,080,624	3.55%	n/a	n/a	9.00%	0.32%
Jack Henry & Associates Inc	JKHY	180.02	73	13,117	0.04%	1.09%	0.00%	3.00%	0.00%
Ralph Lauren Corp	RL	89.65	45	4,019	0.01%	3.35%	0.00%	26.50%	0.00%
Boston Properties Inc	BXP	88.98	157	13,944	0.05%	4.41%	0.00%	10.50%	0.00%
Amphenol Corp	APH	64.38	597	38,444	0.13%	1.24%	0.00%	11.50%	0.01%
Howmet Aerospace Inc	HWM	31.45	418	13,143	0.04%	0.25%	0.00%	-1.00%	0.00%
Pioneer Natural Resources Co	PXD	223.08	242	53,976	0.18%	13.23%	0.02%	12.50%	0.02%
Valero Energy Corp	VLO	106.28	408	43,372	0.14%	3.69%	0.01%	12.00%	0.02%
Synopsys Inc	SNPS	303.70	153	46,457	0.15%	n/a	n/a	23.00%	0.04%
Etsy Inc	ETSY	73.21	127	9,306	0.03%	n/a	n/a	11.00%	0.00%
CH Robinson Worldwide Inc	CHRW	101.37	127	12,901	0.04%	2.17%	0.00%	12.50%	0.01%
Accenture PLC	ACN	277.65	664	184,412	0.61%	1.40%	0.01%	24.50%	0.15%
TransDigm Group Inc	TDG	536.67	55	29,305	0.10%	n/a	n/a	8.00%	0.01%
Yum! Brands Inc	YUM	113.51	285	32,369	0.11%	2.01%	0.00%	12.50%	0.01%
Prologis Inc	PLD	117.65	740	87,031	0.29%	2.69%	0.01%	18.00%	0.05%
FirstEnergy Corp	FE	38.39	571	21,918	0.07%	4.06%	0.00%	10.50%	0.01%
VeriSign Inc	VERI	167.33	110	18,330	0.06%	n/a	n/a	6.00%	0.00%
Quanta Services Inc	PWR	125.34	144	18,012	0.06%	0.22%	0.00%	7.50%	0.00%
Henry Schein Inc	HSIC	76.74	138	10,594	0.03%	n/a	n/a	8.50%	0.00%
Ameren Corp	AEE	90.36	258	23,321	0.08%	2.61%	0.00%	12.50%	0.01%
ANSYS Inc	ANSS	239.29	87	20,816	0.07%	n/a	n/a	7.00%	0.00%
FactSet Research Systems Inc	FDS	384.57	38	14,574	0.05%	0.93%	0.00%	6.50%	0.00%
NVIDIA Corp	NVDA	151.59	2,500	378,975	1.24%	0.11%	0.00%	9.00%	0.11%

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Sealed Air Corp	SEE	57.72	146	8,432	0.03%	1.39%	0.00%	10.50%	0.00%
Cognizant Technology Solutions Corp	CTSH	67.49	521	35,174	0.12%	1.60%	0.00%	23.00%	0.03%
SVB Financial Group	SIVB	394.99	59	23,246	0.08%	n/a	n/a	10.00%	0.01%
Intuitive Surgical Inc	ISRG	200.71	359	72,046	0.24%	n/a	n/a	7.00%	0.02%
Take-Two Interactive Software Inc	TTWO	122.53	162	19,848	0.07%	n/a	n/a	6.00%	0.00%
Republic Services Inc	RSG	130.87	316	41,341	0.14%	1.41%	0.00%	12.50%	0.02%
eBay Inc	EBAY	41.67	560	23,329	0.08%	2.11%	0.00%	12.50%	0.01%
Goldman Sachs Group Inc/The	GS	297.02	343	102,011	0.34%	2.69%	0.01%	12.50%	0.04%
SBA Communications Corp	SBAC	320.05	108	34,511	0.11%	0.89%	0.00%	15.50%	0.02%
Sempra Energy	SRE	150.27	314	47,231	0.16%	3.05%	0.00%	5.00%	0.01%
Moody's Corp	MCO	271.97	185	50,178	0.16%	1.03%	0.00%	35.50%	0.06%
ON Semiconductor Corp	ON	50.31	435	21,860	0.07%	n/a	n/a	11.50%	0.01%
Booking Holdings Inc	BKNG	1,748.99	41	71,049	0.23%	n/a	n/a	8.00%	0.02%
F5 Inc	FFIV	153.04	60	9,255	0.03%	n/a	n/a	14.00%	0.00%
Akamai Technologies Inc	AKAM	91.33	160	14,641	0.05%	n/a	n/a	10.00%	0.00%
Charles River Laboratories International Inc	CRL	213.97	51	10,871	0.04%	n/a	n/a	9.50%	0.00%
MarketAxess Holdings Inc	MKTX	256.01	38	9,662	0.03%	1.09%	0.00%	12.00%	0.00%
Devon Energy Corp	DVN	55.11	660	36,373	0.12%	9.22%	0.01%	11.50%	0.01%
Bio-Techne Corp	TECH	346.64	39	13,600	0.04%	0.37%	0.00%	30.00%	0.01%
Alphabet Inc	GOOGL	2,179.26	301	Excl.	0.00%	n/a	n/a	n/a	n/a
Teleflex Inc	TFX	245.85	47	11,530	0.04%	0.55%	0.00%	17.50%	0.01%
Allegion plc	ALLE	97.90	88	8,596	0.03%	1.68%	0.00%	13.50%	0.00%
Netflix Inc	NFLX	174.87	444	77,690	0.26%	n/a	n/a	12.50%	0.03%
Warner Bros Discovery Inc	WBD	13.42	2,427	32,568	0.11%	n/a	n/a	10.50%	0.01%
Agilent Technologies Inc	A	118.77	299	35,478	0.12%	0.71%	0.00%	11.50%	0.01%
Trimble Inc	TRMB	58.23	250	Excl.	0.00%	n/a	n/a	n/a	n/a
Elevance Health Inc	ELV	482.58	241	116,343	0.38%	1.06%	0.00%	12.50%	0.05%
CME Group Inc	CME	204.70	359	73,573	0.24%	1.95%	0.00%	10.00%	0.02%
Juniper Networks Inc	JNPR	28.50	323	9,208	0.03%	2.95%	0.00%	7.50%	0.00%
BlackRock Inc	BLK	609.04	152	92,271	0.30%	3.21%	0.01%	9.00%	0.03%
DTE Energy Co	DTE	126.75	194	24,557	0.08%	2.79%	0.00%	10.00%	0.01%
Celanese Corp	CE	117.61	108	12,738	0.04%	2.31%	0.00%	4.50%	0.00%
Nasdaq Inc	NDAQ	152.54	165	25,120	0.08%	1.57%	0.00%	6.00%	0.00%
Philip Morris International Inc	PM	98.74	1,550	153,058	0.50%	5.06%	0.03%	9.50%	0.05%
Ingersoll Rand Inc	IR	42.08	406	17,082	0.06%	0.19%	0.00%	7.00%	0.00%
Salesforce Inc	CRM	165.04	995	164,215	0.54%	n/a	n/a	16.50%	0.09%
Huntington Ingalls Industries Inc	HII	217.82	40	Excl.	0.00%	2.17%	0.00%	n/a	n/a
MetLife Inc	MET	62.79	813	51,061	0.17%	3.19%	0.01%	10.00%	0.02%
Tapestry Inc	TPR	30.52	252	7,685	0.03%	3.28%	0.00%	7.50%	0.00%
CSX Corp	CSX	29.06	2,174	Excl.	0.00%	1.38%	0.00%	n/a	n/a
Edwards Lifesciences Corp	EW	95.09	622	59,122	0.19%	n/a	n/a	10.00%	0.02%
Ameriprise Financial Inc	AMP	237.68	110	26,122	0.09%	2.10%	0.00%	10.00%	0.01%
Zebra Technologies Corp	ZBRA	293.95	53	15,436	0.05%	n/a	n/a	12.50%	0.01%
Zimmer Biomet Holdings Inc	ZBH	105.06	210	22,018	0.07%	0.91%	0.00%	15.00%	0.01%
Camden Property Trust	CPT	134.48	107	14,325	0.05%	2.80%	0.00%	11.50%	0.01%
CBRE Group Inc	CBRE	73.61	327	24,060	0.08%	n/a	n/a	7.00%	0.01%
Mastercard Inc	MA	315.48	965	304,413	1.00%	0.62%	0.01%	8.50%	0.08%
CarMax Inc	KMX	90.48	159	14,401	0.05%	n/a	n/a	2.50%	0.00%
Intercontinental Exchange Inc	ICE	94.04	558	52,499	0.17%	1.62%	0.00%	13.50%	0.02%
Fidelity National Information Services Inc	FIS	91.67	611	55,989	0.18%	2.05%	0.00%	13.00%	0.02%
Chipotle Mexican Grill Inc	CMG	1,307.26	28	36,554	0.12%	n/a	n/a	6.50%	0.01%
Wynn Resorts Ltd	WYNN	56.98	116	6,608	0.02%	n/a	n/a	52.00%	0.01%
Live Nation Entertainment Inc	LYV	82.58	228	18,834	0.06%	n/a	n/a	16.50%	0.01%
Assurant Inc	AIZ	172.85	54	9,349	0.03%	1.57%	0.00%	27.00%	0.01%
NRG Energy Inc	NRG	38.17	237	Excl.	0.00%	3.67%	0.00%	n/a	n/a
Monster Beverage Corp	MNST	92.70	530	49,101	0.16%	n/a	n/a	14.00%	0.02%
Regions Financial Corp	RF	18.75	935	17,522	0.06%	3.63%	0.00%	-10.50%	-0.01%
Baker Hughes Co	BKR	28.87	985	28,425	0.09%	2.49%	0.00%	10.50%	0.01%
Mosaic Co/The	MOS	47.23	362	17,097	0.06%	1.27%	0.00%	11.50%	0.01%
Expedia Group Inc	EXPE	94.83	152	14,374	0.05%	n/a	n/a	33.00%	0.02%
Evergy Inc	EVERG	65.25	229	Excl.	0.00%	3.51%	0.00%	n/a	n/a
CF Industries Holdings Inc	CF	85.73	209	Excl.	0.00%	1.87%	0.00%	n/a	n/a
APA Corp	APA	34.90	338	11,804	0.04%	1.43%	0.00%	7.50%	0.00%
Leidos Holdings Inc	LDOS	100.71	137	13,763	0.05%	1.43%	0.00%	26.50%	0.01%
Alphabet Inc	GOOG	2,187.45	313	685,494	2.25%	n/a	n/a	9.00%	0.20%
Cooper Cos Inc/The	COO	313.12	49	Excl.	0.00%	0.02%	0.00%	n/a	n/a
TE Connectivity Ltd	TEL	113.15	322	36,454	0.12%	1.98%	0.00%	18.50%	0.02%
Discover Financial Services	DFS	94.58	281	26,574	0.09%	2.54%	0.00%	10.50%	0.01%
Visa Inc	V	196.89	1,646	324,026	1.06%	0.76%	0.01%	16.00%	0.17%
Mid-America Apartment Communities Inc	MAA	174.67	115	20,162	0.07%	2.86%	0.00%	16.00%	0.01%
Xylem Inc/NY	XYL	78.18	180	14,080	0.05%	1.53%	0.00%	13.50%	0.01%
Marathon Petroleum Corp	MPC	82.21	541	44,475	0.15%	2.82%	0.00%	4.50%	0.01%
Advanced Micro Devices Inc	AMD	76.47	1,621	123,920	0.41%	n/a	n/a	6.50%	0.03%
Tractor Supply Co	TSCO	193.85	112	Excl.	0.00%	1.90%	0.00%	n/a	n/a
ResMed Inc	RMD	209.63	146	30,666	0.10%	0.80%	0.00%	12.50%	0.01%
Mettler-Toledo International Inc	MTD	1,148.77	23	26,054	0.09%	n/a	n/a	25.50%	0.02%

## STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Copart Inc	CPRT	108.66	238	25,826	0.08%	n/a	n/a	8.50%	0.01%
VICI Properties Inc	VICI	29.79	963	28,688	0.09%	4.83%	0.00%	13.50%	0.01%
Fortinet Inc	FTNT	56.58	803	45,413	0.15%	n/a	n/a	12.00%	0.02%
Albemarle Corp	ALB	208.98	117	24,474	0.08%	0.76%	0.00%	15.00%	0.01%
Moderna Inc	MRNA	142.85	398	56,820	0.19%	n/a	n/a	21.50%	0.04%
Essex Property Trust Inc	ESS	261.51	65	17,085	0.06%	3.37%	0.00%	-2.50%	0.00%
Realty Income Corp	O	68.26	602	41,065	0.13%	4.35%	0.01%	-4.00%	-0.01%
Westrock Co	WRK	39.84	255	10,153	0.03%	2.51%	0.00%	6.00%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	82.08	183	14,992	0.05%	0.73%	0.00%	20.00%	0.01%
Pool Corp	POOL	351.23	40	14,075	0.05%	1.14%	0.00%	0.00%	0.00%
Western Digital Corp	WDC	44.83	313	14,039	0.05%	n/a	n/a	19.00%	0.01%
PepsiCo Inc	PEP	166.66	1,383	230,438	0.76%	2.76%	0.02%	20.00%	0.15%
Diamondback Energy Inc	FANG	121.15	178	21,510	0.07%	10.07%	0.01%	6.00%	0.00%
ServiceNow Inc	NOW	475.52	200	Excl.	0.00%	n/a	n/a		n/a
Church & Dwight Co Inc	CHD	92.66	243	22,495	0.07%	1.13%	0.00%	45.50%	0.03%
Duke Realty Corp	DRE	54.95	385	21,146	0.07%	2.04%	0.00%	6.00%	0.00%
Federal Realty OP LP	FRT	95.74	79	7,604	0.02%	4.47%	0.00%	-2.50%	0.00%
MGM Resorts International	MGM	28.95	426	12,334	0.04%	0.03%	0.00%	2.50%	0.00%
American Electric Power Co Inc	AEP	95.94	514	49,269	0.16%	3.25%	0.01%	25.00%	0.04%
SolarEdge Technologies Inc	SEDG	273.68	55	15,158	0.05%	n/a	n/a	6.50%	0.00%
PTC Inc	PTC	106.34	117	12,439	0.04%	n/a	n/a	22.00%	0.01%
JB Hunt Transport Services Inc	JBHT	157.47	105	16,500	0.05%	1.02%	0.00%	29.00%	0.02%
Lam Research Corp	LRCX	426.15	139	59,113	0.19%	1.41%	0.00%	11.50%	0.02%
Mohawk Industries Inc	MHK	124.09	64	7,885	0.03%	n/a	n/a	21.50%	0.01%
Pentair PLC	PNR	45.77	165	7,570	0.02%	1.84%	0.00%	10.50%	0.00%
Vertex Pharmaceuticals Inc	VRTX	281.79	256	72,069	0.24%	n/a	n/a	13.00%	0.03%
Amcor PLC	AMCR	12.43	1,503	18,679	0.06%	3.86%	0.00%	18.50%	0.01%
Meta Platforms Inc	META	161.25	2,294	369,830	1.21%	n/a	n/a	15.00%	0.18%
T-Mobile US Inc	TMUS	134.54	1,254	Excl.	0.00%	n/a	n/a		n/a
United Rentals Inc	URI	242.91	72	17,395	0.06%	n/a	n/a	9.50%	0.01%
Alexandria Real Estate Equities Inc	ARE	145.03	163	23,672	0.08%	3.25%	0.00%	18.00%	0.01%
Honeywell International Inc	HON	173.81	681	118,318	0.39%	2.26%	0.01%	7.50%	0.03%
ABIOMED Inc	ABMD	247.51	46	11,293	0.04%	n/a	n/a	11.00%	0.00%
Delta Air Lines Inc	DAL	28.97	641	18,571	0.06%	n/a	n/a	10.00%	0.01%
United Airlines Holdings Inc	UAL	35.42	327	Excl.	0.00%	n/a	n/a		n/a
Seagate Technology Holdings PLC	STX	71.44	215	15,348	0.05%	3.92%	0.00%	15.00%	0.01%
News Corp	NWS	15.89	197	Excl.	0.00%	1.26%	0.00%		n/a
Centene Corp	CNC	84.61	585	Excl.	0.00%	n/a	n/a		n/a
Martin Marietta Materials Inc	MLM	299.24	62	18,638	0.06%	0.82%	0.00%	10.00%	0.01%
Teradyne Inc	TER	89.55	160	14,346	0.05%	0.49%	0.00%	5.50%	0.00%
PayPal Holdings Inc	PYPL	69.84	1,158	80,878	0.27%	n/a	n/a	8.50%	0.02%
Tesla Inc	TSLA	673.42	1,036	697,926	2.29%	n/a	n/a	16.00%	0.37%
DISH Network Corp	DISH	17.93	292	5,228	0.02%	n/a	n/a	50.50%	0.01%
Penn National Gaming Inc	PENN	30.42	167	5,074	0.02%	n/a	n/a	2.50%	0.00%
Dow Inc	DOW	51.61	728	37,577	0.12%	5.43%	0.01%	15.00%	0.02%
Everest Re Group Ltd	RE	280.28	39	11,054	0.04%	2.35%	0.00%	28.00%	0.01%
Teledyne Technologies Inc	TDY	375.11	47	17,571	0.06%	n/a	n/a	17.50%	0.01%
News Corp	NWSA	15.58	388	6,052	0.02%	1.28%	0.00%	11.50%	0.00%
Exelon Corp	EXC	45.32	980	Excl.	0.00%	2.98%	0.00%		n/a
Global Payments Inc	GPV	110.64	282	Excl.	0.00%	0.90%	0.00%		n/a
Crown Castle International Corp	CCI	168.38	433	72,914	0.24%	3.49%	0.01%	17.00%	0.04%
Aptiv PLC	APTIV	89.07	271	24,132	0.08%	n/a	n/a	12.00%	0.01%
Advance Auto Parts Inc	AAP	173.09	61	10,496	0.03%	3.47%	0.00%	27.50%	0.01%
Align Technology Inc	ALGN	236.67	79	18,651	0.06%	n/a	n/a	16.00%	0.01%
Illumina Inc	ILMN	184.36	157	28,963	0.10%	n/a	n/a	17.00%	0.02%
LKQ Corp	LKQ	49.09	283	13,884	0.05%	2.04%	0.00%	6.50%	0.00%
Nielsen Holdings PLC	NLSN	23.22	360	8,352	0.03%	1.03%	0.00%	13.00%	0.00%
Zoetis Inc	ZTS	171.89	471	Excl.	0.00%	0.76%	0.00%		n/a
Digital Realty Trust Inc	DLR	129.83	285	36,959	0.12%	3.76%	0.00%	11.00%	0.01%
Equinix Inc	EQIX	657.02	91	59,803	0.20%	1.89%	0.00%	15.00%	0.03%
Molina Healthcare Inc	MOH	279.61	59	16,413	0.05%	n/a	n/a	-3.50%	0.00%
Las Vegas Sands Corp	LVS	33.59	764	25,666	0.08%	n/a	n/a	13.50%	0.01%
Molina Healthcare Inc	MOH	279.61	59	16,413	0.05%	n/a	n/a	11.00%	0.01%

