

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

IN THE MATTER OF:

ELECTRONIC APPLICATION OF KENTUCKY-	)	
AMERICAN WATER COMPANY FOR AN	)	CASE NO. 2025-00122
ADJUSTMENT OF RATES	)	

DIRECT TESTIMONY OF ANN E. BULKLEY

May 16, 2025

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1 **I. INTRODUCTION**

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

3 A. My name is Ann E. Bulkley. I am a Principal at The Brattle Group (“Brattle”). My
4 business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

5 **Q. On whose behalf are you submitting this direct testimony?**

6 A. I am submitting this direct testimony before the Kentucky Public Service Commission
7 (“Commission”) on behalf of Kentucky-American Water Company (“KAWC” or the
8 “Company”), a wholly-owned subsidiary of American Water Works Company, Inc.
9 (“AWK”).

10 **Q. Please describe your education and experience.**

11 A. I hold a Bachelor’s degree in Economics and Finance from Simmons College and a
12 Master’s degree in Economics from Boston University, with over 30 years of experience
13 consulting to the regulated utility industry. I have advised numerous energy and utility
14 clients on a wide range of financial and economic issues with primary concentrations in
15 valuation and utility rate matters. Many of these assignments have included the
16 determination of the cost of capital for valuation and ratemaking purposes. My resume and
17 a summary of testimony that I have filed in other proceedings are presented in more detail
18 in Appendix A.

19 **Q. What is the purpose of your direct testimony?**

20 A. The purpose of my direct testimony is to present evidence and provide a recommendation
21 regarding the appropriate return on equity (“ROE”) and to provide an assessment of the
22 reasonableness of KAWC’s proposed capital structure for ratemaking purposes for the
23 Company’s water utility operations.

1 **Q. Are you sponsoring any exhibits in support of your direct testimony?**

2 A. Yes. My analyses and recommendations are supported by the data presented in Exhibits
3 AEB-1 through AEB-10.

4 **Q. Please provide a brief overview of the analyses that led to your ROE recommendation.**

5 A. I relied on the results of several analytical approaches to estimate the costs of equity for
6 the Company. I have first developed a proxy group of utility companies that face risks
7 generally comparable to those faced by KAWC. I have not limited the proxy group to
8 water utilities, but rather have included a broader group of utilities that face risk similar to
9 KAWC because a proxy group composed only of water utilities would result in a small
10 group of companies for which data is limited. To that proxy group, I have applied the
11 constant growth form of the Discounted Cash Flow (“DCF”) model, the Capital Asset
12 Pricing Model (“CAPM”), and the Empirical Capital Asset Pricing Model (“ECAPM”).
13 My recommendation also takes into consideration the Company’s relative business and
14 regulatory risk as compared with the proxy group, and the Company’s proposed capital
15 structures as compared with the capital structures of the operating utilities of the companies
16 contained in the proxy group. Although I do not make specific adjustments to my ROE
17 recommendation for these factors, I consider them in the aggregate when determining
18 where my recommended ROE falls within the range of the analytical results.

19 **Q. How is the remainder of your direct testimony organized?**

20 A. The remainder of my direct testimony is organized as follows:

- 21 • Section II provides a summary of my analyses and conclusions.
- 22 • Section III reviews the regulatory guidelines pertinent to the development of the
- 23 cost of capital.

- Section IV discusses current and projected capital market conditions and the effect of those conditions on KAWC’s cost of equity.
- Section V explains my selection of the proxy group for KAWC.
- Section VI describes my analyses and the analytical basis for my recommendation of the appropriate ROE for KAWC.
- Section VII provides a discussion of specific regulatory, business, and financial risks that have a direct bearing on the ROE to be authorized for KAWC in this case.
- Section VIII provides an assessment of the reasonableness of KAWC’s proposed capital structure relative to the proxy group.
- Section IX presents my conclusions and recommendations.

II. SUMMARY OF ANALYSIS AND CONCLUSIONS

Q. Please summarize the key factors considered in your analyses and upon which you base your recommended ROE.

A. The key factors that I have considered in my cost of equity analyses and recommended ROE for the Company in this proceeding are:

- The United States Supreme Court’s *Hope* and *Bluefield* decisions¹ established the standards for determining a fair and reasonable authorized ROE for public utilities, including consistency of the allowed return with the returns of other businesses having similar risk, adequacy of the return to provide access to capital and support credit quality, and the requirement that the result lead to just and reasonable rates.
- The effect of current and prospective capital market conditions on the cost of equity estimation models and on investors’ return requirements.
- The results of several analytical approaches that provide estimates of the Company’s cost of equity. Because the Company’s authorized ROE should be a forward-looking estimate over the period during which the rates will be in effect, these analyses rely on forward-looking inputs and assumptions (*e.g.*, projected

¹ *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) (“*Hope*”); *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) (“*Bluefield*”).