## Notes:

[4] Source: Bloomberg Professional

[5] Source: Bloomberg Professional

[6] Equals [4] x [5]

[7] Equals [6] / Sum of Column [6]

[8] Source: Bloomberg Professional

[9] Equals [7] x [8]

[10] Source: Value Line, as of June 30, 2022

[11] Equals [7] x [10]

MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY

[1] Estimate of the S&P 500 Dividend Yield	1.70%
[2] Estimate of the S&P 500 Growth Rate	10.59%
[3] S&P 500 Estimated Required Market Return	12.37%

Notes:

- [1] Sum of [9]  
[2] Sum of [11]  
[3] Equals  $([1] \times (1 + 0.5 \times [2])) + [2]$

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	87.46	328	28,654	0.10%	5.44%	0.01%	3.50%	0.00%
Signature Bank/New York NY	SBNY	179.21	63	Excl.	Excl.	1.25%	n/a	24.50%	n/a
American Express Co	AXP	138.62	753	104,389	0.37%	1.50%	0.01%	10.00%	0.04%
Verizon Communications Inc	VZ	50.75	4,200	213,132	0.75%	5.04%	0.04%	3.00%	0.02%
Broadcom Inc	AVGO	485.81	404	Excl.	Excl.	3.38%	n/a	23.00%	n/a
Boeing Co/The	BA	136.72	592	Excl.	Excl.	n/a	n/a	n/a	n/a
Caterpillar Inc	CAT	178.76	533	95,346	0.34%	2.69%	0.01%	8.00%	0.03%
JPMorgan Chase & Co	JPM	112.61	2,937	330,741	1.17%	3.55%	0.04%	5.00%	0.06%
Chevron Corp	CVX	144.78	1,965	Excl.	Excl.	3.92%	n/a	26.00%	n/a
Coca-Cola Co/The	KO	62.91	4,335	272,717	0.96%	2.80%	0.03%	7.00%	0.07%
AbbVie Inc	ABBV	153.16	1,767	270,651	0.95%	3.68%	0.04%	4.50%	0.04%
Walt Disney Co/The	DIS	94.40	1,821	Excl.	Excl.	n/a	n/a	30.50%	n/a
FleetCor Technologies Inc	FLT	210.11	77	16,250	0.06%	n/a	n/a	10.50%	0.01%
Extra Space Storage Inc	EXR	170.12	134	22,844	0.08%	3.53%	0.00%	4.00%	0.00%
Exxon Mobil Corp	XOM	85.64	4,213	Excl.	Excl.	4.11%	n/a	n/a	n/a
Phillips 66	PSX	81.99	481	Excl.	Excl.	4.73%	n/a	85.00%	n/a
General Electric Co	GE	63.67	1,101	70,079	0.25%	0.50%	0.00%	15.00%	0.04%
HP Inc	HPQ	32.78	1,034	33,899	0.12%	3.05%	0.00%	12.50%	0.01%
Home Depot Inc/The	HD	274.27	1,028	281,882	0.99%	2.77%	0.03%	9.00%	0.09%
Monolithic Power Systems Inc	MPWR	384.04	47	17,913	0.06%	0.78%	0.00%	18.00%	0.01%
International Business Machines Corp	IBM	141.19	899	126,991	0.45%	4.67%	0.02%	3.00%	0.01%
Johnson & Johnson	JNJ	177.51	2,631	467,100	1.65%	2.55%	0.04%	8.00%	0.13%
McDonald's Corp	MCD	246.88	740	182,579	0.64%	2.24%	0.01%	10.50%	0.07%
Merck & Co Inc	MRK	91.17	2,529	230,551	0.81%	3.03%	0.02%	8.00%	0.06%
3M Co	MMM	129.41	569	73,642	0.26%	4.61%	0.01%	5.50%	0.01%
American Water Works Co Inc	AWK	148.77	182	27,039	0.10%	1.76%	0.00%	8.50%	0.01%
Bank of America Corp	BAC	31.13	8,057	250,811	0.88%	2.70%	0.02%	9.00%	0.08%
Pfizer Inc	PFE	52.43	5,611	294,179	1.04%	3.05%	0.03%	6.50%	0.07%
Procter & Gamble Co/The	PG	143.79	2,399	344,995	1.22%	2.54%	0.03%	6.50%	0.08%
AT&T Inc	T	20.96	7,159	150,053	0.53%	5.30%	0.03%	0.50%	0.00%
Travelers Cos Inc/The	TRV	169.13	240	40,585	0.14%	2.20%	0.00%	8.00%	0.01%
Raytheon Technologies Corp	RTX	96.11	1,487	142,936	0.50%	2.29%	0.01%	7.50%	0.04%
Analog Devices Inc	ADI	146.09	520	75,938	0.27%	2.08%	0.01%	14.00%	0.04%
Walmart Inc	WMT	121.58	2,741	333,269	1.17%	1.84%	0.02%	7.50%	0.09%
Cisco Systems Inc	CSCO	42.64	4,141	176,571	0.62%	3.56%	0.02%	8.00%	0.05%
Intel Corp	INTC	37.41	4,089	152,969	0.54%	3.90%	0.02%	6.00%	0.03%
General Motors Co	GM	31.76	1,458	46,307	0.16%	n/a	n/a	11.00%	0.02%
Microsoft Corp	MSFT	256.83	7,479	1,920,840	6.77%	0.97%	0.07%	17.50%	1.18%
Dollar General Corp	DG	245.44	227	55,714	0.20%	0.90%	0.00%	10.00%	0.02%
Cigna Corp	CI	263.52	317	83,608	0.29%	1.70%	0.01%	10.00%	0.03%
Kinder Morgan Inc	KMI	16.76	2,267	38,003	0.13%	6.62%	0.01%	19.00%	0.03%
Citigroup Inc	C	45.99	1,942	89,309	0.31%	4.44%	0.01%	4.50%	0.01%
American International Group Inc	AIG	51.13	792	Excl.	Excl.	2.50%	n/a	31.50%	n/a
Altria Group Inc	MO	41.77	1,811	75,627	0.27%	8.62%	0.02%	5.50%	0.01%
HCA Healthcare Inc	HCA	168.06	295	49,659	0.17%	1.33%	0.00%	12.50%	0.02%
International Paper Co	IP	41.83	371	Excl.	Excl.	4.42%	n/a	33.00%	n/a
Hewlett Packard Enterprise Co	HPE	13.26	1,299	17,229	0.06%	3.62%	0.00%	12.50%	0.01%
Abbott Laboratories	ABT	108.65	1,751	190,240	0.67%	1.73%	0.01%	7.50%	0.05%
Aflac Inc	AFL	55.33	644	35,642	0.13%	2.89%	0.00%	8.00%	0.01%
Air Products and Chemicals Inc	APD	240.48	222	53,332	0.19%	2.69%	0.01%	9.00%	0.02%
Royal Caribbean Cruises Ltd	RCL	34.91	255	8,901	0.03%	n/a	n/a	12.00%	0.00%
Hess Corp	HES	105.94	311	Excl.	Excl.	1.42%	n/a	n/a	n/a
Archer-Daniels-Midland Co	ADM	77.60	563	Excl.	Excl.	2.06%	n/a	n/a	n/a
Automatic Data Processing Inc	ADP	210.04	418	87,744	0.31%	1.98%	0.01%	13.00%	0.04%
Verisk Analytics Inc	VRSK	173.09	158	27,331	0.10%	0.72%	0.00%	9.00%	0.01%
AutoZone Inc	AZO	214.91	19	41,882	0.15%	n/a	n/a	10.50%	0.02%
Avery Dennison Corp	AVY	161.87	82	13,227	0.05%	1.85%	0.00%	14.00%	0.01%
Enphase Energy Inc	ENPH	195.24	135	26,363	0.09%	n/a	n/a	12.00%	0.01%
MSCI Inc	MSCI	412.15	81	Excl.	Excl.	1.01%	n/a	26.50%	n/a
Ball Corp	BALL	68.77	320	21,992	0.08%	1.16%	0.00%	14.50%	0.01%
Ceridian HCM Holding Inc	CDAY	47.08	153	Excl.	Excl.	n/a	n/a	21.50%	n/a

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		Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Carrier Global Corp	CARR	35.66	848	Excl.	Excl.	1.68%	n/a		n/a
Bank of New York Mellon Corp/The	BK	41.71	808	Excl.	Excl.	3.26%	n/a		n/a
Otis Worldwide Corp	OTIS	70.67	423	29,879	0.11%	1.64%	0.00%	6.50%	0.01%
Baxter International Inc	BAX	64.23	504	Excl.	Excl.	1.81%	n/a		n/a
Becton Dickinson and Co	BDX	246.53	285	70,277	0.25%	1.41%	0.00%	10.00%	0.02%
Berkshire Hathaway Inc	BRK/B	273.02	1,286	351,036	1.24%	n/a	n/a	5.50%	0.07%
Best Buy Co Inc	BBY	65.19	225	14,679	0.05%	5.40%	0.00%	6.00%	0.00%
Boston Scientific Corp	BSX	37.27	1,430	53,280	0.19%	n/a	n/a	9.50%	0.02%
Bristol-Myers Squibb Co	BMJ	77.00	2,129	163,938	0.58%	2.81%	0.02%	16.00%	0.09%
Fortune Brands Home & Security Inc	FBHS	59.88	131	Excl.	Excl.	1.87%	n/a		n/a
Brown-Forman Corp	BF/B	70.16	310	21,743	0.08%	1.07%	0.00%	10.00%	0.01%
Coterra Energy Inc	CTRA	25.79	806	20,782	0.07%	2.33%	0.00%	12.00%	0.01%
Campbell Soup Co	CPB	48.05	301	Excl.	Excl.	3.08%	n/a		n/a
Hilton Worldwide Holdings Inc	HLT	111.44	278	31,017	0.11%	0.54%	0.00%	5.00%	0.01%
Carnival Corp	CCL	8.65	995	Excl.	Excl.	n/a	n/a		n/a
Qorvo Inc	QRVO	94.32	104	Excl.	Excl.	n/a	n/a		n/a
Lumen Technologies Inc	LUMN	10.91	1,033	11,271	0.04%	9.17%	0.00%	14.50%	0.01%
UDR Inc	UDR	46.04	318	14,659	0.05%	3.30%	0.00%	3.50%	0.00%
Clorox Co/The	CLX	140.98	123	17,352	0.06%	3.29%	0.00%	10.50%	0.01%
Paycom Software Inc	PAYC	280.12	60	16,878	0.06%	n/a	n/a	4.50%	0.00%
CMS Energy Corp	CMS	67.50	290	19,584	0.07%	2.73%	0.00%	20.00%	0.01%
Newell Brands Inc	NWL	19.04	414	7,873	0.03%	4.83%	0.00%	6.50%	0.00%
Colgate-Palmolive Co	CL	80.14	838	Excl.	Excl.	2.35%	n/a		n/a
EPAM Systems Inc	EPAM	294.78	57	16,847	0.06%	n/a	n/a	6.50%	0.00%
Comerica Inc	CMA	73.38	131	Excl.	Excl.	3.71%	n/a	20.50%	n/a
Conagra Brands Inc	CAG	34.24	480	16,431	0.06%	3.65%	0.00%	6.00%	0.00%
Consolidated Edison Inc	ED	95.10	354	33,693	0.12%	3.32%	0.00%	18.50%	0.02%
Corning Inc	GLW	31.51	845	26,614	0.09%	3.43%	0.00%	4.00%	0.00%
Cummins Inc	CMI	193.53	141	27,307	0.10%	3.00%	0.00%	4.50%	0.00%
Caesars Entertainment Inc	CZR	38.30	214	8,210	0.03%	n/a	n/a	17.50%	0.01%
Danaher Corp	DHR	253.52	727	184,329	0.65%	0.39%	0.00%	8.00%	0.05%
Target Corp	TGT	141.23	464	Excl.	Excl.	3.06%	n/a		n/a
Deere & Co	DE	299.47	306	91,529	0.32%	1.51%	0.00%	17.00%	0.05%
Dominion Energy Inc	D	79.81	811	64,747	0.23%	3.35%	0.01%	13.00%	0.03%
Dover Corp	DOV	121.32	144	17,490	0.06%	1.65%	0.00%	15.00%	0.01%
Alliant Energy Corp	LNT	58.61	251	14,700	0.05%	2.92%	0.00%	14.00%	0.01%
Duke Energy Corp	DUK	107.21	770	82,552	0.29%	3.68%	0.01%	9.00%	0.03%
Regency Centers Corp	REG	59.31	172	10,223	0.04%	4.22%	0.00%	6.00%	0.00%
Eaton Corp PLC	ETN	125.99	399	50,270	0.18%	2.57%	0.00%	6.00%	0.01%
Ecolab Inc	ECL	153.76	286	43,922	0.15%	1.33%	0.00%	12.50%	0.02%
PerkinElmer Inc	PKI	142.22	126	17,941	0.06%	0.20%	0.00%	12.00%	0.01%
Emerson Electric Co	EMR	79.54	594	47,247	0.17%	2.59%	0.00%	10.50%	0.02%
EOG Resources Inc	EOG	110.44	586	64,686	0.23%	2.72%	0.01%	5.00%	0.01%
Aon PLC	AON	269.68	212	57,276	0.20%	0.83%	0.00%	10.00%	0.02%
Entergy Corp	ETR	112.64	203	22,908	0.08%	3.59%	0.00%	18.00%	0.01%
Equifax Inc	EFX	182.78	122	22,360	0.08%	0.85%	0.00%	7.50%	0.01%
IQVIA Holdings Inc	IQV	216.99	189	41,072	0.14%	n/a	n/a	4.00%	0.01%
Gartner Inc	IT	241.83	81	19,477	0.07%	n/a	n/a	10.00%	0.01%
FedEx Corp	FDX	226.71	259	58,758	0.21%	2.03%	0.00%	14.50%	0.03%
FMC Corp	FMC	107.01	126	13,477	0.05%	1.98%	0.00%	15.50%	0.01%
Brown & Brown Inc	BRO	58.34	282	16,468	0.06%	0.70%	0.00%	13.00%	0.01%
Ford Motor Co	F	11.13	3,949	43,951	0.15%	3.59%	0.01%	11.00%	0.02%
NextEra Energy Inc	NEE	77.46	1,965	152,170	0.54%	2.19%	0.01%	10.50%	0.06%
Franklin Resources Inc	BEN	23.31	500	Excl.	Excl.	4.98%	n/a	33.50%	n/a
Garmin Ltd	GRMN	98.25	193	18,975	0.07%	2.97%	0.00%	12.50%	0.01%
Freeport-McMoRan Inc	FCX	29.26	1,449	42,405	0.15%	2.05%	0.00%	9.00%	0.01%
Dexcom Inc	DXCM	74.53	393	29,253	0.10%	n/a	n/a	8.00%	0.01%
General Dynamics Corp	GD	221.25	278	Excl.	Excl.	2.28%	n/a	29.00%	n/a
General Mills Inc	GIS	75.45	597	Excl.	Excl.	2.86%	n/a		n/a
Genuine Parts Co	GPC	133.00	142	18,832	0.07%	2.69%	0.00%	8.00%	0.01%
Atmos Energy Corp	ATO	112.10	139	15,584	0.05%	2.43%	0.00%	4.00%	0.00%
WW Grainger Inc	GWV	454.43	51	23,222	0.08%	1.51%	0.00%	8.50%	0.01%
Halliburton Co	HAL	31.36	902	28,286	0.10%	1.53%	0.00%	7.50%	0.01%
L3Harris Technologies Inc	LHX	241.70	193	46,618	0.16%	1.85%	0.00%	7.00%	0.01%
Healthpeak Properties Inc	PEAK	25.91	540	Excl.	Excl.	4.63%	n/a	26.00%	n/a
Catalent Inc	CTLT	107.29	179	19,228	0.07%	n/a	n/a	18.50%	0.01%
Fortive Corp	FTV	54.38	358	19,492	0.07%	0.51%	0.00%	17.00%	0.01%
Hershey Co/The	HSY	215.16	146	Excl.	Excl.	1.68%	n/a	21.00%	n/a
Synchrony Financial	SYF	27.62	501	13,851	0.05%	3.19%	0.00%	12.00%	0.01%
Hormel Foods Corp	HRL	47.36	546	25,861	0.09%	2.20%	0.00%	6.50%	0.01%
Arthur J Gallagher & Co	AJG	163.04	210	34,249	0.12%	1.25%	0.00%	9.50%	0.01%
Mondelez International Inc	MDLZ	62.09	1,384	85,928	0.30%	2.25%	0.01%	6.50%	0.02%
CenterPoint Energy Inc	CNP	29.58	629	18,619	0.07%	2.30%	0.00%	16.50%	0.01%
Humana Inc	HUM	468.07	126	59,208	0.21%	0.67%	0.00%	9.50%	0.02%
Willis Towers Watson PLC	WTW	197.39	111	22,007	0.08%	1.66%	0.00%	6.50%	0.01%
Illinois Tool Works Inc	ITW	182.25	311	56,760	0.20%	2.68%	0.01%	11.00%	0.02%

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CDW Corp/DE	CDW	157.56	135	21,289	0.07%	1.27%	0.00%	8.00%	0.01%
Trane Technologies PLC	TT	129.87	234	30,371	0.11%	2.06%	0.00%	11.00%	0.01%
Interpublic Group of Cos Inc/The	IPG	27.53	394	10,838	0.04%	4.21%	0.00%	11.00%	0.00%
International Flavors & Fragrances Inc	IFF	119.12	255	Excl.	Excl.	2.65%	n/a	n/a	n/a
Jacobs Engineering Group Inc	J	127.13	129	16,352	0.06%	0.72%	0.00%	12.00%	0.01%
Generac Holdings Inc	GNRC	210.58	64	13,441	0.05%	n/a	n/a	7.50%	0.00%
NXP Semiconductors NV	NXPI	148.03	263	38,867	0.14%	2.28%	0.00%	15.00%	0.02%
Kellogg Co	K	71.34	338	Excl.	Excl.	3.25%	n/a	23.50%	n/a
Broadridge Financial Solutions Inc	BR	142.55	117	16,711	0.06%	1.80%	0.00%	12.00%	0.01%
Kimberly-Clark Corp	KMB	135.15	337	45,535	0.16%	3.43%	0.01%	3.50%	0.01%
Kimco Realty Corp	KIM	19.77	618	12,218	0.04%	4.05%	0.00%	9.00%	0.00%
Oracle Corp	ORCL	69.87	2,665	186,198	0.66%	1.83%	0.01%	5.50%	0.04%
Kroger Co/The	KR	47.33	716	33,867	0.12%	2.20%	0.00%	8.50%	0.01%
Lennar Corp	LEN	70.57	259	18,251	0.06%	2.13%	0.00%	9.00%	0.01%
Eli Lilly & Co	LLY	324.23	950	308,070	1.09%	1.21%	0.01%	6.50%	0.07%
Bath & Body Works Inc	BBWI	26.92	229	6,158	0.02%	2.97%	0.00%	9.00%	0.00%
Charter Communications Inc	CHTR	468.53	161	75,305	0.27%	n/a	n/a	11.50%	0.03%
Lincoln National Corp	LNC	46.77	172	Excl.	Excl.	3.85%	n/a	26.50%	n/a
Loews Corp	L	59.26	246	Excl.	Excl.	0.42%	n/a	21.50%	n/a
Lowe's Cos Inc	LOW	174.67	639	111,637	0.39%	2.40%	0.01%	11.50%	0.05%
IDEX Corp	IEX	181.63	76	13,805	0.05%	1.32%	0.00%	16.00%	0.01%
Marsh & McLennan Cos Inc	MMC	155.25	503	78,045	0.27%	1.38%	0.00%	12.50%	0.03%
Masco Corp	MAS	50.60	236	11,939	0.04%	2.21%	0.00%	10.00%	0.00%
S&P Global Inc	SPGI	337.06	340	114,567	0.40%	1.01%	0.00%	11.50%	0.05%
Medtronic PLC	MDT	89.75	1,329	119,252	0.42%	3.03%	0.01%	8.50%	0.04%
Viatis Inc	VTRS	10.47	1,212	12,693	0.04%	4.58%	0.00%	9.50%	0.00%
CVS Health Corp	CVS	92.66	1,311	121,506	0.43%	2.37%	0.01%	8.50%	0.04%
DuPont de Nemours Inc	DD	55.58	509	Excl.	Excl.	2.37%	n/a	n/a	n/a
Micron Technology Inc	MU	55.28	1,117	61,729	0.22%	0.83%	0.00%	6.00%	0.01%
Motorola Solutions Inc	MSI	209.60	167	35,065	0.12%	1.51%	0.00%	10.00%	0.01%
Cboe Global Markets Inc	CBOE	113.19	106	Excl.	Excl.	1.70%	n/a	24.00%	n/a
Laboratory Corp of America Holdings	LH	234.36	93	21,837	0.08%	1.23%	0.00%	8.00%	0.01%
Newmont Corp	NEM	59.67	794	47,357	0.17%	3.69%	0.01%	10.00%	0.02%
NIKE Inc	NKE	102.20	1,269	129,667	0.46%	1.19%	0.01%	6.00%	0.03%
NiSource Inc	NI	29.49	406	11,967	0.04%	3.19%	0.00%	9.50%	0.00%
Norfolk Southern Corp	NSC	227.29	238	Excl.	Excl.	2.18%	n/a	24.00%	n/a
Principal Financial Group Inc	PFG	66.79	253	16,877	0.06%	3.83%	0.00%	9.50%	0.01%
Eversource Energy	ES	84.47	345	29,132	0.10%	3.02%	0.00%	10.00%	0.01%
Northrop Grumman Corp	NOC	478.57	155	74,391	0.26%	1.45%	0.00%	6.00%	0.02%
Wells Fargo & Co	WFC	39.17	3,790	148,468	0.52%	2.55%	0.01%	6.00%	0.03%
Nucor Corp	NUE	104.41	266	27,773	0.10%	1.92%	0.00%	7.50%	0.01%
PVH Corp	PVH	56.90	67	3,810	0.01%	0.26%	0.00%	7.50%	0.00%
Occidental Petroleum Corp	OXY	58.88	937	55,182	0.19%	0.88%	0.00%	10.00%	0.02%
Omnicom Group Inc	OMC	63.61	206	13,087	0.05%	4.40%	0.00%	13.50%	0.01%
ONEOK Inc	OKE	55.50	447	Excl.	Excl.	6.74%	n/a	n/a	n/a
Raymond James Financial Inc	RJF	89.41	217	19,371	0.07%	1.52%	0.00%	6.00%	0.00%
Parker-Hannifin Corp	PH	246.05	128	31,586	0.11%	2.16%	0.00%	11.00%	0.01%
Rollins Inc	ROL	34.92	492	17,197	0.06%	1.15%	0.00%	10.50%	0.01%
PPL Corp	PPL	27.13	736	19,965	0.07%	3.32%	0.00%	12.50%	0.01%
ConocoPhillips	COP	89.81	1,293	116,165	0.41%	2.05%	0.01%	10.50%	0.04%
PulteGroup Inc	PHM	39.63	238	Excl.	Excl.	1.51%	n/a	n/a	n/a
Pinnacle West Capital Corp	PNW	73.12	113	8,263	0.03%	4.65%	0.00%	20.00%	0.01%
PNC Financial Services Group Inc/The	PNC	157.77	414	65,251	0.23%	3.80%	0.01%	11.00%	0.03%
PPG Industries Inc	PPG	114.34	236	27,001	0.10%	2.06%	0.00%	1.50%	0.00%
Progressive Corp/The	PGR	116.27	585	68,006	0.24%	0.34%	0.00%	11.50%	0.03%
Public Service Enterprise Group Inc	PEG	63.28	499	31,593	0.11%	3.41%	0.00%	4.00%	0.00%
Robert Half International Inc	RHI	74.89	111	8,276	0.03%	2.30%	0.00%	4.50%	0.00%
Edison International	EIX	63.24	381	24,107	0.08%	4.43%	0.00%	4.00%	0.00%
Schlumberger NV	SLB	35.76	1,413	50,545	0.18%	1.96%	0.00%	7.50%	0.01%
Charles Schwab Corp/The	SCHW	63.18	1,817	Excl.	Excl.	1.27%	n/a	n/a	n/a
Sherwin-Williams Co/The	SHW	223.91	260	Excl.	Excl.	1.07%	n/a	23.00%	n/a
West Pharmaceutical Services Inc	WST	302.37	74	22,398	0.08%	0.24%	0.00%	9.00%	0.01%
J M Smucker Co/The	SJM	128.01	107	13,640	0.05%	3.09%	0.00%	11.50%	0.01%
Snap-on Inc	SNA	197.03	53	10,516	0.04%	2.88%	0.00%	17.00%	0.01%
AMETEK Inc	AME	109.89	231	25,375	0.09%	0.80%	0.00%	4.00%	0.00%
Southern Co/The	SO	71.31	1,063	75,769	0.27%	3.81%	0.01%	4.50%	0.01%
Truist Financial Corp	TFC	47.43	1,331	63,149	0.22%	4.05%	0.01%	10.00%	0.02%
Southwest Airlines Co	LUV	36.12	593	21,418	0.08%	n/a	n/a	6.50%	0.00%
W R Berkley Corp	WRB	68.26	265	18,102	0.06%	0.59%	0.00%	7.00%	0.00%
Stanley Black & Decker Inc	SWK	104.86	151	Excl.	Excl.	3.01%	n/a	29.50%	n/a
Public Storage	PSA	312.67	176	54,883	0.19%	2.56%	0.00%	15.50%	0.03%
Arista Networks Inc	ANET	93.74	308	28,897	0.10%	n/a	n/a	6.00%	0.01%
Sysco Corp	SY	84.71	509	43,158	0.15%	2.31%	0.00%	8.00%	0.01%
Corteva Inc	CTVA	54.14	725	39,269	0.14%	1.03%	0.00%	4.50%	0.01%
Texas Instruments Inc	TXN	153.65	922	141,686	0.50%	2.99%	0.01%	17.50%	0.09%
Textron Inc	TXT	61.07	215	13,135	0.05%	0.13%	0.00%	16.50%	0.01%

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Thermo Fisher Scientific Inc	TMO	543.28	391	212,673	0.75%	0.22%	0.00%	9.00%	0.07%
TJX Cos Inc/The	TJX	55.85	1,172	65,436	0.23%	2.11%	0.00%	8.50%	0.02%
Globe Life Inc	GL	97.47	99	9,611	0.03%	0.85%	0.00%	15.50%	0.01%
Johnson Controls International plc	JCI	47.88	696	33,309	0.12%	2.92%	0.00%	20.00%	0.02%
Ulta Beauty Inc	ULTA	385.48	52	19,975	0.07%	n/a	n/a	8.00%	0.01%
Union Pacific Corp	UNP	213.28	628	133,945	0.47%	2.44%	0.01%	14.00%	0.07%
Keysight Technologies Inc	KEYS	137.85	180	24,806	0.09%	n/a	n/a	15.00%	0.01%
UnitedHealth Group Inc	UNH	513.63	938	481,873	1.70%	1.28%	0.02%	9.50%	0.16%
Marathon Oil Corp	MRO	22.48	708	15,909	0.06%	1.42%	0.00%	13.00%	0.01%
Bio-Rad Laboratories Inc	BIO	495.00	25	12,314	0.04%	n/a	n/a	12.00%	0.01%
Ventas Inc	VTR	51.43	400	Excl.	Excl.	3.50%	n/a		n/a
VF Corp	VFC	44.17	388	17,159	0.06%	4.53%	0.00%	11.50%	0.01%
Vornado Realty Trust	VNO	28.59	192	5,482	0.02%	7.42%	0.00%	10.50%	0.00%
Vulcan Materials Co	VMC	142.10	133	18,885	0.07%	1.13%	0.00%	9.50%	0.01%
Weyerhaeuser Co	WY	33.12	744	Excl.	Excl.	2.17%	n/a	-20.50%	n/a
Whirlpool Corp	WHR	154.87	56	8,704	0.03%	4.52%	0.00%	8.50%	0.00%
Williams Cos Inc/The	WMB	31.21	1,218	38,014	0.13%	5.45%	0.01%	6.00%	0.01%
Constellation Energy Corp	CEG	57.26	327	18,705	0.07%	0.98%	0.00%	9.50%	0.01%
WEC Energy Group Inc	WEC	100.64	315	31,745	0.11%	2.89%	0.00%	8.50%	0.01%
Adobe Inc	ADBE	366.06	468	Excl.	Excl.	n/a	n/a		n/a
AES Corp/The	AES	21.01	668	14,032	0.05%	3.01%	0.00%	6.00%	0.00%
Amgen Inc	AMGN	243.30	534	129,971	0.46%	3.19%	0.01%	14.50%	0.07%
Apple Inc	AAPL	136.72	16,185	2,212,838	7.79%	0.67%	0.05%	14.00%	1.09%
Autodesk Inc	ADSK	171.96	217	37,362	0.13%	n/a	n/a	5.50%	0.01%
Cintas Corp	CTAS	373.53	102	38,221	0.13%	1.02%	0.00%	14.00%	0.02%
Comcast Corp	CMCSA	39.24	4,471	175,425	0.62%	2.75%	0.02%	14.00%	0.09%
Molson Coors Beverage Co	TAP	54.51	201	10,931	0.04%	2.79%	0.00%	13.50%	0.01%
KLA Corp	KLAC	319.08	149	47,618	0.17%	1.32%	0.00%	9.50%	0.02%
Marriott International Inc/MD	MAR	136.01	327	Excl.	Excl.	0.88%	n/a	49.50%	n/a
McCormick & Co Inc/MD	MKC	83.25	250	Excl.	Excl.	1.78%	n/a	21.00%	n/a
PACCAR Inc	PCAR	82.34	348	28,628	0.10%	1.65%	0.00%	17.50%	0.02%
Costco Wholesale Corp	COST	479.28	443	212,303	0.75%	0.75%	0.01%	6.00%	0.04%
First Republic Bank/CA	FRC	144.20	180	25,910	0.09%	0.75%	0.00%	5.00%	0.00%
Stryker Corp	SYK	198.93	378	75,226	0.26%	1.40%	0.00%	10.50%	0.03%
Tyson Foods Inc	TSN	86.06	292	25,090	0.09%	2.14%	0.00%	11.00%	0.01%
Lamb Weston Holdings Inc	LW	71.46	144	10,322	0.04%	1.37%	0.00%	8.50%	0.00%
Applied Materials Inc	AMAT	90.98	870	79,148	0.28%	1.14%	0.00%	6.00%	0.02%
American Airlines Group Inc	AAL	12.68	650	8,236	0.03%	n/a	n/a	5.00%	0.00%
Cardinal Health Inc	CAH	52.27	272	14,240	0.05%	3.79%	0.00%	14.50%	0.01%
Cincinnati Financial Corp	CINF	118.98	160	Excl.	Excl.	2.32%	n/a		n/a
Paramount Global	PARA	24.68	608	15,015	0.05%	3.89%	0.00%	5.00%	0.00%
DR Horton Inc	DHI	66.19	352	Excl.	Excl.	1.36%	n/a		n/a
Electronic Arts Inc	EA	121.65	279	33,978	0.12%	0.62%	0.00%	7.00%	0.01%
Expeditors International of Washington Inc	EXPD	97.46	168	16,349	0.06%	1.37%	0.00%	4.50%	0.00%
Fastenal Co	FAST	49.92	576	28,732	0.10%	2.48%	0.00%	13.00%	0.01%
M&T Bank Corp	MTB	159.39	179	28,597	0.10%	3.01%	0.00%	9.00%	0.01%
Xcel Energy Inc	XEL	70.76	545	38,540	0.14%	2.76%	0.00%	10.00%	0.01%
Fiserv Inc	FISV	88.97	646	57,510	0.20%	n/a	n/a	8.50%	0.02%
Fifth Third Bancorp	FITB	33.60	686	23,053	0.08%	3.57%	0.00%	8.00%	0.01%
Gilead Sciences Inc	GILD	61.81	1,254	77,529	0.27%	4.72%	0.01%	6.00%	0.02%
Hasbro Inc	HAS	81.88	139	11,418	0.04%	3.42%	0.00%	11.00%	0.00%
Huntington Bancshares Inc/OH	HBAN	12.03	1,439	17,313	0.06%	5.15%	0.00%	11.00%	0.01%
Welltower Inc	WELL	82.35	454	37,384	0.13%	2.96%	0.00%	13.50%	0.02%
Biogen Inc	BIIB	203.94	146	29,867	0.11%	n/a	n/a	11.50%	0.01%
Northern Trust Corp	NTRS	96.48	208	20,105	0.07%	2.90%	0.00%	12.50%	0.01%
Packaging Corp of America	PKG	137.50	94	12,884	0.05%	3.64%	0.00%	3.50%	0.00%
Paychex Inc	PAYX	113.87	360	Excl.	Excl.	2.78%	n/a	-10.50%	n/a
QUALCOMM Inc	QCOM	127.74	1,120	143,069	0.50%	2.35%	0.01%	8.00%	0.04%
Roper Technologies Inc	ROP	394.65	106	41,799	0.15%	0.63%	0.00%	11.00%	0.02%
Ross Stores Inc	ROST	70.23	350	24,575	0.09%	1.77%	0.00%	9.50%	0.01%
IDEXX Laboratories Inc	IDXX	350.73	84	29,464	0.10%	n/a	n/a	19.00%	0.02%
Starbucks Corp	SBUX	76.39	1,147	87,612	0.31%	2.57%	0.01%	8.50%	0.03%
KeyCorp	KEY	17.23	932	16,066	0.06%	4.53%	0.00%	14.00%	0.01%
Fox Corp	FOXA	32.16	312	10,024	0.04%	1.49%	0.00%	12.00%	0.00%
Fox Corp	FOX	29.70	245	7,278	0.03%	1.62%	0.00%	16.50%	0.00%
State Street Corp	STT	61.65	367	22,633	0.08%	3.70%	0.00%	9.50%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	11.12	419	4,660	0.02%	n/a	n/a	10.50%	0.00%
US Bancorp	USB	46.02	1,486	Excl.	Excl.	4.00%	n/a		n/a
A O Smith Corp	AOS	54.68	130	7,110	0.03%	2.05%	0.00%	9.50%	0.00%
NortonLifeLock Inc	NLOK	21.96	571	Excl.	Excl.	2.28%	n/a		n/a
T Rowe Price Group Inc	TROW	113.61	227	25,823	0.09%	4.22%	0.00%	6.00%	0.01%
Waste Management Inc	WM	152.98	415	63,511	0.22%	1.70%	0.00%	11.00%	0.02%
Constellation Brands Inc	STZ	233.06	159	37,133	0.13%	1.37%	0.00%	9.50%	0.01%
DENTSPLY SIRONA Inc	XRAY	35.73	215	7,698	0.03%	1.40%	0.00%	9.50%	0.00%
Zions Bancorp NA	ZION	50.90	151	7,704	0.03%	2.99%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	40.05	126	5,050	0.02%	n/a	n/a	5.00%	0.00%