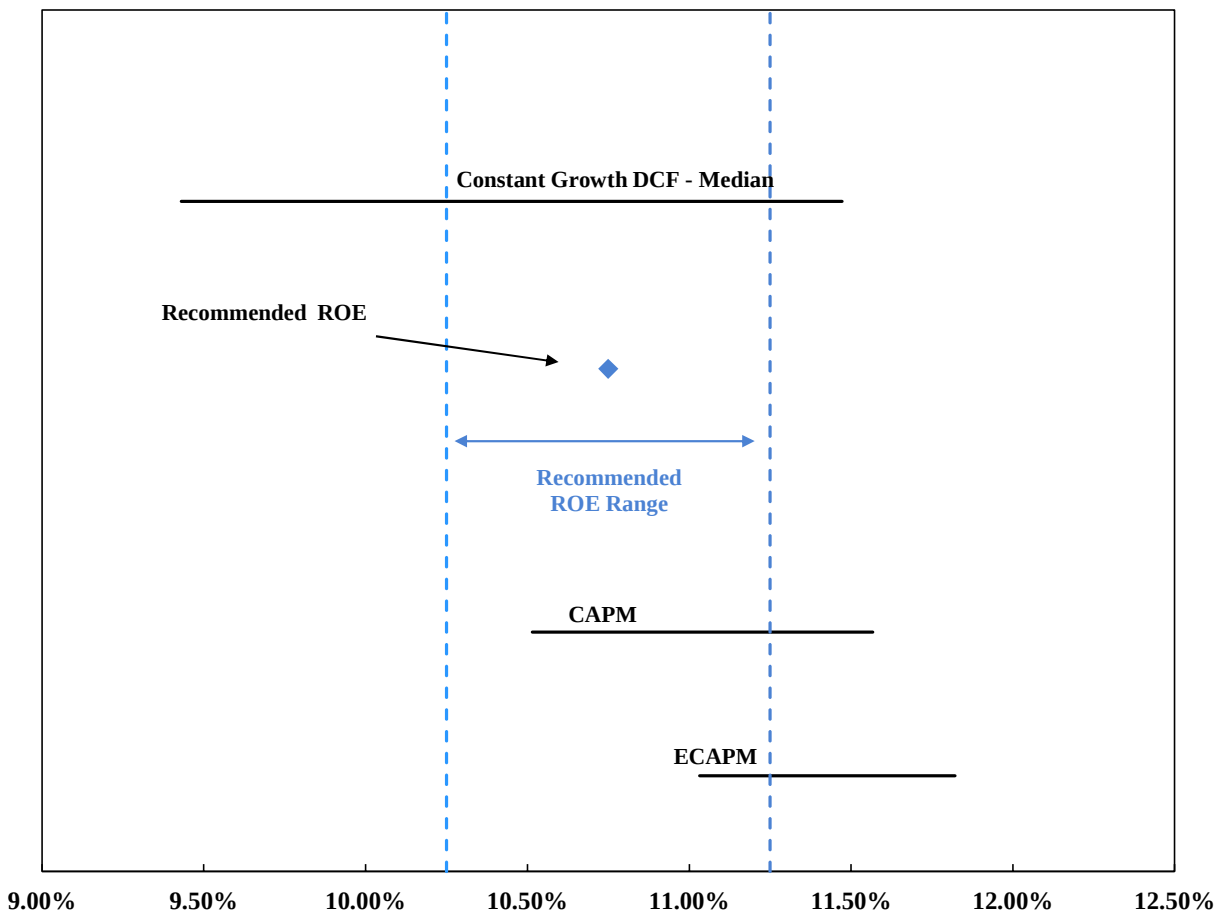
analyst growth rates in the DCF model, forecasted risk-free rate and market risk premium in the CAPM analysis).

- Although the companies in my proxy group are generally comparable to KAWC, each company is unique, and no two companies have the exact same business and financial risk profiles. Accordingly, I have considered the Company’s regulatory, business, and financial risks relative to the proxy group of comparable companies in determining where the Company’s ROE should fall within the reasonable range of analytical results to appropriately account for any residual differences in risk.

Q. What are the results of the models that you have used to estimate the cost of equity for KAWC?

A. Figure 1 (also see Exhibit AEB-1) summarizes the range of results produced by the constant growth DCF, CAPM, and ECAPM analyses.

Figure 1: Summary of ROE Results



1 **Q. What is your conclusion regarding the appropriate authorized ROE for KAWC in**
2 **this proceeding?**

3 A. Considering the analytical results presented in Figure 1, current and prospective capital
4 market conditions, as well as the level of regulatory, business, and financial risk faced by
5 KAWC's water operations relative to the proxy group, a range for the authorized ROE
6 from 10.25 percent to 11.25 percent, which takes into consideration both the low and high
7 end of the range of results in the models, is reasonable. Taking into consideration the
8 results of the analytical models, current market conditions, and the Company's relative
9 risk, an ROE of 10.75 percent is reasonable and appropriate.

10 **Q. Is the Company's requested capital structure reasonable and appropriate?**

11 A. Yes. The Company's proposed common equity ratio of 52.26 percent for the thirteen-
12 month period ending December 31, 2026, is lower than the average actual equity ratios of
13 the utility operating subsidiaries of the proxy group companies, and well within the range
14 of the equity ratios for those same companies.

15 **III. REGULATORY GUIDELINES**

16 **Q. Please describe the guiding principles to be used in establishing the cost of capital for**
17 **a regulated utility.**

18 A. The U.S. Supreme Court's precedent-setting *Hope* and *Bluefield* cases established the
19 standards for determining the fairness and reasonableness of a utility's authorized ROE.
20 Among the standards established by the Court in those cases are: (1) consistency with other
21 businesses having similar or comparable risks; (2) adequacy of the return to support credit
22 quality and access to capital; and (3) the principle that the specific means of arriving at a
23 fair return are not important, only that the end result leads to just and reasonable rates.²

² *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.