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Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Invesco Ltd	IVZ	16.13	455	7,340	0.03%	4.65%	0.00%	12.00%	0.00%
Linde PLC	LIN	287.53	502	144,319	0.51%	1.63%	0.01%	7.50%	0.04%
Intuit Inc	INTU	385.44	282	Excl.	Excl.	0.71%	n/a		n/a
Morgan Stanley	MS	76.06	1,749	133,051	0.47%	3.68%	0.02%	15.50%	0.07%
Microchip Technology Inc	MCHP	58.08	555	32,205	0.11%	1.90%	0.00%	12.00%	0.01%
Chubb Ltd	CB	196.58	424	83,293	0.29%	1.69%	0.00%	17.50%	0.05%
Hologic Inc	HOLX	69.30	249	17,282	0.06%	n/a	n/a	10.50%	0.01%
Citizens Financial Group Inc	CFG	35.69	495	17,682	0.06%	4.37%	0.00%	10.00%	0.01%
O'Reilly Automotive Inc	ORLY	631.76	66	41,522	0.15%	n/a	n/a	11.00%	0.02%
Allstate Corp/The	ALL	126.73	275	Excl.	Excl.	2.68%	n/a	25.00%	n/a
Equity Residential	EQR	72.22	376	27,158	0.10%	3.46%	0.00%	8.50%	0.01%
BorgWarner Inc	BWA	33.37	240	7,995	0.03%	2.04%	0.00%	13.00%	0.00%
Keurig Dr Pepper Inc	KDP	35.39	1,419	50,202	0.18%	2.12%	0.00%	4.50%	0.01%
Organon & Co	OGN	33.75	254	Excl.	Excl.	3.32%	n/a	-6.00%	n/a
Host Hotels & Resorts Inc	HST	15.68	715	11,208	0.04%	1.53%	0.00%	9.50%	0.00%
Incyte Corp	incyte	75.97	222	Excl.	Excl.	n/a	n/a		n/a
Simon Property Group Inc	SPG	94.92	329	Excl.	Excl.	7.16%	n/a	59.50%	n/a
Eastman Chemical Co	EMN	89.77	129	Excl.	Excl.	3.39%	n/a	25.50%	n/a
Twitter Inc	TWTR	37.39	764	28,573	0.10%	n/a	n/a	3.00%	0.00%
AvalonBay Communities Inc	AVB	194.25	140	27,160	0.10%	3.27%	0.00%	9.50%	0.01%
Prudential Financial Inc	PRU	95.68	375	Excl.	Excl.	5.02%	n/a		n/a
United Parcel Service Inc	UPS	182.54	734	134,064	0.47%	3.33%	0.02%	6.50%	0.03%
Walgreens Boots Alliance Inc	WBA	37.90	864	32,755	0.12%	5.04%	0.01%	5.50%	0.01%
STERIS PLC	STE	206.15	100	20,631	0.07%	0.83%	0.00%	11.50%	0.01%
McKesson Corp	MCK	326.21	144	46,838	0.16%	0.58%	0.00%	7.50%	0.01%
Lockheed Martin Corp	LMT	429.96	266	114,415	0.40%	2.60%	0.01%	11.50%	0.05%
AmerisourceBergen Corp	ABC	141.48	209	29,635	0.10%	1.30%	0.00%	10.00%	0.01%
Capital One Financial Corp	COF	104.19	393	40,952	0.14%	2.30%	0.00%	7.00%	0.01%
Waters Corp	WAT	330.98	60	19,937	0.07%	n/a	n/a	8.50%	0.01%
Nordson Corp	NDSN	202.44	58	Excl.	Excl.	1.01%	n/a		n/a
Dollar Tree Inc	DLTR	155.85	225	34,997	0.12%	n/a	n/a	6.00%	0.01%
Darden Restaurants Inc	DRI	113.12	125	14,110	0.05%	4.28%	0.00%	12.00%	0.01%
Match Group Inc	MTCH	69.69	286	19,903	0.07%	n/a	n/a	12.00%	0.01%
Dominio's Pizza Inc	DPZ	389.71	36	14,047	0.05%	1.13%	0.00%	19.50%	0.01%
NVR Inc	NVR	4,004.14	3	Excl.	Excl.	n/a	n/a	21.00%	n/a
NetApp Inc	NTAP	65.24	221	14,430	0.05%	3.07%	0.00%	15.50%	0.01%
Citrix Systems Inc	CTXS	97.17	127	12,300	0.04%	n/a	n/a	5.50%	0.00%
DXC Technology Co	DXC	30.31	230	6,961	0.02%	n/a	n/a	8.00%	0.00%
Old Dominion Freight Line Inc	ODFL	256.28	113	29,050	0.10%	0.47%	0.00%	7.50%	0.01%
DaVita Inc	DVA	79.96	95	7,564	0.03%	n/a	n/a	5.00%	0.00%
Hartford Financial Services Group Inc/The	HIG	65.43	329	21,518	0.08%	2.35%	0.00%	12.00%	0.01%
Iron Mountain Inc	IRM	48.69	291	14,147	0.05%	5.08%	0.00%	12.00%	0.01%
Estee Lauder Cos Inc/The	EL	254.67	232	59,034	0.21%	0.94%	0.00%	6.50%	0.01%
Cadence Design Systems Inc	CDNS	150.03	276	41,372	0.15%	n/a	n/a	11.00%	0.02%
Tyler Technologies Inc	TYL	332.48	41	13,789	0.05%	n/a	n/a	14.00%	0.01%
Universal Health Services Inc	UHS	100.71	67	6,760	0.02%	0.79%	0.00%	12.00%	0.00%
Skyworks Solutions Inc	SWKS	92.64	161	14,908	0.05%	2.42%	0.00%	14.00%	0.01%
Quest Diagnostics Inc	DGX	132.98	117	15,607	0.05%	1.99%	0.00%	9.00%	0.00%
Activision Blizzard Inc	ATVI	77.86	782	60,877	0.21%	0.60%	0.00%	15.50%	0.03%
Rockwell Automation Inc	ROK	199.31	116	23,172	0.08%	2.25%	0.00%	7.00%	0.01%
Kraft Heinz Co/The	KHC	38.14	1,224	46,682	0.16%	4.20%	0.01%	14.00%	0.02%
American Tower Corp	AMT	255.59	466	118,985	0.42%	2.24%	0.01%	9.50%	0.04%
Regeneron Pharmaceuticals Inc	REGN	591.13	108	63,859	0.22%	n/a	n/a	5.50%	0.01%
Amazon.com Inc	AMZN	106.21	10,174	1,080,624	3.81%	n/a	n/a	9.00%	0.34%
Jack Henry & Associates Inc	JKHY	180.02	73	13,117	0.05%	1.09%	0.00%	3.00%	0.00%
Ralph Lauren Corp	RL	89.65	45	Excl.	Excl.	3.35%	n/a	26.50%	n/a
Boston Properties Inc	BXP	88.98	157	13,944	0.05%	4.41%	0.00%	10.50%	0.01%
Amphenol Corp	APH	64.38	597	38,444	0.14%	1.24%	0.00%	11.50%	0.02%
Howmet Aerospace Inc	HWM	31.45	418	Excl.	Excl.	0.25%	n/a	-1.00%	n/a
Pioneer Natural Resources Co	PXD	223.08	242	53,976	0.19%	13.23%	0.03%	12.50%	0.02%
Valero Energy Corp	VLO	106.28	408	43,372	0.15%	3.69%	0.01%	12.00%	0.02%
Synopsys Inc	SNPS	303.70	153	Excl.	Excl.	n/a	n/a	23.00%	n/a
Etsy Inc	ETSY	73.21	127	9,306	0.03%	n/a	n/a	11.00%	0.00%
CH Robinson Worldwide Inc	CHRW	101.37	127	12,901	0.05%	2.17%	0.00%	12.50%	0.01%
Accenture PLC	ACN	277.65	664	Excl.	Excl.	1.40%	n/a	24.50%	n/a
TransDigm Group Inc	TDG	536.67	55	29,305	0.10%	n/a	n/a	8.00%	0.01%
Yum! Brands Inc	YUM	113.51	285	32,369	0.11%	2.01%	0.00%	12.50%	0.01%
Prologis Inc	PLD	117.65	740	87,031	0.31%	2.69%	0.01%	18.00%	0.06%
FirstEnergy Corp	FE	38.39	571	21,918	0.08%	4.06%	0.00%	10.50%	0.01%
VeriSign Inc	VERIS	167.33	110	18,330	0.06%	n/a	n/a	6.00%	0.00%
Quanta Services Inc	PWR	125.34	144	18,012	0.06%	0.22%	0.00%	7.50%	0.00%
Henry Schein Inc	HSIC	76.74	138	10,594	0.04%	n/a	n/a	8.50%	0.00%
Ameren Corp	AEE	90.36	258	23,321	0.08%	2.61%	0.00%	12.50%	0.01%
ANSYS Inc	ANSS	239.29	87	20,816	0.07%	n/a	n/a	7.00%	0.01%
FactSet Research Systems Inc	FDS	384.57	38	14,574	0.05%	0.93%	0.00%	6.50%	0.00%
NVIDIA Corp	NVDA	151.59	2,500	378,975	1.33%	0.11%	0.00%	9.00%	0.12%



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Name	Ticker	Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Sealed Air Corp	SEE	57.72	146	8,432	0.03%	1.39%	0.00%	10.50%	0.00%
Cognizant Technology Solutions Corp	CTSH	67.49	521	Excl.	Excl.	1.60%	n/a	23.00%	n/a
SVB Financial Group	SIVB	394.99	59	23,246	0.08%	n/a	n/a	10.00%	0.01%
Intuitive Surgical Inc	ISRG	200.71	359	72,046	0.25%	n/a	n/a	7.00%	0.02%
Take-Two Interactive Software Inc	TTWO	122.53	162	19,848	0.07%	n/a	n/a	6.00%	0.00%
Republic Services Inc	RSG	130.87	316	41,341	0.15%	1.41%	0.00%	12.50%	0.02%
eBay Inc	EBAY	41.67	560	23,329	0.08%	2.11%	0.00%	12.50%	0.01%
Goldman Sachs Group Inc/The	GS	297.02	343	102,011	0.36%	2.69%	0.01%	12.50%	0.04%
SBA Communications Corp	SBAC	320.05	108	34,511	0.12%	0.89%	0.00%	15.50%	0.02%
Sempra Energy	SRE	150.27	314	47,231	0.17%	3.05%	0.01%	5.00%	0.01%
Moody's Corp	MCO	271.97	185	Excl.	Excl.	1.03%	n/a	35.50%	n/a
ON Semiconductor Corp	ON	50.31	435	21,860	0.08%	n/a	n/a	11.50%	0.01%
Booking Holdings Inc	BKNG	1,748.99	41	71,049	0.25%	n/a	n/a	8.00%	0.02%
F5 Inc	FFIV	153.04	60	9,255	0.03%	n/a	n/a	14.00%	0.00%
Akamai Technologies Inc	AKAM	91.33	160	14,641	0.05%	n/a	n/a	10.00%	0.01%
Charles River Laboratories International Inc	CRL	213.97	51	10,871	0.04%	n/a	n/a	9.50%	0.00%
MarketAxess Holdings Inc	MKTX	256.01	38	9,662	0.03%	1.09%	0.00%	12.00%	0.00%
Devon Energy Corp	DVN	55.11	660	36,373	0.13%	9.22%	0.01%	11.50%	0.01%
Bio-Techne Corp	TECH	346.64	39	Excl.	Excl.	0.37%	n/a	30.00%	n/a
Alphabet Inc	GOOGL	2,179.26	301	Excl.	Excl.	n/a	n/a	n/a	n/a
Teleflex Inc	TFX	245.85	47	11,530	0.04%	0.55%	0.00%	17.50%	0.01%
Allegion plc	ALLE	97.90	88	8,596	0.03%	1.68%	0.00%	13.50%	0.00%
Netflix Inc	NFLX	174.87	444	77,690	0.27%	n/a	n/a	12.50%	0.03%
Warner Bros Discovery Inc	WBD	13.42	2,427	32,568	0.11%	n/a	n/a	10.50%	0.01%
Agilent Technologies Inc	A	118.77	299	35,478	0.12%	0.71%	0.00%	11.50%	0.01%
Trimble Inc	TRMB	58.23	250	Excl.	Excl.	n/a	n/a	n/a	n/a
Elevance Health Inc	ELV	482.58	241	116,343	0.41%	1.06%	0.00%	12.50%	0.05%
CME Group Inc	CME	204.70	359	73,573	0.26%	1.95%	0.01%	10.00%	0.03%
Juniper Networks Inc	JNPR	28.50	323	9,208	0.03%	2.95%	0.00%	7.50%	0.00%
BlackRock Inc	BLK	609.04	152	92,271	0.33%	3.21%	0.01%	9.00%	0.03%
DTE Energy Co	DTE	126.75	194	24,557	0.09%	2.79%	0.00%	10.00%	0.01%
Celanese Corp	CE	117.61	108	12,738	0.04%	2.31%	0.00%	4.50%	0.00%
Nasdaq Inc	NDAQ	152.54	165	25,120	0.09%	1.57%	0.00%	6.00%	0.01%
Philip Morris International Inc	PM	98.74	1,550	153,058	0.54%	5.06%	0.03%	9.50%	0.05%
Ingersoll Rand Inc	IR	42.08	406	17,082	0.06%	0.19%	0.00%	7.00%	0.00%
Salesforce Inc	CRM	165.04	995	164,215	0.58%	n/a	n/a	16.50%	0.10%
Huntington Ingalls Industries Inc	HII	217.82	40	Excl.	Excl.	2.17%	n/a	n/a	n/a
MetLife Inc	MET	62.79	813	51,061	0.18%	3.19%	0.01%	10.00%	0.02%
Tapestry Inc	TPR	30.52	252	7,685	0.03%	3.28%	0.00%	7.50%	0.00%
CSX Corp	CSX	29.06	2,174	Excl.	Excl.	1.38%	n/a	n/a	n/a
Edwards Lifesciences Corp	EW	95.09	622	59,122	0.21%	n/a	n/a	10.00%	0.02%
Ameriprise Financial Inc	AMP	237.68	110	26,122	0.09%	2.10%	0.00%	10.00%	0.01%
Zebra Technologies Corp	ZBRA	293.95	53	15,436	0.05%	n/a	n/a	12.50%	0.01%
Zimmer Biomet Holdings Inc	ZBH	105.06	210	22,018	0.08%	0.91%	0.00%	15.00%	0.01%
Camden Property Trust	CPT	134.48	107	14,325	0.05%	2.80%	0.00%	11.50%	0.01%
CBRE Group Inc	CBRE	73.61	327	24,060	0.08%	n/a	n/a	7.00%	0.01%
Mastercard Inc	MA	315.48	965	304,413	1.07%	0.62%	0.01%	8.50%	0.09%
CarMax Inc	KMX	90.48	159	14,401	0.05%	n/a	n/a	2.50%	0.00%
Intercontinental Exchange Inc	ICE	94.04	558	52,499	0.18%	1.62%	0.00%	13.50%	0.02%
Fidelity National Information Services Inc	FIS	91.67	611	55,989	0.20%	2.05%	0.00%	13.00%	0.03%
Chipotle Mexican Grill Inc	CMG	1,307.26	28	36,554	0.13%	n/a	n/a	6.50%	0.01%
Wynn Resorts Ltd	WYNN	56.98	116	Excl.	Excl.	n/a	n/a	52.00%	n/a
Live Nation Entertainment Inc	LYV	82.58	228	18,834	0.07%	n/a	n/a	16.50%	0.01%
Assurant Inc	AIZ	172.85	54	Excl.	Excl.	1.57%	n/a	27.00%	n/a
NRG Energy Inc	NRG	38.17	237	Excl.	Excl.	3.67%	n/a	n/a	n/a
Monster Beverage Corp	MNST	92.70	530	49,101	0.17%	n/a	n/a	14.00%	0.02%
Regions Financial Corp	RF	18.75	935	Excl.	Excl.	3.63%	n/a	-10.50%	n/a
Baker Hughes Co	BKR	28.87	985	28,425	0.10%	2.49%	0.00%	10.50%	0.01%
Mosaic Co/The	MOS	47.23	362	17,097	0.06%	1.27%	0.00%	11.50%	0.01%
Expedia Group Inc	EXPE	94.83	152	Excl.	Excl.	n/a	n/a	33.00%	n/a
Evergy Inc	EVERG	65.25	229	Excl.	Excl.	3.51%	n/a	n/a	n/a
CF Industries Holdings Inc	CF	85.73	209	Excl.	Excl.	1.87%	n/a	n/a	n/a
APA Corp	APA	34.90	338	11,804	0.04%	1.43%	0.00%	7.50%	0.00%
Leidos Holdings Inc	LDOS	100.71	137	Excl.	Excl.	1.43%	n/a	26.50%	n/a
Alphabet Inc	GOOG	2,187.45	313	685,494	2.41%	n/a	n/a	9.00%	0.22%
Cooper Cos Inc/The	COO	313.12	49	Excl.	Excl.	0.02%	n/a	n/a	n/a
TE Connectivity Ltd	TEL	113.15	322	36,454	0.13%	1.98%	0.00%	18.50%	0.02%
Discover Financial Services	DFS	94.58	281	26,574	0.09%	2.54%	0.00%	10.50%	0.01%
Visa Inc	V	196.89	1,646	324,026	1.14%	0.76%	0.01%	16.00%	0.18%
Mid-America Apartment Communities Inc	MAA	174.67	115	20,162	0.07%	2.86%	0.00%	16.00%	0.01%
Xylem Inc/NY	XYL	78.18	180	14,080	0.05%	1.53%	0.00%	13.50%	0.01%
Marathon Petroleum Corp	MPC	82.21	541	44,475	0.16%	2.82%	0.00%	4.50%	0.01%
Advanced Micro Devices Inc	AMD	76.47	1,621	123,920	0.44%	n/a	n/a	6.50%	0.03%
Tractor Supply Co	TSCO	193.85	112	Excl.	Excl.	1.90%	n/a	n/a	n/a
ResMed Inc	RMD	209.63	146	30,666	0.11%	0.80%	0.00%	12.50%	0.01%
Mettler-Toledo International Inc	MTD	1,148.77	23	Excl.	Excl.	n/a	n/a	25.50%	n/a

## STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Price	Shares Outstanding	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Copart Inc	CPRT	108.66	238	25,826	0.09%	n/a	n/a	8.50%	0.01%
VICI Properties Inc	VICI	29.79	963	28,688	0.10%	4.83%	0.00%	13.50%	0.01%
Fortinet Inc	FTNT	56.58	803	45,413	0.16%	n/a	n/a	12.00%	0.02%
Albemarle Corp	ALB	208.98	117	24,474	0.09%	0.76%	0.00%	15.00%	0.01%
Moderna Inc	MRNA	142.85	398	Excl.	Excl.	n/a	n/a	21.50%	n/a
Essex Property Trust Inc	ESS	261.51	65	Excl.	Excl.	3.37%	n/a	-2.50%	n/a
Realty Income Corp	O	68.26	602	Excl.	Excl.	4.35%	n/a	-4.00%	n/a
Westrock Co	WRK	39.84	255	10,153	0.04%	2.51%	0.00%	6.00%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	82.08	183	14,992	0.05%	0.73%	0.00%	20.00%	0.01%
Pool Corp	POOL	351.23	40	14,075	0.05%	1.14%	0.00%	9.00%	0.00%
Western Digital Corp	WDC	44.83	313	14,039	0.05%	n/a	n/a	19.00%	0.01%
PepsiCo Inc	PEP	166.66	1,383	230,438	0.81%	2.76%	0.02%	20.00%	0.16%
Diamondback Energy Inc	FANG	121.15	178	21,510	0.08%	10.07%	0.01%	6.00%	0.00%
ServiceNow Inc	NOW	475.52	200	Excl.	Excl.	n/a	n/a		n/a
Church & Dwight Co Inc	CHD	92.66	243	Excl.	Excl.	1.13%	n/a	45.50%	n/a
Duke Realty Corp	DRE	54.95	385	21,146	0.07%	2.04%	0.00%	6.00%	0.00%
Federal Realty OP LP	FRT	95.74	79	Excl.	Excl.	4.47%	n/a	-2.50%	n/a
MGM Resorts International	MGM	28.95	426	12,334	0.04%	0.03%	0.00%	2.50%	0.00%
American Electric Power Co Inc	AEP	95.94	514	Excl.	Excl.	3.25%	n/a	25.00%	n/a
SolarEdge Technologies Inc	SEDG	273.68	55	15,158	0.05%	n/a	n/a	6.50%	0.00%
PTC Inc	PTC	106.34	117	Excl.	Excl.	n/a	n/a	22.00%	n/a
JB Hunt Transport Services Inc	JBHT	157.47	105	Excl.	Excl.	1.02%	n/a	29.00%	n/a
Lam Research Corp	LRCX	426.15	139	59,113	0.21%	1.41%	0.00%	11.50%	0.02%
Mohawk Industries Inc	MHK	124.09	64	Excl.	Excl.	n/a	n/a	21.50%	n/a
Pentair PLC	PNR	45.77	165	7,570	0.03%	1.84%	0.00%	10.50%	0.00%
Vertex Pharmaceuticals Inc	VRTX	281.79	256	72,069	0.25%	n/a	n/a	13.00%	0.03%
Amcor PLC	AMCR	12.43	1,503	18,679	0.07%	3.86%	0.00%	18.50%	0.01%
Meta Platforms Inc	META	161.25	2,294	369,830	1.30%	n/a	n/a	15.00%	0.20%
T-Mobile US Inc	TMUS	134.54	1,254	Excl.	Excl.	n/a	n/a		n/a
United Rentals Inc	URI	242.91	72	17,395	0.06%	n/a	n/a	9.50%	0.01%
Alexandria Real Estate Equities Inc	ARE	145.03	163	23,672	0.08%	3.25%	0.00%	18.00%	0.02%
Honeywell International Inc	HON	173.81	681	118,318	0.42%	2.26%	0.01%	7.50%	0.03%
ABIOMED Inc	ABMD	247.51	46	11,293	0.04%	n/a	n/a	11.00%	0.00%
Delta Air Lines Inc	DAL	28.97	641	18,571	0.07%	n/a	n/a	10.00%	0.01%
United Airlines Holdings Inc	UAL	35.42	327	Excl.	Excl.	n/a	n/a		n/a
Seagate Technology Holdings PLC	STX	71.44	215	15,348	0.05%	3.92%	0.00%	15.00%	0.01%
News Corp	NWS	15.89	197	Excl.	Excl.	1.26%	n/a		n/a
Centene Corp	CNC	84.61	585	Excl.	Excl.	n/a	n/a		n/a
Martin Marietta Materials Inc	MLM	299.24	62	18,638	0.07%	0.82%	0.00%	10.00%	0.01%
Teradyne Inc	TER	89.55	160	14,346	0.05%	0.49%	0.00%	5.50%	0.00%
PayPal Holdings Inc	PYPL	69.84	1,158	80,878	0.28%	n/a	n/a	8.50%	0.02%
Tesla Inc	TSLA	673.42	1,036	697,926	2.46%	n/a	n/a	16.00%	0.39%
DISH Network Corp	DISH	17.93	292	Excl.	Excl.	n/a	n/a	50.50%	n/a
Penn National Gaming Inc	PENN	30.42	167	5,074	0.02%	n/a	n/a	2.50%	0.00%
Dow Inc	DOW	51.61	728	37,577	0.13%	5.43%	0.01%	15.00%	0.02%
Everest Re Group Ltd	RE	280.28	39	Excl.	Excl.	2.35%	n/a	28.00%	n/a
Teledyne Technologies Inc	TDY	375.11	47	17,571	0.06%	n/a	n/a	17.50%	0.01%
News Corp	NWSA	15.58	388	6,052	0.02%	1.28%	0.00%	11.50%	0.00%
Exelon Corp	EXC	45.32	980	Excl.	Excl.	2.98%	n/a		n/a
Global Payments Inc	GPX	110.64	282	Excl.	Excl.	0.90%	n/a		n/a
Crown Castle International Corp	CCI	168.38	433	72,914	0.26%	3.49%	0.01%	17.00%	0.04%
Aptiv PLC	APTIV	89.07	271	24,132	0.09%	n/a	n/a	12.00%	0.01%
Advance Auto Parts Inc	AAP	173.09	61	Excl.	Excl.	3.47%	n/a	27.50%	n/a
Align Technology Inc	ALGN	236.67	79	18,651	0.07%	n/a	n/a	16.00%	0.01%
Illumina Inc	ILMN	184.36	157	28,963	0.10%	n/a	n/a	17.00%	0.02%
LKQ Corp	LKQ	49.09	283	13,884	0.05%	2.04%	0.00%	6.50%	0.00%
Nielsen Holdings PLC	NLSN	23.22	360	8,352	0.03%	1.03%	0.00%	13.00%	0.00%
Zoetis Inc	ZTS	171.89	471	Excl.	Excl.	0.76%	n/a		n/a
Digital Realty Trust Inc	DLR	129.83	285	36,959	0.13%	3.76%	0.00%	11.00%	0.01%
Equinix Inc	EQIX	657.02	91	59,803	0.21%	1.89%	0.00%	15.00%	0.03%
Molina Healthcare Inc	MOH	279.61	59	Excl.	Excl.	n/a	n/a	-3.50%	n/a
Las Vegas Sands Corp	LVS	33.59	764	25,666	0.09%	n/a	n/a	13.50%	0.01%
Molina Healthcare Inc	MOH	279.61	59	16,413	0.06%	n/a	n/a	11.00%	0.01%

## Notes:

[4] Source: Bloomberg Professional

[5] Source: Bloomberg Professional

[6] Equals [4] x [5]

[7] Equals [6] / Sum of Column [6]

[8] Source: Bloomberg Professional

[9] Equals [7] x [8]

[10] Source: Value Line, as of June 30, 2022

[11] Equals [7] x [10]

CAPITAL ASSET PRICING MODEL - CURRENT RISK-FREE RATE, VALUE LINE BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.18%	0.85	13.41%	10.24%	11.88%
American States Water Co	AWR	3.18%	0.65	13.41%	10.24%	9.63%
Atmos Energy Corporation	ATO	3.18%	0.80	13.41%	10.24%	11.37%
California Water Service Group	CWT	3.18%	0.65	13.41%	10.24%	9.63%
Essential Utilities, Inc.	WTRG	3.18%	0.95	13.41%	10.24%	12.90%
Middlesex Water Company	MSEX	3.18%	0.70	13.41%	10.24%	10.34%
New Jersey Resources Corporation	NJR	3.18%	0.95	13.41%	10.24%	12.90%
NiSource Inc.	NI	3.18%	0.85	13.41%	10.24%	11.88%
Northwest Natural Gas Company	NWN	3.18%	0.80	13.41%	10.24%	11.37%
ONE Gas Inc.	OGS	3.18%	0.80	13.41%	10.24%	11.37%
SJW Group	SJW	3.18%	0.80	13.41%	10.24%	11.37%
Spire, Inc.	SR	3.18%	0.80	13.41%	10.24%	11.37%
York Water Company	YORW	3.18%	0.85	13.41%	10.24%	11.88%
Median			0.80			11.37%
Mean			0.80			11.41%

Notes:

[1] Source: Bloomberg Professional, 30-day average as of June 30, 2022

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Exhibit JCN-3, page 1

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL - NEAR-TERM PROJECTED RISK-FREE RATE, VALUE LINE BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Near-term projected 30-year U.S. Treasury bond yield (Q4 2022 - Q4 2023)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.74%	0.85	13.41%	9.67%	11.96%
American States Water Co	AWR	3.74%	0.65	13.41%	9.67%	10.03%
Atmos Energy Corporation	ATO	3.74%	0.80	13.41%	9.67%	11.48%
California Water Service Group	CWT	3.74%	0.65	13.41%	9.67%	10.03%
Essential Utilities, Inc.	WTRG	3.74%	0.95	13.41%	9.67%	12.93%
Middlesex Water Company	MSEX	3.74%	0.70	13.41%	9.67%	10.51%
New Jersey Resources Corporation	NJR	3.74%	0.95	13.41%	9.67%	12.93%
NiSource Inc.	NI	3.74%	0.85	13.41%	9.67%	11.96%
Northwest Natural Gas Company	NWN	3.74%	0.80	13.41%	9.67%	11.48%
ONE Gas Inc.	OGS	3.74%	0.80	13.41%	9.67%	11.48%
SJW Group	SJW	3.74%	0.80	13.41%	9.67%	11.48%
Spire, Inc.	SR	3.74%	0.80	13.41%	9.67%	11.48%
York Water Company	YORW	3.74%	0.85	13.41%	9.67%	11.96%
Median			0.80			11.48%
Mean			0.80			11.52%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 7, July 1, 2022, at 2

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Exhibit JCN-3, page 1

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL - LONG-TERM PROJECTED RISK-FREE RATE, VALUE LINE BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.80%	0.85	13.41%	9.61%	11.97%
American States Water Co	AWR	3.80%	0.65	13.41%	9.61%	10.05%
Atmos Energy Corporation	ATO	3.80%	0.80	13.41%	9.61%	11.49%
California Water Service Group	CWT	3.80%	0.65	13.41%	9.61%	10.05%
Essential Utilities, Inc.	WTRG	3.80%	0.95	13.41%	9.61%	12.93%
Middlesex Water Company	MSEX	3.80%	0.70	13.41%	9.61%	10.53%
New Jersey Resources Corporation	NJR	3.80%	0.95	13.41%	9.61%	12.93%
NiSource Inc.	NI	3.80%	0.85	13.41%	9.61%	11.97%
Northwest Natural Gas Company	NWN	3.80%	0.80	13.41%	9.61%	11.49%
ONE Gas Inc.	OGS	3.80%	0.80	13.41%	9.61%	11.49%
SJW Group	SJW	3.80%	0.80	13.41%	9.61%	11.49%
Spire, Inc.	SR	3.80%	0.80	13.41%	9.61%	11.49%
York Water Company	YORW	3.80%	0.85	13.41%	9.61%	11.97%
Median			0.80			11.49%
Mean			0.80			11.53%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Exhibit JCN-3, page 1

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE, BLOOMBERG BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.18%	0.84	13.41%	10.24%	11.76%
American States Water Co	AWR	3.18%	0.66	13.41%	10.24%	9.94%
Atmos Energy Corporation	ATO	3.18%	0.76	13.41%	10.24%	10.99%
California Water Service Group	CWT	3.18%	0.68	13.41%	10.24%	10.19%
Essential Utilities, Inc.	WTRG	3.18%	0.86	13.41%	10.24%	11.97%
Middlesex Water Company	MSEX	3.18%	0.78	13.41%	10.24%	11.13%
New Jersey Resources Corporation	NJR	3.18%	0.82	13.41%	10.24%	11.60%
NiSource Inc.	NI	3.18%	0.83	13.41%	10.24%	11.67%
Northwest Natural Gas Company	NWN	3.18%	0.71	13.41%	10.24%	10.45%
ONE Gas Inc.	OGS	3.18%	0.81	13.41%	10.24%	11.43%
SJW Group	SJW	3.18%	0.83	13.41%	10.24%	11.65%
Spire, Inc.	SR	3.18%	0.76	13.41%	10.24%	10.98%
York Water Company	YORW	3.18%	0.85	13.41%	10.24%	11.84%
Median			0.81			11.43%
Mean			0.78			11.20%

Notes:

- [1] Source: Bloomberg Professional, 30-day average as of June 30, 2022  
[2] Source: Bloomberg Professional, as of June 30, 2022  
[3] Source: Exhibit JCN-3, page 1  
[4] Equals [3] - [1]  
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE, BLOOMBERG BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Near-term projected 30-year U.S. Treasury bond yield (Q4 2022 - Q4 2023)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.74%	0.84	13.41%	9.67%	11.85%
American States Water Co	AWR	3.74%	0.66	13.41%	9.67%	10.13%
Atmos Energy Corporation	ATO	3.74%	0.76	13.41%	9.67%	11.13%
California Water Service Group	CWT	3.74%	0.68	13.41%	9.67%	10.36%
Essential Utilities, Inc.	WTRG	3.74%	0.86	13.41%	9.67%	12.04%
Middlesex Water Company	MSEX	3.74%	0.78	13.41%	9.67%	11.25%
New Jersey Resources Corporation	NJR	3.74%	0.82	13.41%	9.67%	11.70%
NiSource Inc.	NI	3.74%	0.83	13.41%	9.67%	11.77%
Northwest Natural Gas Company	NWN	3.74%	0.71	13.41%	9.67%	10.62%
ONE Gas Inc.	OGS	3.74%	0.81	13.41%	9.67%	11.54%
SJW Group	SJW	3.74%	0.83	13.41%	9.67%	11.75%
Spire, Inc.	SR	3.74%	0.76	13.41%	9.67%	11.11%
York Water Company	YORW	3.74%	0.85	13.41%	9.67%	11.93%
Median			0.81			11.54%
Mean			0.78			11.32%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 7, July 1, 2022, at 2  
[2] Source: Bloomberg Professional, as of June 30, 2022  
[3] Source: Exhibit JCN-3, page 1  
[4] Equals [3] - [1]  
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE, BLOOMBERG BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - ALL COMPANIES  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.80%	0.84	13.41%	9.61%	11.86%
American States Water Co	AWR	3.80%	0.66	13.41%	9.61%	10.15%
Atmos Energy Corporation	ATO	3.80%	0.76	13.41%	9.61%	11.14%
California Water Service Group	CWT	3.80%	0.68	13.41%	9.61%	10.38%
Essential Utilities, Inc.	WTRG	3.80%	0.86	13.41%	9.61%	12.05%
Middlesex Water Company	MSEX	3.80%	0.78	13.41%	9.61%	11.27%
New Jersey Resources Corporation	NJR	3.80%	0.82	13.41%	9.61%	11.71%
NiSource Inc.	NI	3.80%	0.83	13.41%	9.61%	11.78%
Northwest Natural Gas Company	NWN	3.80%	0.71	13.41%	9.61%	10.63%
ONE Gas Inc.	OGS	3.80%	0.81	13.41%	9.61%	11.55%
SJW Group	SJW	3.80%	0.83	13.41%	9.61%	11.76%
Spire, Inc.	SR	3.80%	0.76	13.41%	9.61%	11.12%
York Water Company	YORW	3.80%	0.85	13.41%	9.61%	11.93%
Median			0.81			11.55%
Mean			0.78			11.33%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14  
[2] Source: Bloomberg Professional, as of June 30, 2022  
[3] Source: Exhibit JCN-3, page 1  
[4] Equals [3] - [1]  
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL – CURRENT RISK-FREE RATE, VALUE LINE BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.18%	0.85	12.37%	9.20%	10.99%
American States Water Co	AWR	3.18%	0.65	12.37%	9.20%	9.16%
Atmos Energy Corporation	ATO	3.18%	0.80	12.37%	9.20%	10.53%
California Water Service Group	CWT	3.18%	0.65	12.37%	9.20%	9.16%
Essential Utilities, Inc.	WTRG	3.18%	0.95	12.37%	9.20%	11.91%
Middlesex Water Company	MSEX	3.18%	0.70	12.37%	9.20%	9.62%
New Jersey Resources Corporation	NJR	3.18%	0.95	12.37%	9.20%	11.91%
NiSource Inc.	NI	3.18%	0.85	12.37%	9.20%	10.99%
Northwest Natural Gas Company	NWN	3.18%	0.80	12.37%	9.20%	10.53%
ONE Gas Inc.	OGS	3.18%	0.80	12.37%	9.20%	10.53%
SJW Group	SJW	3.18%	0.80	12.37%	9.20%	10.53%
Spire, Inc.	SR	3.18%	0.80	12.37%	9.20%	10.53%
York Water Company	YORW	3.18%	0.85	12.37%	9.20%	10.99%
Median			0.80			10.53%
Mean			0.80			10.57%

Notes:

[1] Source: Bloomberg Professional, 30-day average as of June 30, 2022

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Exhibit JCN-3, page 8

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL – NEAR-TERM PROJECTED RISK-FREE RATE, VALUE LINE BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Near-term projected 30-year U.S. Treasury bond yield (Q4 2022 - Q4 2023)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.74%	0.85	12.37%	8.63%	11.08%
American States Water Co	AWR	3.74%	0.65	12.37%	8.63%	9.35%
Atmos Energy Corporation	ATO	3.74%	0.80	12.37%	8.63%	10.65%
California Water Service Group	CWT	3.74%	0.65	12.37%	8.63%	9.35%
Essential Utilities, Inc.	WTRG	3.74%	0.95	12.37%	8.63%	11.94%
Middlesex Water Company	MSEX	3.74%	0.70	12.37%	8.63%	9.78%
New Jersey Resources Corporation	NJR	3.74%	0.95	12.37%	8.63%	11.94%
NiSource Inc.	NI	3.74%	0.85	12.37%	8.63%	11.08%
Northwest Natural Gas Company	NWN	3.74%	0.80	12.37%	8.63%	10.65%
ONE Gas Inc.	OGS	3.74%	0.80	12.37%	8.63%	10.65%
SJW Group	SJW	3.74%	0.80	12.37%	8.63%	10.65%
Spire, Inc.	SR	3.74%	0.80	12.37%	8.63%	10.65%
York Water Company	YORW	3.74%	0.85	12.37%	8.63%	11.08%
Median			0.80			10.65%
Mean			0.80			10.68%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 7, July 1, 2022, at 2

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Exhibit JCN-3, page 8

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL – LONG-TERM PROJECTED RISK-FREE RATE, VALUE LINE BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.80%	0.85	12.37%	8.57%	11.09%
American States Water Co	AWR	3.80%	0.65	12.37%	8.57%	9.37%
Atmos Energy Corporation	ATO	3.80%	0.80	12.37%	8.57%	10.66%
California Water Service Group	CWT	3.80%	0.65	12.37%	8.57%	9.37%
Essential Utilities, Inc.	WTRG	3.80%	0.95	12.37%	8.57%	11.95%
Middlesex Water Company	MSEX	3.80%	0.70	12.37%	8.57%	9.80%
New Jersey Resources Corporation	NJR	3.80%	0.95	12.37%	8.57%	11.95%
NiSource Inc.	NI	3.80%	0.85	12.37%	8.57%	11.09%
Northwest Natural Gas Company	NWN	3.80%	0.80	12.37%	8.57%	10.66%
ONE Gas Inc.	OGS	3.80%	0.80	12.37%	8.57%	10.66%
SJW Group	SJW	3.80%	0.80	12.37%	8.57%	10.66%
Spire, Inc.	SR	3.80%	0.80	12.37%	8.57%	10.66%
York Water Company	YORW	3.80%	0.85	12.37%	8.57%	11.09%
Median			0.80			10.66%
Mean			0.80			10.69%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Exhibit JCN-3, page 8

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE, BLOOMBERG BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.18%	0.84	12.37%	9.20%	10.89%
American States Water Co	AWR	3.18%	0.66	12.37%	9.20%	9.25%
Atmos Energy Corporation	ATO	3.18%	0.76	12.37%	9.20%	10.20%
California Water Service Group	CWT	3.18%	0.68	12.37%	9.20%	9.48%
Essential Utilities, Inc.	WTRG	3.18%	0.86	12.37%	9.20%	11.07%
Middlesex Water Company	MSEX	3.18%	0.78	12.37%	9.20%	10.32%
New Jersey Resources Corporation	NJR	3.18%	0.82	12.37%	9.20%	10.74%
NiSource Inc.	NI	3.18%	0.83	12.37%	9.20%	10.81%
Northwest Natural Gas Company	NWN	3.18%	0.71	12.37%	9.20%	9.72%
ONE Gas Inc.	OGS	3.18%	0.81	12.37%	9.20%	10.59%
SJW Group	SJW	3.18%	0.83	12.37%	9.20%	10.79%
Spire, Inc.	SR	3.18%	0.76	12.37%	9.20%	10.18%
York Water Company	YORW	3.18%	0.85	12.37%	9.20%	10.96%
Median			0.81			10.59%
Mean			0.78			10.38%

Notes:

[1] Source: Bloomberg Professional, 30-day average as of June 30, 2022

[2] Source: Bloomberg Professional, as of June 30, 2022

[3] Source: Exhibit JCN-3, page 8

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE, BLOOMBERG BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Near-term projected 30-year U.S. Treasury bond yield (Q4 2022 - Q4 2023)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.74%	0.84	12.37%	8.63%	10.98%
American States Water Co	AWR	3.74%	0.66	12.37%	8.63%	9.44%
Atmos Energy Corporation	ATO	3.74%	0.76	12.37%	8.63%	10.33%
California Water Service Group	CWT	3.74%	0.68	12.37%	8.63%	9.65%
Essential Utilities, Inc.	WTRG	3.74%	0.86	12.37%	8.63%	11.15%
Middlesex Water Company	MSEX	3.74%	0.78	12.37%	8.63%	10.45%
New Jersey Resources Corporation	NJR	3.74%	0.82	12.37%	8.63%	10.84%
NiSource Inc.	NI	3.74%	0.83	12.37%	8.63%	10.91%
Northwest Natural Gas Company	NWN	3.74%	0.71	12.37%	8.63%	9.88%
ONE Gas Inc.	OGS	3.74%	0.81	12.37%	8.63%	10.70%
SJW Group	SJW	3.74%	0.83	12.37%	8.63%	10.89%
Spire, Inc.	SR	3.74%	0.76	12.37%	8.63%	10.32%
York Water Company	YORW	3.74%	0.85	12.37%	8.63%	11.05%
Median			0.81			10.70%
Mean			0.78			10.51%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 7, July 1, 2022, at 2

[2] Source: Bloomberg Professional, as of June 30, 2022

[3] Source: Exhibit JCN-3, page 8

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE, BLOOMBERG BETA, AND  
MARKET RISK PREMIUM DERIVED FROM S&P 500 - FERC METHODOLOGY  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
American Water Works Company Inc.	AWK	3.80%	0.84	12.37%	8.57%	10.99%
American States Water Co	AWR	3.80%	0.66	12.37%	8.57%	9.47%
Atmos Energy Corporation	ATO	3.80%	0.76	12.37%	8.57%	10.35%
California Water Service Group	CWT	3.80%	0.68	12.37%	8.57%	9.67%
Essential Utilities, Inc.	WTRG	3.80%	0.86	12.37%	8.57%	11.16%
Middlesex Water Company	MSEX	3.80%	0.78	12.37%	8.57%	10.46%
New Jersey Resources Corporation	NJR	3.80%	0.82	12.37%	8.57%	10.85%
NiSource Inc.	NI	3.80%	0.83	12.37%	8.57%	10.92%
Northwest Natural Gas Company	NWN	3.80%	0.71	12.37%	8.57%	9.90%
ONE Gas Inc.	OGS	3.80%	0.81	12.37%	8.57%	10.71%
SJW Group	SJW	3.80%	0.83	12.37%	8.57%	10.90%
Spire, Inc.	SR	3.80%	0.76	12.37%	8.57%	10.33%
York Water Company	YORW	3.80%	0.85	12.37%	8.57%	11.05%
Median			0.81			10.71%
Mean			0.78			10.52%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14

[2] Source: Bloomberg Professional, as of June 30, 2022

[3] Source: Exhibit JCN-3, page 8

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

EXPECTED EARNINGS ANALYSIS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
		Value Line ROE 2025-2027	Value Line Total Capital 2021	Value Line Common Equity Ratio 2021	Total Equity 2021	Value Line Total Capital 2025-2027	Value Line Common Equity Ratio 2025-2027	Total Equity 2025-2027	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
American Water Works Company Inc.	AWK	10.50%	17,642.00	41.40%	7,303.79	22,000.00	40.00%	8,800.00	3.80%	1.019	10.70%
American States Water Co	AWR	13.50%	1,272.60	53.90%	685.93	1,710.00	48.00%	820.80	3.66%	1.018	13.74%
Atmos Energy Corporation	ATO	9.00%	12,837.00	61.60%	7,907.59	21,400.00	60.00%	12,840.00	10.18%	1.048	9.44%
California Water Service Group	CWT	11.00%	2,233.40	52.70%	1,177.00	2,100.00	60.50%	1,270.50	1.54%	1.008	11.08%
Essential Utilities, Inc.	WTRG	8.50%	10,964.00	47.30%	5,185.97	16,000.00	47.00%	7,520.00	7.72%	1.037	8.82%
Middlesex Water Company	MSEX	12.50%	676.30	55.40%	374.67	655.00	61.50%	402.83	1.46%	1.007	12.59%
New Jersey Resources Corporation	NJR	12.00%	3,793.00	43.00%	1,630.99	5,310.00	43.50%	2,309.85	7.21%	1.035	12.42%
NiSource Inc.	NI	11.50%	16,131.00	33.50%	5,403.89	18,225.00	39.50%	7,198.88	5.90%	1.029	11.83%
Northwest Natural Gas Company	NWN	9.50%	1,979.70	47.20%	934.42	2,290.00	52.00%	1,190.80	4.97%	1.024	9.73%
ONE Gas Inc.	OGS	7.50%	6,032.90	39.00%	2,352.83	8,500.00	48.00%	4,080.00	11.64%	1.055	7.91%
SJW Group	SJW	9.00%	2,527.50	40.90%	1,033.75	2,225.00	55.00%	1,223.75	3.43%	1.017	9.15%
Spire, Inc.	SR	8.00%	5,597.30	43.20%	2,418.03	8,200.00	45.00%	3,690.00	8.82%	1.042	8.34%
York Water Company	YORW	13.00%	291.50	52.40%	152.75	265.00	62.50%	165.63	1.63%	1.008	13.11%
Median											10.70%
Mean											10.68%

Notes:

[1] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[2] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[3] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[4] Equals [2] x [3]

[5] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[6] Source: Value Line Reports, April 8, 2022 and May 27, 2022

[7] Equals [5] x [6]

[8] Equals ([7] / [4]) ^ (1/5) - 1

[9] Equals 2 x (1 + [8]) / (2 + [8])

[10] Equals [1] x [9]

2023-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2021 NET PLANT  
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2021	2023	2024	2025	2026	2027	2023-27 Cap. Ex. / 2021 Net Plant
American Water Works Company Inc.	AWK							
Capital Spending per Share			\$9.85	\$10.68	\$11.50	\$11.50	\$11.50	
Common Shares Outstanding			182.50	186.25	190.00	190.00	190.00	
Capital Expenditures			\$1,797.6	\$1,988.2	\$2,185.0	\$2,185.0	\$2,185.0	49.05%
Net Plant			\$21,084.0					
American States Water Co	AWR							
Capital Spending per Share			\$4.00	\$4.13	\$4.25	\$4.25	\$4.25	
Common Shares Outstanding			37.50	37.50	37.50	37.50	37.50	
Capital Expenditures			\$150.0	\$154.7	\$159.4	\$159.4	\$159.4	48.14%
Net Plant			\$1,626.0					
Atmos Energy Corporation	ATO							
Capital Spending per Share			\$17.10	\$17.55	\$18.00	\$18.00	\$18.00	
Common Shares Outstanding			146.00	150.50	155.00	155.00	155.00	
Capital Expenditures			\$2,496.6	\$2,641.3	\$2,790.0	\$2,790.0	\$2,790.0	89.67%
Net Plant			\$15,064.0					
California Water Service Group	CWT							
Capital Spending per Share			\$6.00	\$6.23	\$6.45	\$6.45	\$6.45	
Common Shares Outstanding			53.50	53.75	54.00	54.00	54.00	
Capital Expenditures			\$321.0	\$334.6	\$348.3	\$348.3	\$348.3	59.73%
Net Plant			\$2,846.9					
Essential Utilities, Inc.	WTRG							
Capital Spending per Share			\$3.85	\$3.83	\$3.80	\$3.80	\$3.80	
Common Shares Outstanding			260.00	270.00	280.00	280.00	280.00	
Capital Expenditures			\$1,001.0	\$1,032.8	\$1,064.0	\$1,064.0	\$1,064.0	50.97%
Net Plant			\$10,252.0					
Middlesex Water Company	MSEX							
Capital Spending per Share			\$5.25	\$5.63	\$6.00	\$6.00	\$6.00	
Common Shares Outstanding			17.85	17.93	18.00	18.00	18.00	
Capital Expenditures			\$93.7	\$100.8	\$108.0	\$108.0	\$108.0	59.92%
Net Plant			\$865.4					
New Jersey Resources Corporation	NJR							
Capital Spending per Share			\$5.30	\$5.40	\$5.50	\$5.50	\$5.50	
Common Shares Outstanding			99.00	99.50	100.00	100.00	100.00	
Capital Expenditures			\$524.7	\$537.3	\$550.0	\$550.0	\$550.0	64.36%
Net Plant			\$4,213.5					
NiSource Inc.	NI							
Capital Spending per Share			\$4.45	\$4.40	\$4.35	\$4.35	\$4.35	
Common Shares Outstanding			405.00	410.00	415.00	415.00	415.00	
Capital Expenditures			\$1,802.3	\$1,804.0	\$1,805.3	\$1,805.3	\$1,805.3	50.45%
Net Plant			\$17,882.0					
Northwest Natural Gas Company	NWN							
Capital Spending per Share			\$8.90	\$9.15	\$9.40	\$9.40	\$9.40	
Common Shares Outstanding			31.50	31.75	32.00	32.00	32.00	
Capital Expenditures			\$280.4	\$290.5	\$300.8	\$300.8	\$300.8	51.31%
Net Plant			\$2,871.4					
ONE Gas Inc.	OGS							
Capital Spending per Share			\$9.55	\$9.70	\$9.85	\$9.85	\$9.85	
Common Shares Outstanding			54.00	55.50	57.00	57.00	57.00	
Capital Expenditures			\$515.7	\$538.4	\$561.5	\$561.5	\$561.5	52.75%
Net Plant			\$5,190.8					
SJW Group	SJW							
Capital Spending per Share			\$8.00	\$7.88	\$7.75	\$7.75	\$7.75	
Common Shares Outstanding			30.00	30.00	30.00	30.00	30.00	
Capital Expenditures			\$240.0	\$236.3	\$232.5	\$232.5	\$232.5	47.00%
Net Plant			\$2,497.5					
Spire, Inc.	SR							
Capital Spending per Share			\$11.10	\$11.30	\$11.50	\$11.50	\$11.50	
Common Shares Outstanding			52.50	53.75	55.00	55.00	55.00	
Capital Expenditures			\$582.8	\$607.4	\$632.5	\$632.5	\$632.5	61.07%
Net Plant			\$5,055.7					
York Water Company	YORW							
Capital Spending per Share			\$1.35	\$1.55	\$1.75	\$1.75	\$1.75	
Common Shares Outstanding			13.00	12.90	12.80	12.80	12.80	
Capital Expenditures			\$17.6	\$20.0	\$22.4	\$22.4	\$22.4	27.36%
Net Plant			\$382.9					
Aquarion								
Capital Expenditures [8]			\$164.22	\$179.72	\$188.13	\$203.45	\$219.32	80.46%
Net Plant [9]			\$1,186.7					
				Aquarion CapEx Total (5 years)				\$954.83
				Proxy Group Median				51.31%
				Ratio of Aquarion to the Proxy Group				1.57