1 **Q. Is fixing a proper rate of return just about protecting the utility’s interests?**

2 A. No. As the Court noted in *Bluefield*, a proper rate of return not only assures “confidence
3 in the financial soundness of the utility and should be adequate, under efficient and
4 economical management, to maintain and support its credit [but also] enable[s the utility]
5 to raise the money necessary for the proper discharge of its public duties.”³ As the Court
6 went on to explain in *Hope*, “[t]he rate-making process ... involves balancing of the
7 investor and consumer interests.”⁴

8 **Q. Has the Commission provided similar guidance in establishing the appropriate return**
9 **on common equity?**

10 A. Yes. For example, the Commission has stated that it must “balance the financial integrity
11 of the utility with the interests of the consumer and the statutory obligation that rates be
12 fair, just and reasonable.”⁵

13 **Q. Why is it important for a utility to be allowed the opportunity to earn a return that is**
14 **adequate to attract capital at reasonable terms?**

15 A. A return that is adequate to attract capital at reasonable terms enables KAWC to continue
16 to efficiently provide safe, reliable water service while maintaining its financial integrity.
17 That return should be commensurate with returns expected elsewhere in the market for
18 investments of equivalent risk. If it is not, debt and equity investors will seek alternative
19 investment opportunities for which the expected return reflects the perceived risks, thereby
20 inhibiting KAWC’s ability to attract capital at reasonable cost. When the Company is

³ *Bluefield*, 262 U.S. at 693.

⁴ *Hope*, 320 U.S. at 603.

⁵ Case No. 2023-00191, *Electronic Application of Kentucky-American Water Company for an Adjustment of Rates, A Certificate of Public Convenience and Necessity for Installation of Advanced Metering Infrastructure, Approval of Regulatory and Accounting Treatments, and Tariff Revisions* (KY PSC May 3, 2023), Order at 36-37.

1 afforded a reasonable opportunity to earn its market-based cost of capital, a fair and
2 reasonable balance is achieved between customers' and shareholders' interests.

3 **Q. Is a utility's ability to attract capital also affected by the ROEs authorized for other**
4 **utilities?**

5 A. Yes. Utilities compete directly for capital with other investments of similar risk, which
6 include other water, natural gas, and electric utilities. Therefore, the ROE authorized for a
7 utility sends an important signal to investors regarding whether there is regulatory support
8 for financial integrity, dividends, growth, and fair compensation for business and financial
9 risk. The cost of capital represents an opportunity cost to investors. If higher returns are
10 available elsewhere for other investments of comparable risk over the same time-period,
11 investors have an incentive to direct their capital to those alternative investments. Thus,
12 an authorized ROE significantly below authorized ROEs for other water, natural gas, and
13 electric utilities can inhibit the utility's ability to attract capital for investment.

14 **Q. What is the standard for setting the ROE in a jurisdiction?**

15 A. The stand-alone ratemaking principle is the foundation of jurisdictional ratemaking. This
16 principle requires that the rates charged in any operating jurisdiction be for the costs
17 incurred in that jurisdiction. The stand-alone ratemaking principle ensures that customers
18 in each jurisdiction only pay for the costs of the service provided in that jurisdiction, which
19 is not influenced by the business operations in other operating companies. In order to
20 maintain this principle, the cost of equity analysis is performed for an individual operating
21 company as a stand-alone entity. As such, I have evaluated the investor-required return for
22 KAWC's operations in Kentucky.

1 **Q. Does the fact that the Company is wholly-owned by AWK, a publicly-traded**
2 **company, affect your analysis?**

3 A. No. In this proceeding, consistent with stand-alone ratemaking principles, it is appropriate
4 to establish the cost of equity for KAWC, not their publicly-traded parent, AWK. More
5 importantly, however, it is appropriate to establish a cost of equity and capital structure
6 that provides KAWC the ability to attract capital on reasonable terms, both on a stand-
7 alone basis and within AWK. Although the Company is committed to investing the
8 required capital to provide safe and reliable service, because it is a subsidiary of AWK, the
9 Company competes with the other AWK subsidiaries for proactive investment capital. In
10 determining how to allocate its finite proactive capital resources, it would be reasonable
11 for AWK to consider the authorized ROE of each of its subsidiaries.

12 **Q. Is the regulatory framework and the authorized ROE and equity ratio important to**
13 **the financial community?**

14 A. Yes. The regulatory framework is one of the most important factors in investors'
15 assessments of the risk of utilities. Specifically, the authorized ROE and equity ratio for
16 regulated utilities is very important for determining the degree of regulatory support for a
17 utility's creditworthiness and financial stability in the jurisdiction. To the extent that
18 authorized returns in a jurisdiction are lower than the returns that have been authorized
19 more broadly, such actions are considered by both debt and equity investors in the overall
20 risk assessment of the regulatory jurisdiction in which the company operates. In other
21 words, the authorized ROE and equity ratio may affect the cost of borrowing and can serve
22 as a signal to equity investors about the risks associated with equity investment in a
23 company.

1 **Q. What are your conclusions regarding regulatory guidelines?**

2 A. The ratemaking process is premised on the principle that, in order for investors and
3 companies to commit the capital needed to provide safe and reliable utility services, a
4 utility must have a reasonable opportunity to recover the return of, and the market-required
5 return on, its invested capital. Accordingly, the Commission’s order in this proceeding
6 should establish rates that provide the Company with a reasonable opportunity to earn a
7 ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its
8 financial integrity; and (3) commensurate with returns on investments in enterprises with
9 similar risk. It is important for the ROE authorized in this proceeding to take into
10 consideration current and projected capital market conditions, as well as investors’
11 expectations and requirements for both risks and returns. Because utility operations are
12 capital-intensive, regulatory decisions should enable the utility to attract capital at
13 reasonable terms under a variety of economic and financial market conditions. Providing
14 the opportunity to earn a market-based cost of capital supports the financial integrity of the
15 Company, which is in the interest of both customers and shareholders.

16 **IV. CAPITAL MARKET CONDITIONS**

17 **Q. Why is it important to analyze capital market conditions?**

18 A. Capital market conditions influence cost of equity models by affecting inputs in the model
19 at the time the analysis is performed. While the ROE that is established in a rate proceeding
20 is intended to be forward-looking, the analyst uses current and projected market data,
21 specifically stock prices, dividends, growth rates and interest rates, in the models to
22 estimate the required return for the subject company.

23 Analysts and regulatory commissions recognize the importance of considering how

1 these conditions impact cost of equity estimation models when determining the appropriate
2 range and recommended ROE for a future period. For example, if investors do not expect
3 current market conditions to be sustained in the future, it is possible that the cost of equity
4 estimation models may not provide an accurate estimate of investors' required return
5 during that rate period. Therefore, it is important to consider projected market data to
6 estimate the return of the forward-looking period.

7 **Q. How do market conditions affect the cost of equity models?**

8 A. The cost of equity models rely on various assumptions that are directly affected by market
9 conditions. For example, in this section, I specifically address: (1) sustained elevated levels
10 of inflation, (2) uncertainty in federal monetary policy related to the changes in
11 administration and (3) increased interest rates that are expected to remain elevated over the
12 next few years. Interest rates, which are affected by inflation and monetary policy, are
13 directly used in the capital asset pricing model, and indirectly affect the dividend yield in
14 the DCF model.

15 **Q. What has the level of inflation been over the past few years?**

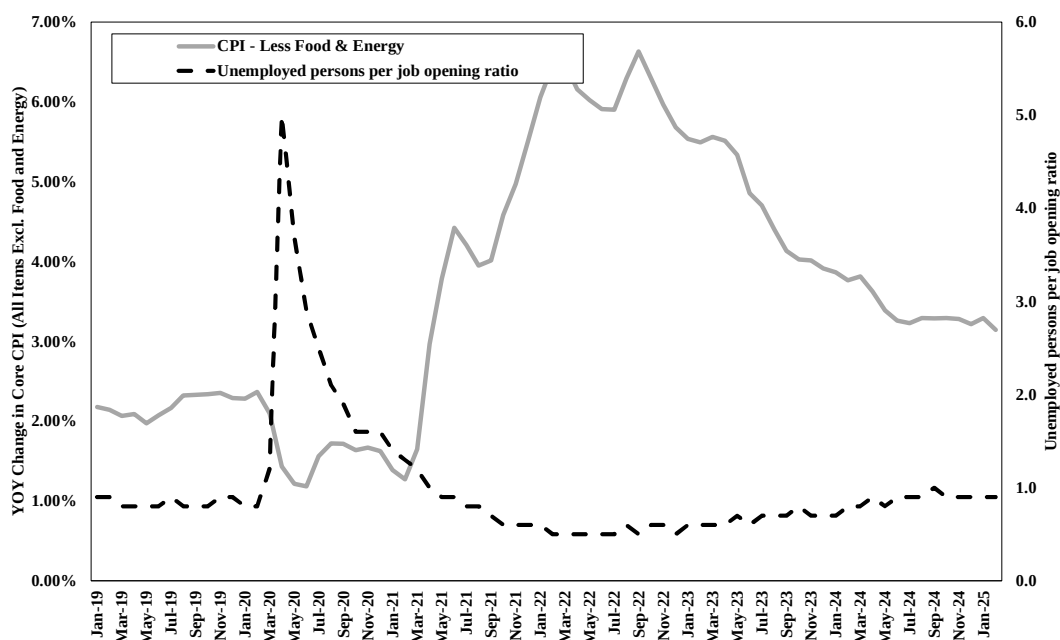
16 A. As shown in Figure 2, year-over-year core inflation increased steadily beginning in early
17 2021, rising from 1.40 percent in January 2021 to a high of 6.64 percent in September
18 2022, which was the largest 12-month increase since 1982.⁶ While core inflation has
19 declined in response to the Federal Reserve's monetary policy, it continues to remain
20 significantly above the Federal Reserve's target level of 2.00 percent.

21 Because the Federal Reserve's dual mandate is to promote stable prices and
22 employment, considering employment data, in addition to interest rates, is important. The

⁶ Reade Pickert, "Core US inflation rises to 40-year high, securing big Fed hike," *Bloomberg*, October 13, 2022.

ratio of unemployed persons per job opening was 0.90 in February 2025 (the most recent data available at the time of this testimony) and has been consistently below 1.00 since April 2021, indicating a relatively tight labor market. Sustained strength in the labor market has allowed the Federal Reserve to prioritize reducing inflation by pursuing the necessary restrictive monetary policy needed to achieve its 2.00 percent target benchmark.

Figure 2: Core Inflation and Unemployed Persons-to-Job Openings, January 2019 to February 2025⁷



Q. What policy actions has the Federal Reserve enacted to respond to increased inflation?

A. The dramatic increase in inflation prompted the Federal Reserve to pursue an aggressive normalization of monetary policy, removing the accommodative policy programs used to mitigate the economic effects of COVID-19. Between the March 2022 Federal Open

⁷ Figure 2 presents the year-over-year change in core inflation, as measured by the Consumer Price Index (“CPI”) excluding food and energy prices as published by the Bureau of Labor Statistics. I have considered core inflation because it is the preferred inflation indicator of the Federal Reserve for determining the direction of monetary policy. Core inflation is preferred by the Federal Reserve because it removes the effect of food and energy prices, which can be highly volatile.

1 Market Committee (“FOMC”) meeting and the July 2023 FOMC meeting, the Federal
2 Reserve increased the target federal funds rate through a series of increases from a range
3 of 0.00 – 0.25 percent to a range of 5.25 percent to 5.50 percent.