Notes:

[1] - [6] Source: Value Line Reports, April 8, 2022; May 27, 2022

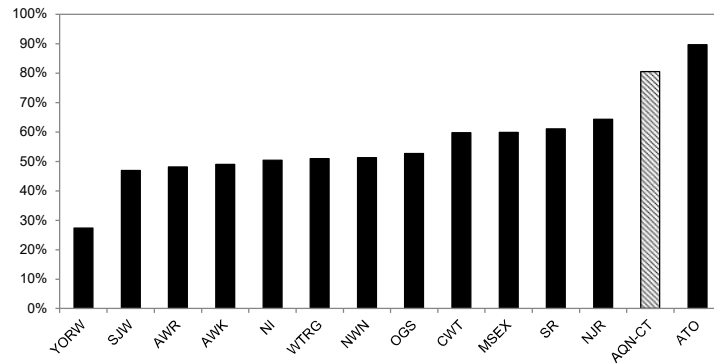
[7] Equals (Column [2] + [3] + [4] + [5] + [6]) / Column [1]

[8] Data provided by Aquarion

[9] Data provided by Aquarion



2023-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2021 NET PLANT



Projected CAPEX / 2021 Net Plant

Company		2023-2027
York Water Company	YORW	27.36%
SJW Group	SJW	47.00%
American States Water Co	AWR	48.14%
American Water Works Company Inc.	AWK	49.05%
NiSource Inc.	NI	50.45%
Essential Utilities, Inc.	WTRG	50.97%
Northwest Natural Gas Company	NWN	51.31%
ONE Gas Inc.	OGS	52.75%
California Water Service Group	CWT	59.73%
Middlesex Water Company	MSEX	59.92%
Spire, Inc.	SR	61.07%
New Jersey Resources Corporation	NJR	64.36%
Aquarion	AQN-CT	80.46%
Atmos Energy Corporation	ATO	89.67%
Proxy Group Median		51.31%
Aquarion / Proxy Group		1.57

Notes:

Source: Schedule JCN-9, page 1, col. [7]

PROXY GROUP COMPARISON OF REGULATORY RANKINGS

Company	Ticker	State	Utility Type	RRA Ranking
American Water Works Company Inc.	AWK	California	Water	Average / 2
	AWK	Georgia	Water	Above Average / 2
	AWK	Hawaii	Water	Average / 2
	AWK	Illinois	Water	Average / 2
	AWK	Indiana	Water	Average / 1
	AWK	Iowa	Water	Above Average / 3
	AWK	Kentucky	Water	Average / 2
	AWK	Maryland	Water	Average / 3
	AWK	Michigan	Water	Above Average / 3
	AWK	Missouri	Water	Average / 3
	AWK	New Jersey	Water	Below Average / 1
	AWK	New York	Water	Average / 2
	AWK	Pennsylvania	Water	Above Average / 2
	AWK	Tennessee	Water	Above Average / 3
	AWK	Virginia	Water	Average / 1
	AWK	West Virginia	Water	Below Average / 2
American States Water Co	AWR	California	Water	Average / 2
Atmos Energy Corporation	ATO	Colorado	Gas	Average / 1
	ATO	Kansas	Gas	Below Average / 1
	ATO	Kentucky	Gas	Average / 2
	ATO	Louisiana	Gas	Average / 2
	ATO	Mississippi	Gas	Above Average / 3
	ATO	Tennessee	Gas	Above Average / 3
	ATO	Texas	Gas	Average / 1
	ATO	Virginia	Gas	Average / 1
California Water Service Group	CWT	California	Water	Average / 2
	CWT	Hawaii	Water	Average / 2
	CWT	New Mexico	Water	Below Average / 2
	CWT	Washington	Water	Average / 3
Essential Utilities, Inc.	WTRG	Pennsylvania	Water	Above Average / 2
	WTRG	Pennsylvania	Gas	Above Average / 2
	WTRG	Ohio	Water	Average / 3
	WTRG	Illinois	Water	Average / 2
	WTRG	Texas	Water	Average / 3
	WTRG	New Jersey	Water	Below Average / 1
	WTRG	North Carolina	Water	Above Average / 3
	WTRG	Indiana	Water	Average / 1
	WTRG	Virginia	Water	Average / 1
	WTRG	Kentucky	Gas	Average / 2
	WTRG	West Virginia	Gas	Below Average / 2
Middlesex Water Company	MSEX	New Jersey	Water	Below Average / 1
	MSEX	Delaware	Water	Average / 3
	MSEX	Pennsylvania	Water	Above Average / 2
New Jersey Resources Corporation	NJR	New Jersey	Gas	Below Average / 1
NiSource Inc.	NI	Indiana	Electric	Average / 1
	NI	Indiana	Gas	Average / 1
	NI	Kentucky	Gas	Average / 2
	NI	Maryland	Gas	Average / 3
	NI	Ohio	Gas	Average / 3
	NI	Pennsylvania	Gas	Above Average / 2
	NI	Virginia	Gas	Average / 1
Northwest Natural Gas Company	NWN	Oregon	Gas	Average / 2
	NWN	Washington	Gas	Average / 3
ONE Gas, Inc.	OGS	Kansas	Gas	Below Average / 1
	OGS	Oklahoma	Gas	Average / 2
	OGS	Texas	Gas	Average / 1

PROXY GROUP COMPARISON OF REGULATORY RANKINGS

Company	Ticker	State	Utility Type	RRA Ranking
SJW Group	SJW	California	Water	Average / 2
	SJW	Connecticut	Water	Below Average / 1
	SJW	Maine	Water	Average / 3
	SJW	Texas	Water	Average / 3
Spire, Inc.	SR	Alabama	Gas	Above Average / 1
	SR	Mississippi	Gas	Above Average / 3
	SR	Missouri	Gas	Average / 3
York Water Company				
	YORW	Pennsylvania	Water	Above Average / 2
<b>Number of Jurisdictional Operations:</b>				
Above Average				15
Average				39
Below Average				10
<b>Aquarion</b>		Connecticut	Water	Below Average / 1

FLOTATION COST ADJUSTMENT

Company	Date	Shares Issued (000)	Offering Price	Under-writing Discount [i]	Offering Expense (\$000)	Net Proceeds Per Share	Total Flotation Costs (\$000)	Gross Equity Issue Before Costs (\$000)	Net Proceeds (\$000)	Flotation Cost Percentage
Eversource Energy	6/11/2020	6,900	\$ 86.26	\$ 1.35	\$ 600	\$ 84.82	\$ 9,915	\$ 595,194	\$ 585,279	1.67%
Eversource Energy	3/16/2009	18,975	\$ 20.20	\$ 0.66	\$ 335	\$ 19.53	\$ 12,792	\$ 383,295	\$ 370,503	3.34%
Eversource Energy	12/6/2005	23,000	\$ 19.09	\$ 0.62	\$ 340	\$ 18.46	\$ 14,600	\$ 439,070	\$ 424,470	3.33%
							\$ 37,307	\$ 1,417,559	\$ 1,380,252	2.63%

Notes:

[i] Underwriting discount was calculated as the market price minus the offering price when not explicitly given in the prospectus.

The flotation cost adjustment is derived by dividing the dividend yield by  $1 - F$  (where  $F$  = flotation costs expressed in percentage terms), or by 0.9737, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

$$k = \frac{D \times (1 + 0.5g)}{P \times (1 - F)} + g$$

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Expected Dividend Yield Adjusted for Flotation Costs	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	ROE	ROE Adjusted for Flotation Costs
American Water Works Company Inc.	AWK	\$2.62	\$146.06	1.79%	1.87%	1.92%	7.50%	8.30%	8.10%	7.97%	9.83%	9.88%
American States Water Co	AWR	\$1.46	\$78.09	1.87%	1.92%	1.97%	5.50%	4.40%	n/a	4.95%	6.87%	6.92%
Atmos Energy Corporation	ATO	\$2.72	\$111.77	2.43%	2.53%	2.60%	7.50%	8.61%	7.30%	7.80%	10.33%	10.40%
California Water Service Group	CWT	\$1.00	\$53.14	1.88%	1.97%	2.02%	6.50%	11.70%	n/a	9.10%	11.07%	11.12%
Essential Utilities, Inc.	WTRG	\$1.07	\$45.22	2.37%	2.46%	2.53%	10.00%	6.80%	6.10%	7.63%	10.10%	10.16%
Middlesex Water Company	MSEX	\$1.16	\$84.96	1.37%	1.39%	1.43%	4.50%	2.70%	n/a	3.60%	4.99%	5.03%
New Jersey Resources Corporation	NJR	\$1.45	\$44.84	3.23%	3.33%	3.42%	5.00%	6.00%	6.00%	5.67%	8.99%	9.08%
NiSource Inc.	NI	\$0.94	\$29.81	3.15%	3.28%	3.37%	9.50%	7.18%	7.20%	7.96%	11.24%	11.33%
Northwest Natural Gas Company	NWN	\$1.93	\$53.17	3.63%	3.73%	3.83%	6.50%	4.60%	4.70%	5.27%	8.99%	9.09%
ONE Gas Inc.	OGS	\$2.48	\$83.66	2.96%	3.05%	3.13%	6.50%	5.00%	5.00%	5.50%	8.55%	8.63%
SJW Group	SJW	\$1.44	\$60.64	2.37%	2.52%	2.58%	14.00%	9.80%	n/a	11.90%	14.42%	14.48%
Spire, Inc.	SR	\$2.74	\$75.49	3.63%	3.74%	3.84%	9.00%	4.30%	5.00%	6.10%	9.84%	9.94%
York Water Company	YORW	\$0.78	\$40.02	1.95%	2.00%	2.05%	5.00%	4.90%	n/a	4.95%	6.95%	7.00%
Mean											9.40%	9.47%
Flotation Cost Adjustment [12]												0.07%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 30-day average as of June 30, 2022

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.50 x [8])

[5] Equals [4] / (1 - F) (1 - F = 0.9737)

[6] Source: Yahoo! Finance

[7] Source: Yahoo! Finance

[8] Source: Zacks

[9] Equals Average ([6], [7], [8])

[10] Equals [4] + [9]

[11] Equals [5] + [9]

[12] Equals Mean ([11]) - Mean ([10])

SUMMARY OF AQUARION'S RECENT ACQUISITIONS OF WATER SYSTEMS

Name	Water/ Wastewater	Docket #	# of Cust	# of Systems	Closing Date
Indian Fields Homeowners Association	Water	13-02-04	55	1	8/15/2013
West Service Corp. and REJA Acquisition Corp.	Water	13-01-11	269	2	4/11/2014
Bedrock Water Association	Water	10-03-18	15	1	9/23/2014
East Derby Waterworks	Water	13-07-13	476	1	10/16/2014
West Shore Owners Association	Water	05-01-09	29	1	3/2/2015
Southeastern CT Water Authority	Water	16-04-22	23	1	12/28/2016
Laurel View/ Laurel Ridge	Water	05-09-17	25	1	12/30/2016
Litchfield Hills Commons	Water	10-01-16	45	1	7/14/2017
Hickory Hills	Water	14-05-11	38	1	10/30/2017
Valleywood LLC	Water	17-08-10	132	1	3/4/2019
Arlington Homes, LLC	Water	17-08-10	150	1	3/4/2019
Interlaken Water Company	Water	14-04-22	16	1	7/31/2019
Hillside Water Corporation	Water	18-12-32	34	1	10/23/2020
Town of Marlborough	Water	19-09-09	22	1	11/30/2020
Town of New Fairfield	Water	18-08-34	8	1	12/8/2020
Town of Canaan	Water	20-06-21	134	1	4/29/2021
New England Service Company	Water and Wastewater	21-04-23	9,693	11 [1]	12/1/2021

Notes:

Water systems include: CT (1); MA (4); NH (6)