4 **Q. How did yields on long-term government bonds respond to the Federal Reserve’s**
5 **normalization of monetary policy?**

6 A. Since the Federal Reserve’s December 2021 meeting, the yield on 10-year Treasury bonds
7 increased by over 350 basis points, increasing from 1.47 percent on December 15, 2021 to
8 a peak of 4.98 percent in October 2023. It currently remains well above 2021 levels (i.e.,
9 4.26 percent as of April 8, 2025).⁸

10 **Q. Did the Federal Reserve recently reduce the federal funds rates?**

11 A. Yes. The Federal Reserve did recently reduce the federal funds rate by 50 basis points in
12 September 2024, 25 basis points in November 2024, and 25 basis points in December 2024
13 noting at the September meeting the reduction was due to the risks associated with both
14 inflation and the labor market becoming more balanced given the effectiveness of
15 restrictive monetary policy in combatting inflation. However, the Federal Reserve left
16 rates unchanged at the most recent FOMC meetings in January and March 2025.

17 **Q. What is the expected path of monetary policy over the near-term?**

18 A. At the March 2025 FOMC meeting, Chairman Powell noted that labor market conditions
19 are “solid” and while inflation has declined it still remains above the Federal Reserve’s
20 target of 2 percent, as a result, the FOMC decided to maintain the current federal fund rate
21 range of 4.25 percent to 4.50 percent.⁹ Regarding the possible path of monetary policy,

⁸ S&P Capital IQ Pro.

⁹ Transcript of Chair Powell’s Press Conference, (January 29, 2025).

1 Chairman Powell continued to reiterate that policy is “not on any preset course”; but, he
2 acknowledged increased uncertainty due to the implementation of significant policy
3 changes (i.e., trade, immigration, fiscal policy and regulation) by the Trump
4 administration.¹⁰ Chairman Powell noted that the FOMC will continue to analyze incoming
5 data to determine the effect of such policy changes and was in a good position to adjust the
6 course of monetary policy if needed.¹¹ Thus, the FOMC’s forecast of the federal funds rate
7 remained unchanged from the December 2024 meeting, forecasting just two rate cuts
8 before the end of 2025.¹²

9 **Q. What has happened to the yields on long-term government bonds since the FOMC**
10 **reduced the federal funds rate in September 2024?**

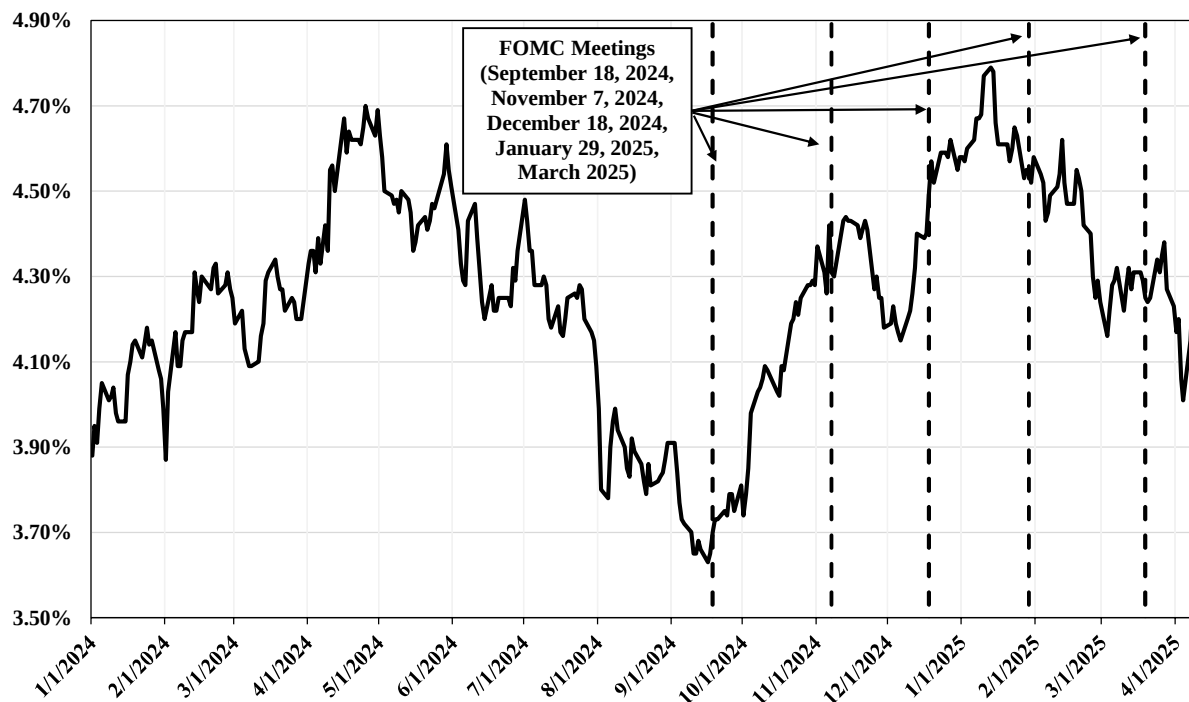
11 A. As shown in Figure 3 below, while the yield on the 10-year treasury bond declined prior to
12 the time of the first federal funds rate cut, the yield has increased since the September 2024
13 FOMC meeting. As of April 8, 2025, the 10-year Treasury bond yield was 4.26 percent,
14 which is consistent with levels seen in June 2024, several months prior to the reductions in
15 the federal funds rate.

¹⁰ *Id.*

¹¹ *Id.*

¹² Federal Reserve, Summary of Economic Projections, March 19, 2025, at 2.

Figure 3: 10-Year Treasury Bond Yield, January 2024 through April 8, 2025¹³



Q. Why have long-term interest rates increased since the Federal Reserve reduced the federal funds rate in September?

A. Investors view key elements of President Trump’s economic plan, such as tax cuts, immigration policy, and tariffs, as inflationary. According to a recent *Reuters* article, the increase in long-term government bond yields was initially related to investors responding to an increasing probability of a Trump Administration in 2025 and has continued since President Trump’s re-election and inauguration.¹⁴ For example, on April 2, 2025, President Trump announced a significant set of tariffs on each of the U.S.’s trading partners, a policy initiative that is largely viewed as inflationary. Inflation affects bonds, in particular long-term government bonds, because it erodes the value of future bonds payments. Therefore, in an inflationary environment, investors will demand higher returns on bonds to

¹³ S&P Capital IQ Pro.

¹⁴ Davide Barbuscia and Lewis Krauskopf, “Bond rebound uncertain as Trump plans overshadow Fed rate cuts,” *Reuters*, November 8, 2024.

1 compensate for the added risk of inflation thus bond prices decline and the yields on bonds
2 increase. The longer the duration of the bond, the greater the effect of inflation which is
3 why inflation risk is greater for long-term government bonds. The significant tariff policy
4 increases the risk that inflation will remain elevated, which is why the yields on long-term
5 bonds have not decreased and in fact have increased since the Federal Reserve reduced the
6 federal funds rate. Further, the use of tariffs strains the relationship with trading partners,
7 which could result in a reduction in the foreign demand for long-term U.S. government
8 bonds resulting in additional upward pressure on long-term government bond yields.¹⁵

9 **Q. What are expectations for the yields on long-term government bonds?**

10 A. Economists and analysts are expecting elevated rates. *Blue Chip Financial Forecasts*
11 provides a forecast from economists on the 30-year Treasury bond. In the most recent
12 published *Blue Chip Financial Forecasts* report, economists projected the 30-year treasury
13 rate to remain relatively stable and decrease only slightly from 4.60 percent in Q2/2025 to
14 4.50 percent in Q2/2026.¹⁶ Additionally, the consensus estimate over the longer-term (i.e.,
15 2026-2030) as published in the December 2024 *Blue Chip Financial Forecasts* report was
16 4.30 percent.¹⁷ This is important because it means that long-term interest rates are expected
17 to remain elevated during the period that the Company's rates will be in effect.

18 **Q. What are your conclusions regarding the effect of current market conditions on the**
19 **cost of equity for the Company?**

20 A. It is important to consider current and projected market conditions in setting the forward-
21 looking ROE due to its effect on the estimated cost of equity. Long-term interest rates

¹⁵ Vanjani, Karishma. "U.S. Treasury Bonds Sell Off as 30-Year Yield Rises Most Since 1982," *Barron's*, April 9, 2025.

¹⁶ *Blue Chip Financial Forecasts*, Vol. 44, No. 4, April 1, 2025, at 2.

¹⁷ *Blue Chip Financial Forecasts*, Vol. 43, No. 12, November 27, 2024, at 14.

1 remain elevated and are expected to continue to remain elevated as a result of inflationary
2 policies such as tariffs, immigration policy, and tax cuts. While the FOMC has most
3 recently held the federal funds rate unchanged after three rate cuts, Chairman Powell has
4 indicated that the Federal Reserve is in “wait and see mode” and will rely on incoming data
5 to determine when it is appropriate to adjust the federal funds rate. With higher expected
6 interest rates, borrowing is more expensive which in turn raises the cost of capital. As a
7 result, investors demand higher returns on equity, leading to an increase in the cost of
8 equity.

9 **V. PROXY GROUP SELECTION**

10 **Q. Please provide a brief profile of KAWC.**

11 A. KAWC, a wholly-owned subsidiary of AWK, provides water distribution service to
12 approximately 140,000 customers in Kentucky.¹⁸ The Company can access debt markets
13 through American Water Capital Corp. (“AWCC”) or independently. The current credit
14 ratings for AWCC and AWK are as follows: (1) S&P - A (Outlook: Stable);¹⁹ and (2)
15 Moody’s - Baa1 (Outlook: Stable).²⁰

16 **Q. Why have you used a group of proxy companies to estimate the cost of equity for**
17 **KAWC?**

18 A. In this proceeding, the cost of equity is being estimated for KAWC, a rate-regulated
19 subsidiary of AWK. Because the cost of equity is a market-based concept and the
20 Company does not make up the entirety of a publicly-traded entity, it is necessary to
21 establish a group of companies that are both publicly traded and comparable to the

¹⁸ Company provided data.

¹⁹ S&P Global Ratings, American Water Works Co. Inc., February 6, 2023.

²⁰ Moody’s Ratings, Credit Opinion, American Water Works Company, Inc., January 23, 2025.

1 Company in certain fundamental business and financial respects to serve as its “proxy” in
2 the cost of equity estimation process. Accordingly, I have developed screens and screening
3 criteria based on judgment with the intention of balancing the need to maintain a proxy
4 group that is of sufficient size with the need to establish a proxy group of companies that
5 are comparable in business and financial risk to KAWC.

6 Even if the Company was publicly traded, it is possible that transitory events could
7 bias its market value over a given period. A significant benefit of using a proxy group is
8 that it moderates the effects of unusual events that may be associated with any one
9 company. The companies included in the proxy group all possess a set of operating and
10 risk characteristics that are substantially comparable to the Company, and thus provide a
11 reasonable basis to derive and estimate the appropriate cost of equity for the Company.