CAPITAL STRUCTURE ANALYSIS

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]					LONG-TERM DEBT RATIO [1]				
Proxy Group Company	Ticker	2020	2019	MRY	Proxy Group Company	Ticker	2020	2019	MRY
American Water Works Company Inc.	AWK	51.01%	51.42%	51.01%	American Water Works Company Inc.	AWK	37.57%	44.77%	37.57%
American States Water Company	AWR	56.76%	55.40%	56.76%	American States Water Company	AWR	43.24%	28.62%	43.24%
Atmos Energy Corporation	ATO	58.31%	57.85%	58.31%	Atmos Energy Corporation	ATO	41.69%	41.16%	41.69%
California Water Service Group	CWT	45.08%	43.23%	45.08%	California Water Service Group	CWT	41.23%	49.27%	41.23%
Essential Utilities, Inc.	WTRG	53.00%	53.27%	53.00%	Essential Utilities, Inc.	WTRG	41.93%	43.90%	41.93%
Middlesex Water Company	MSEX	59.10%	61.72%	59.10%	Middlesex Water Company	MSEX	40.36%	36.30%	40.36%
NiSource Inc.	NI	54.43%	54.33%	54.43%	NiSource Inc.	NI	45.57%	45.67%	45.57%
New Jersey Resources Corporation	NJR	55.13%	57.55%	55.13%	New Jersey Resources Corporation	NJR	44.29%	40.21%	44.29%
Northwest Natural Gas Company	NWN	41.92%	45.77%	41.92%	Northwest Natural Gas Company	NWN	46.45%	47.27%	46.45%
One Gas Inc.	OGS	60.04%	63.28%	60.04%	One Gas Inc.	OGS	39.96%	36.72%	39.96%
SJW Corporation	SJW	51.16%	51.70%	51.16%	SJW Corporation	SJW	40.14%	42.08%	40.14%
Spire Inc.	SR	52.64%	53.20%	52.64%	Spire Inc.	SR	37.32%	34.23%	37.32%
York Water Company	YORW	53.27%	56.50%	53.27%	York Water Company	YORW	46.73%	43.50%	46.73%
Proxy Group					Proxy Group Including NJR				
MEAN		53.22%	54.25%	53.22%			42.04%	41.05%	42.04%
LOW		41.92%	43.23%	41.92%	LOW		37.32%	28.62%	37.32%
HIGH		60.04%	63.28%	60.04%	HIGH		46.73%	49.27%	46.73%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES					LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES				
Company Name	Ticker	2020	2019	MRY	Company Name	Ticker	2020	2019	MRY
California-American Water Co.	AWK	57.34%	53.98%	57.34%	California-American Water Co.	AWK	33.27%	44.92%	33.27%
Hawaii-American Water Company	AWK		46.10%	46.10%	Hawaii-American Water Company	AWK		46.10%	46.10%
Indiana-American Water Company	AWK		53.51%	53.51%	Indiana-American Water Company	AWK		45.89%	45.89%
Iowa-American Water Company	AWK		47.11%	47.11%	Iowa-American Water Company	AWK		42.86%	42.86%
Kentucky-American Water Company	AWK	47.72%	47.09%	47.72%	Kentucky-American Water Company	AWK	45.43%	47.73%	45.43%
Maryland-American Water Company	AWK		51.31%	51.31%	Maryland-American Water Company	AWK		48.69%	48.69%
Missouri-American Water Company	AWK		49.92%	49.92%	Missouri-American Water Company	AWK		45.27%	45.27%
New Jersey-American Water Company	AWK		51.30%	51.30%	New Jersey-American Water Company	AWK		43.43%	43.43%
New York-American Water Company	AWK		44.13%	44.13%	New York-American Water Company	AWK		51.61%	51.61%
Pennsylvania-American Water Company	AWK		53.74%	53.74%	Pennsylvania-American Water Company	AWK		44.00%	44.00%
Tennessee-American Water Company	AWK		52.67%	52.67%	Tennessee-American Water Company	AWK		47.00%	47.00%
Virginia-American Water Company	AWK		45.42%	45.42%	Virginia-American Water Company	AWK		54.17%	54.17%
West Virginia-American Water Company	AWK		48.17%	48.17%	West Virginia-American Water Company	AWK		53.16%	53.16%
Golden State Water / Bear Valley	AWR	56.76%	55.40%	56.76%	Golden State Water / Bear Valley	AWR	43.24%	28.62%	43.24%
Atmos Energy Corporation	ATO	58.31%	57.85%	58.31%	Atmos Energy Corporation	ATO	41.69%	41.16%	41.69%
California Water Service	CWT	43.98%	42.87%	43.98%	California Water Service	CWT	41.68%	49.41%	41.68%
New Mexico Water Service Water Division	CWT	67.06%	65.26%	67.06%	New Mexico Water Service Water Division	CWT	32.94%	34.74%	32.94%
New Mexico Water Service Sewer Division	CWT	59.47%	56.79%	59.47%	New Mexico Water Service Sewer Division	CWT	40.53%	43.21%	40.53%
Washington Water Service	CWT	71.93%	52.53%	71.93%	Washington Water Service	CWT	28.07%	47.47%	28.07%
Hawaii Water Service Kaaanapali Division	CWT	48.93%	49.76%	48.93%	Hawaii Water Service Kaaanapali Division	CWT	51.07%	50.24%	51.07%
Hawaii Water Service Pukalani Division	CWT	64.56%	65.06%	64.56%	Hawaii Water Service Pukalani Division	CWT	35.44%	34.94%	35.44%
Aqua Pennsylvania Water	WTRG	50.48%	50.65%	50.48%	Aqua Pennsylvania Water	WTRG	48.22%	48.61%	48.22%
Aqua Pennsylvania Wastewater	WTRG	97.07%	95.39%	97.07%	Aqua Pennsylvania Wastewater	WTRG	2.93%	4.61%	2.93%
Peoples Natural Gas Company	WTRG	54.18%	53.54%	54.18%	Peoples Natural Gas Company	WTRG	33.95%	40.86%	33.95%
Peoples Gas Company	WTRG	51.71%	56.80%	51.71%	Peoples Gas Company	WTRG	13.26%	22.13%	13.26%
Aqua Ohio Water	WTRG	64.62%	61.27%	64.62%	Aqua Ohio Water	WTRG	35.38%	38.73%	35.38%
Aqua Ohio Wastewater	WTRG	72.82%	60.35%	72.82%	Aqua Ohio Wastewater	WTRG	27.18%	39.65%	27.18%
Aqua Illinois	WTRG	54.57%	57.96%	54.57%	Aqua Illinois	WTRG	45.43%	42.04%	45.43%
Aqua Texas	WTRG	50.06%	48.84%	50.06%	Aqua Texas	WTRG	49.72%	50.91%	49.72%
Aqua New Jersey, Inc. Water	WTRG	50.28%	59.64%	50.28%	Aqua New Jersey, Inc. Water	WTRG	49.72%	40.36%	49.72%
Aqua New Jersey, Inc. Wastewater	WTRG	74.37%	55.16%	74.37%	Aqua New Jersey, Inc. Wastewater	WTRG	0.00%	0.00%	0.00%
Aqua North Carolina	WTRG	50.62%	50.65%	50.62%	Aqua North Carolina	WTRG	49.38%	49.35%	49.38%
Aqua Indiana Aboite Division	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Aboite Division	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Consumers Indiana Div.	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Consumers Indiana Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Darlington Div.	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Darlington Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Heir Division	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Heir Division	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Sani Tech, Inc.	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Sani Tech, Inc.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Southeastern Utilities	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Southeastern Utilities	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wedgewood Park	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Wedgewood Park	WTRG	0.00%	0.00%	0.00%
Aqua Indiana White Oak Div.	WTRG	100.00%	100.00%	100.00%	Aqua Indiana White Oak Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wildwood Shores Div.	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Wildwood Shores Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wymberly Division	WTRG	100.00%	100.00%	100.00%	Aqua Indiana Wymberly Division	WTRG	0.00%	0.00%	0.00%
Aqua Virginia	WTRG	55.23%	49.44%	55.23%	Aqua Virginia	WTRG	44.77%	50.56%	44.77%
Delta Gas	WTRG	49.16%	57.95%	49.16%	Delta Gas	WTRG	37.19%	38.32%	37.19%
Peoples Gas of WV	WTRG	46.47%	48.10%	46.47%	Peoples Gas of WV	WTRG	49.45%	51.90%	49.45%
Middlesex Water Company	MSEX		61.95%	61.95%	Middlesex Water Company	MSEX		36.70%	36.70%
Pinelands Water	MSEX	67.73%	64.30%	67.73%	Pinelands Water	MSEX	0.00%	0.00%	0.00%
Pinelands WW	MSEX	72.23%	68.74%	72.23%	Pinelands WW	MSEX	0.00%	0.00%	0.00%
Twin Lakes Util.	MSEX		3.09%	3.09%	Twin Lakes Util.	MSEX		0.00%	0.00%
Northern Indiana Public Service Company LLC	NI	58.01%	56.43%	58.01%	Northern Indiana Public Service Company LLC	NI	41.99%	43.57%	41.99%
Columbia Gas of Kentucky, Inc.	NI	54.68%	54.23%	54.68%	Columbia Gas of Kentucky, Inc.	NI	45.32%	45.77%	45.32%
Columbia Gas of Maryland, Inc.	NI	54.95%	52.38%	54.95%	Columbia Gas of Maryland, Inc.	NI	45.05%	47.62%	45.05%
Columbia Gas of Ohio, Inc.	NI	50.45%	53.00%	50.45%	Columbia Gas of Ohio, Inc.	NI	49.55%	47.00%	49.55%
Columbia Gas of Pennsylvania, Inc.	NI	55.68%	55.59%	55.68%	Columbia Gas of Pennsylvania, Inc.	NI	44.32%	44.41%	44.32%
Columbia Gas of Virginia, Inc.	NI	43.69%	42.53%	43.69%	Columbia Gas of Virginia, Inc.	NI	56.31%	57.47%	56.31%
New Jersey Natural Gas Company	NJR	55.13%	57.55%	55.13%	New Jersey Natural Gas Company	NJR	44.29%	40.21%	44.29%
Northwest Natural Gas Company	NWN	41.92%	45.77%	41.92%	Northwest Natural Gas Company	NWN	46.45%	47.27%	46.45%
Kansas Gas Service Company, Inc.	OGS	60.33%	63.55%	60.33%	Kansas Gas Service Company, Inc.	OGS	39.67%	36.45%	39.67%
Oklahoma Natural Gas Company	OGS	59.85%	63.10%	59.85%	Oklahoma Natural Gas Company	OGS	40.15%	36.90%	40.15%
Texas Gas Service Company, Inc.	OGS	59.99%	63.23%	59.99%	Texas Gas Service Company, Inc.	OGS	40.01%	36.77%	40.01%
San Jose Water	SJW	49.84%	48.29%	49.84%	San Jose Water	SJW	42.42%	45.54%	42.42%
CT Water	SJW	53.94%	53.05%	53.94%	CT Water	SJW	37.30%	40.71%	37.30%
Avon Water	SJW		92.15%	92.15%	Avon Water	SJW		7.85%	7.85%
Heritage Village Water	SJW		80.56%	80.56%	Heritage Village Water	SJW		19.44%	19.44%
Maine Water Co.	SJW	48.43%	50.29%	48.43%	Maine Water Co.	SJW	34.51%	42.47%	34.51%
Canyon Lake Water Service Company	SJW		63.61%	63.61%	Canyon Lake Water Service Company	SJW		24.88%	24.88%
Spire Alabama Inc.	SR	58.95%	60.54%	58.95%	Spire Alabama Inc.	SR	32.66%	30.07%	32.66%
Spire Gulf Inc.	SR	39.49%	37.18%	39.49%	Spire Gulf Inc.	SR	57.90%	62.82%	57.90%
Spire Mississippi Inc.	SR	1.78%	45.95%	1.78%	Spire Mississippi Inc.	SR	0.00%	0.00%	0.00%
Spire Missouri Inc.	SR	50.65%	50.45%	50.65%	Spire Missouri Inc.	SR	38.72%	34.99%	38.72%
York Water Company	YORW	53.27%	56.50%	53.27%	York Water Company	YORW	46.73%	43.50%	46.73%

Notes:

[1] Ratios are weighted by actual common capital, preferred equity, and long-term debt of Operating Subsidiaries.

[2] Natural Gas and Water operating subsidiaries where data was unable to be obtained for 2019 and 2020 were removed from the analysis.

CAPITAL STRUCTURE ANALYSIS

CAPITAL STRUCTURE ANALYSIS

SHORT-TERM DEBT RATIO [1]				
Proxy Group Company	Ticker	2020	2019	MRY
American Water Works Company Inc.	AWK	11.34%	3.76%	11.34%
American States Water Company	AWR	0.00%	15.98%	0.00%
Atmos Energy Corporation	ATO	0.00%	0.99%	0.00%
California Water Service Group	CWT	13.69%	7.49%	13.69%
Essential Utilities, Inc.	WTRG	5.07%	2.82%	5.07%
Middlesex Water Company	MSEX	0.19%	1.58%	0.19%
NiSource Inc.	NI	0.00%	0.00%	0.00%
New Jersey Resources Corporation	NJR	0.58%	2.23%	0.58%
Northwest Natural Gas Company	NWN	11.63%	6.96%	11.63%
One Gas Inc.	OGS	0.00%	0.00%	0.00%
SJW Corporation	SJW	8.70%	6.22%	8.70%
Spire Inc.	SR	10.05%	12.57%	10.05%
York Water Company	YORW	0.00%	0.00%	0.00%
Proxy Group Including NJR				
MEAN		4.71%	4.66%	4.71%
LOW		0.00%	0.00%	0.00%
HIGH		13.69%	15.98%	13.69%

PREFERRED EQUITY RATIO [1]				
Proxy Group Company	Ticker	2020	2019	MRY
American Water Works Company Inc.	AWK	0.08%	0.05%	0.08%
American States Water Company	AWR	0.00%	0.00%	0.00%
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%
California Water Service Group	CWT	0.00%	0.00%	0.00%
Essential Utilities, Inc.	WTRG	0.00%	0.00%	0.00%
Middlesex Water Company	MSEX	0.35%	0.39%	0.35%
NiSource Inc.	NI	0.00%	0.00%	0.00%
New Jersey Resources Corporation	NJR	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%
One Gas Inc.	OGS	0.00%	0.00%	0.00%
SJW Corporation	SJW	0.00%	0.00%	0.00%
Spire Inc.	SR	0.00%	0.00%	0.00%
York Water Company	YORW	0.00%	0.00%	0.00%
Proxy Group Including NJR				
MEAN		0.03%	0.03%	0.03%
LOW		0.00%	0.00%	0.00%
HIGH		0.35%	0.39%	0.35%

SHORT-TERM DEBT RATIO - UTILITY OPERATING COMPANIES				
Company Name	Ticker	2019	2019	MRY
California-American Water Co.	AWK	9.38%	1.10%	9.38%
Hawaii-American Water Company	AWK		7.79%	7.79%
Indiana-American Water Company	AWK		0.60%	0.60%
Iowa-American Water Company	AWK		10.04%	10.04%
Kentucky-American Water Company	AWK	6.39%	4.69%	6.39%
Maryland-American Water Company	AWK		0.00%	0.00%
Missouri-American Water Company	AWK		4.79%	4.79%
New Jersey-American Water Company	AWK		5.27%	5.27%
New York-American Water Company	AWK		4.27%	4.27%
Pennsylvania-American Water Company	AWK		2.15%	2.15%
Tennessee-American Water Company	AWK		0.33%	0.33%
Virginia-American Water Company	AWK		0.42%	0.42%
West Virginia-American Water Company	AWK		-1.36%	-1.36%
Golden State Water / Bear Valley	AWR	0.00%	15.98%	0.00%
Atmos Energy Corporation	ATO	0.00%	0.99%	0.00%
California Water Service	CWT	14.34%	7.72%	14.34%
New Mexico Water Service Water Division	CWT	0.00%	0.00%	0.00%
New Mexico Water Service Sewer Division	CWT	0.00%	0.00%	0.00%
Washington Water Service	CWT	0.00%	0.00%	0.00%
Hawaii Water Service Kaanapali Division	CWT	0.00%	0.00%	0.00%
Hawaii Water Service Pukalani Division	CWT	0.00%	0.00%	0.00%
Aqua Pennsylvania Water	WTRG	1.30%	0.73%	1.30%
Aqua Pennsylvania Wastewater	WTRG	0.00%	0.00%	0.00%
Peoples Natural Gas Company	WTRG	11.87%	5.60%	11.87%
Peoples Gas Company	WTRG	35.02%	21.07%	35.02%
Aqua Ohio Water	WTRG	0.00%	0.00%	0.00%
Aqua Ohio Wastewater	WTRG	0.00%	0.00%	0.00%
Aqua Illinois	WTRG	0.00%	0.00%	0.00%
Aqua Texas	WTRG	0.22%	0.26%	0.22%
Aqua New Jersey, Inc. Water	WTRG	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Wastewater	WTRG	25.63%	44.84%	25.63%
Aqua North Carolina	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Aboite Division	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Consumers Indiana Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Darlington Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Heir Division	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Sani Tech, Inc.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Southeastern Utilities	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wedgewood Park	WTRG	0.00%	0.00%	0.00%
Aqua Indiana White Oak Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wildwood Shores Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wymberly Division	WTRG	0.00%	0.00%	0.00%
Aqua Virginia	WTRG	0.00%	0.00%	0.00%
Delta Gas	WTRG	13.65%	3.73%	13.65%
Peoples Gas of WV	WTRG	4.08%	0.00%	4.08%
Middlesex Water Company	MSEX		0.96%	0.96%
Pinelands Water	MSEX	32.27%	35.70%	32.27%
Pinelands WW	MSEX	27.77%	31.26%	27.77%
Twin Lakes Util.	MSEX		96.91%	96.91%
Northern Indiana Public Service Company LLC	NI	0.00%	0.00%	0.00%
Columbia Gas of Kentucky, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Maryland, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Ohio, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Pennsylvania, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Virginia, Inc.	NI	0.00%	0.00%	0.00%
New Jersey Natural Gas Company	NJR	0.58%	2.23%	0.58%
Northwest Natural Gas Company	NWN	11.63%	6.96%	11.63%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%
San Jose Water	SJW	7.74%	6.17%	7.74%
CT Water	SJW	8.76%	6.23%	8.76%
Avon Water	SJW		0.00%	0.00%
Heritage Village Water	SJW		0.00%	0.00%
Maine Water Co.	SJW	17.07%	7.23%	17.07%
Canyon Lake Water Service Company	SJW		11.51%	11.51%
Spire Alabama Inc.	SR	8.40%	9.39%	8.40%
Spire Gulf Inc.	SR	2.61%	0.00%	2.61%
Spire Mississippi Inc.	SR	98.22%	54.05%	98.22%
Spire Missouri Inc.	SR	10.63%	14.56%	10.63%
York Water Company	YORW	0.00%	0.00%	0.00%

PREFERRED EQUITY RATIO - UTILITY OPERATING COMPANIES				
Company Name	Ticker	2020	2019	MRY
California-American Water Co.	AWK	0.00%	0.00%	0.00%
Hawaii-American Water Company	AWK		0.00%	0.00%
Indiana-American Water Company	AWK		0.00%	0.00%
Iowa-American Water Company	AWK		0.00%	0.00%
Kentucky-American Water Company	AWK	0.46%	0.48%	0.46%
Maryland-American Water Company	AWK		0.00%	0.00%
Missouri-American Water Company	AWK		0.02%	0.02%
New Jersey-American Water Company	AWK		0.00%	0.00%
New York-American Water Company	AWK		0.00%	0.00%
Pennsylvania-American Water Company	AWK		0.11%	0.11%
Tennessee-American Water Company	AWK		0.00%	0.00%
Virginia-American Water Company	AWK		0.00%	0.00%
West Virginia-American Water Company	AWK		0.03%	0.03%
Golden State Water / Bear Valley	AWR	0.00%	0.00%	0.00%
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%
California Water Service	CWT	0.00%	0.00%	0.00%
New Mexico Water Service Water Division	CWT	0.00%	0.00%	0.00%
New Mexico Water Service Sewer Division	CWT	0.00%	0.00%	0.00%
Washington Water Service	CWT	0.00%	0.00%	0.00%
Hawaii Water Service Kaanapali Division	CWT	0.00%	0.00%	0.00%
Hawaii Water Service Pukalani Division	CWT	0.00%	0.00%	0.00%
Aqua Pennsylvania Water	WTRG	0.00%	0.00%	0.00%
Aqua Pennsylvania Wastewater	WTRG	0.00%	0.00%	0.00%
Peoples Natural Gas Company	WTRG	0.00%	0.00%	0.00%
Peoples Gas Company	WTRG	0.00%	0.00%	0.00%
Aqua Ohio Water	WTRG	0.00%	0.00%	0.00%
Aqua Ohio Wastewater	WTRG	0.00%	0.00%	0.00%
Aqua Illinois	WTRG	0.00%	0.00%	0.00%
Aqua Texas	WTRG	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Water	WTRG	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Wastewater	WTRG	0.00%	0.00%	0.00%
Aqua North Carolina	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Aboite Division	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Consumers Indiana Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Darlington Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Heir Division	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Sani Tech, Inc.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Southeastern Utilities	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wedgewood Park	WTRG	0.00%	0.00%	0.00%
Aqua Indiana White Oak Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wildwood Shores Div.	WTRG	0.00%	0.00%	0.00%
Aqua Indiana Wymberly Division	WTRG	0.00%	0.00%	0.00%
Aqua Virginia	WTRG	0.00%	0.00%	0.00%
Delta Gas	WTRG	0.00%	0.00%	0.00%
Peoples Gas of WV	WTRG	0.00%	0.00%	0.00%
Middlesex Water Company	MSEX		0.40%	0.40%
Pinelands Water	MSEX	0.00%	0.00%	0.00%
Pinelands WW	MSEX	0.00%	0.00%	0.00%
Twin Lakes Util.	MSEX		0.00%	0.00%
Northern Indiana Public Service Company LLC	NI	0.00%	0.00%	0.00%
Columbia Gas of Kentucky, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Maryland, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Ohio, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Pennsylvania, Inc.	NI	0.00%	0.00%	0.00%
Columbia Gas of Virginia, Inc.	NI	0.00%	0.00%	0.00%
New Jersey Natural Gas Company	NJR	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%
San Jose Water	SJW	0.00%	0.00%	0.00%
CT Water	SJW	0.00%	0.00%	0.00%
Avon Water	SJW		0.00%	0.00%
Heritage Village Water	SJW		0.00%	0.00%
Maine Water Co.	SJW	0.00%	0.00%	0.00%
Canyon Lake Water Service Company	SJW		0.00%	0.00%
Spire Alabama Inc.	SR	0.00%	0.00%	0.00%
Spire Gulf Inc.	SR	0.00%	0.00%	0.00%
Spire Mississippi Inc.	SR	0.00%	0.00%	0.00%
Spire Missouri Inc.	SR	0.00%	0.00%	0.00%
York Water Company	YORW	0.00%	0.00%	0.00%

Notes:

[1] Ratios are weighted by actual common capital, preferred equity, and long-term debt of Operating Subsidiaries.

[2] Natural Gas and Water operating subsidiaries where data was unable to be obtained for 2019 and 2020 were removed from the analysis.