12 **Q. How did you select the companies in your proxy group?**

13 A. I began with the group of U.S. utilities that *Value Line* classifies as “Water Utilities” and
14 “Natural Gas Distribution Companies” and applied screening criteria to select companies
15 that:

- 16 • pay consistent quarterly cash dividends because companies that do not cannot be
17 analyzed using the constant growth DCF model;
- 18 • have an investment grade long-term issuer rating;
- 19 • have positive long-term earnings growth forecasts from at least two equity analysts;
- 20 • derive more than 70.00 percent of their total operating income from regulated
21 operations; and
- 22 • were not parties to a merger or transformative transaction during the analytical
23 periods relied on.

1 **Q. Did you consider any additional companies for inclusion in your proxy group?**

2 A. Yes. I also considered the group of companies that *Value Line* classifies as “Electric
3 Utilities.” I started by relying on the criteria used to screen the water and natural gas
4 utilities, and then applied the following two additional screening criteria to the group of
5 electric utilities to ensure that any companies meeting the criteria would be considered risk
6 comparable to KAWC:

- 7 • The company’s owned generation comprises less than 10 percent of its total MWh
8 sales to ultimate customers, which ensures that the electric utilities included did not
9 own a substantial amount of generation and therefore had operations that were
10 primarily transmission and distribution; and
- 11 • own water operations.

12 **Q. Based on this screening criteria, are any companies classified by *Value Line* as electric**
13 **utilities included in your proxy group?**

14 A. No. While I have considered the electric companies for potential inclusion in the proxy
15 group, none of the companies met the screening criteria that I specified.

16 **Q. Did you include AWK in your proxy group?**

17 A. No. It is not appropriate to include AWK in the proxy group used to determine the
18 authorized ROE for KAWC because of the circular logic that would occur. For example,
19 in the current proceeding, the ROE for KAWC is being determined, which in turn
20 contributes to the ROE of its parent company, AWK. If AWK were included in the proxy
21 group, AWK would be being used to determine its own subsidiary’s ROE. Therefore, to
22 avoid the circular logic, I have excluded AWK from my proxy group for KAWC.

1 **Q. Why did you consider natural gas and electric distribution utilities for inclusion in**
2 **the proxy group?**

3 A. As a result of industry consolidation in the utility industry, *Value Line* currently classifies
4 only seven companies as water utilities, meaning the universe of potential companies for
5 inclusion in a proxy group is already small before any screening criteria are applied.
6 Therefore, because there is a limited number of publicly traded water companies available
7 for inclusion in a proxy group, I have also considered natural gas distribution companies
8 and electric utilities that meet the screening criteria discussed.

9 **Q. Are natural gas and electric distribution utilities reasonably comparable to water**
10 **utilities to be included in a proxy group used to estimate the cost of equity for a water**
11 **utility?**

12 A. Yes, it is reasonable to consider both natural gas and electric distribution companies for
13 purposes of establishing a proxy group of companies that are reasonably comparable to
14 KAWC. KAWC is a regulated utility distribution company, which is similar to other
15 regulated utility distribution companies that provide electric or natural gas service instead
16 of water distribution. The screening criteria I have specified requires that a company derive
17 more than 70 percent of its operating income from regulated operations. Therefore, the
18 electric utilities and natural gas distribution companies included in my proxy group
19 generate a large portion of their operating income from regulated operations similar to
20 KAWC and the water utilities included in the proxy group.

21 Recent consolidation in the utility industry has demonstrated the similar nature of
22 water, electric, and natural gas distribution utilities. Consolidation within the water utility
23 industry has occurred not only among water-only utilities, there have also been acquisitions

1 that have involved the merger of a natural gas utility with a water utility and an electric
2 utility with a water utility. For example, in 2017, Northwest Natural Gas Company
3 (“Northwest Natural”) acquired Salmon Valley Water Company and Falls Water
4 Company, two water utilities operating in the Pacific Northwest, and one of the reasons
5 cited for the merger was the similarity in operating characteristics and risk profiles of the
6 natural gas and water utilities. In an interview regarding the transaction, the CEO of
7 Northwest Natural noted:

8 While these transactions and the companies' continuing operations are not
9 expected to have a material impact on NW Natural's financial results, we
10 view these acquisitions as the first step in a broader strategy. The water
11 utility sector has a risk profile and business model that is similar to our core
12 gas utility. There are also substantial investment opportunities over the long
13 term, as water infrastructure needs to be replaced and upgraded to serve
14 growing communities with safe, clean drinking water.²¹

15 Similarly, in 2020, Essential completed the acquisition of PNG Companies, LLC,
16 a natural gas utility operating in Pennsylvania, West Virginia, and Kentucky. In discussing
17 the acquisition, Essential’s Chairman and CEO Chris Franklin noted that:

18 ...both gas and water utilities are underground utilities, and that the systems
19 share a common burden of being old and in need of replacement. However,
20 he said rates will not go up for “a number of years,” and that any increase
21 would require approval from the PUC.²²

22 **Q. Have other regulators also considered the inclusion of other utility industry segments**
23 **in the proxy group used to estimate the cost of equity for a water utility?**

24 **A.** Yes. The Massachusetts Department of Public Utilities (“MDPU”), the Florida Public
25 Service Commission (“FPUC”) and the Illinois Commerce Commission (“ICC”) have

²¹ Northwest Natural Gas Company, Press Release, “NW Natural Expands into Regulated Water Utility Sector with Acquisitions in Oregon and Idaho,” December 21, 2017.

²² Margaret J. Krauss, “Aqua America Will Buy Peoples Gas For \$4.3 Billion,” 90.5 WESA (NPR), January 16, 2020.

1 considered the results of a proxy group that includes natural gas companies when
2 determining the authorized ROE for water utilities. For example:

- 3 • In Docket No. 17-90, the MDPU determined that the use of a natural gas utility
4 proxy group was appropriate for the purpose of demonstrating the comparability of
5 the investment risk of the proxy group to Aquarion Water Company.²³
- 6 • In Docket No. 20180006-WS, the FPUC modified the methodology used to
7 estimate the ROE for water and wastewater utilities in Florida to include a
8 combined proxy group of natural gas and water utilities.²⁴ The FPUC has
9 previously relied on a natural gas only proxy group to estimate the ROE for water
10 and wastewater utilities;²⁵ however, to increase the size of the proxy group, the
11 FPUC decided to rely on a combined proxy group. Specifically, the FPUC noted:

12 The leverage formula methodology shall be modified to include a
13 combined proxy group of natural gas and WAW utilities as proxy
14 companies in calculating the leverage formula. We find that the
15 selected natural gas utilities and WAW utilities that derive at least
16 50 percent of their revenue from regulated rates. These utilities have
17 market power and are influenced significantly by economic
18 regulation. In Attachment 1, the returns calculated using the proxy
19 group are adjusted to reflect the risks faced by Florida WAW
20 utilities. The updated index consists of five natural gas companies
21 and seven WAW companies that derive at least 50 percent of their
22 total revenue from regulated operations. These companies have a
23 median Standard and Poor's bond rating of "A"²⁶

- 24 • In Case No. 22-0210, for Illinois-American Water Company, the ICC agreed that a
25 proxy group of water and public utility companies was a reasonable sample upon
26 which to apply the various COE estimation models.²⁷

²³ Massachusetts Department of Public Utilities, Docket No. 17-90, October 31, 2018, at 286-287.

²⁴ Florida Public Service Commission, Docket No. 20180006-WS, Order No. PSC-2018-0327-PAA-WS, June 26, 2018, at 7.

²⁵ Florida Public Service Commission, Docket No. 170006-WS, Order No. PSC-17-0249-PAA-WS, June 26, 2017, at 2.

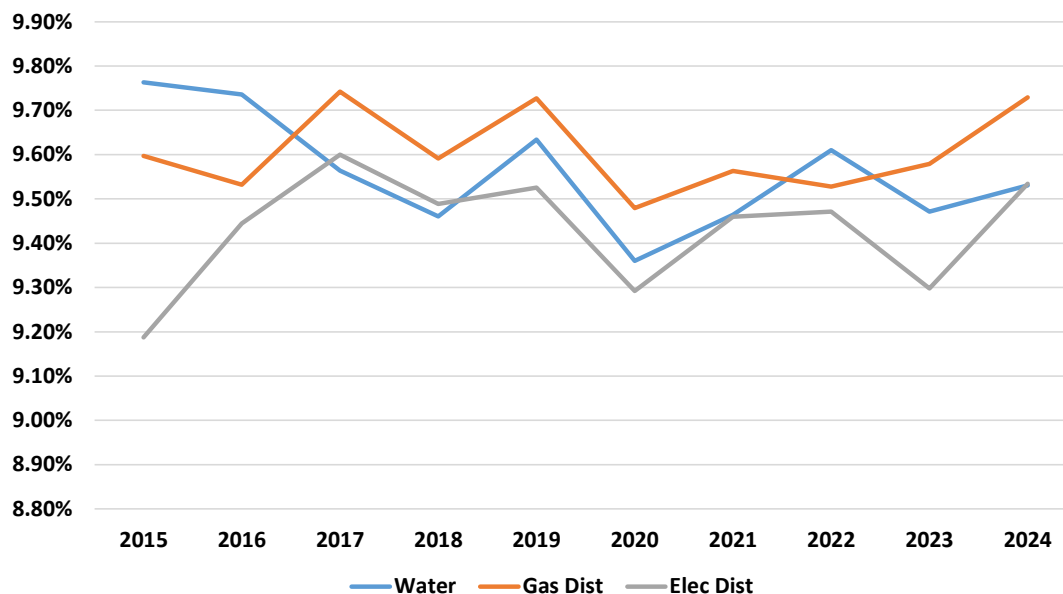
²⁶ Florida Public Service Commission, Docket No. 20180006-WS, Order No. PSC-2018-0327-PAA-WS, June 26, 2018, at 8.

²⁷ Illinois Commerce Commission, Docket No. 22-0210, Order, December 15, 2022, at 102.

1 **Q. Is there additional information that indicates similarity between water utilities and**
2 **electric and natural gas distribution utilities?**

3 A. Yes. As shown in Figure 4, I have reviewed the average annual authorized ROEs
4 separately for water, natural gas distribution, and electric distribution utilities over the past
5 decade across the United States. As shown, over the past ten years, the historical annual
6 average authorized ROEs for these types of utilities have varied relative to one another,
7 which is indicative that these utilities are considered reasonably comparable to one another
8 in terms of risk and thus are generally comparable to KAWC for purposes of developing a
9 proxy group for purposes of estimating the cost of equity in this proceeding.

10 **Figure 4: Comparison of Average Authorized ROEs Nationally for Water, Natural**
11 **Gas Distribution, and Electric Distribution Utilities²⁸**



12
13 **Q. What is the composition of your proxy group?**

14 A. The screening criteria discussed, the details of which are presented on Exhibit AEB-2,
15 results in a proxy group consisting of the companies shown in Figure 5.

²⁸ S&P Capital IQ Pro.

Figure 5: Proxy Group

Company	Ticker
Atmos Energy Corporation	ATO
NiSource Inc.	NI
Northwest Natural Gas Company	NWN
ONE Gas, Inc.	OGS
Southwest Gas Corporation	SWX
Spire, Inc.	SR
American States Water Company	AWR
California Water Service Group	CWT
Middlesex Water Company	MSEX
SJW Group	SJW
Essential Utilities, Inc.	WTRG

VI. COST OF EQUITY ESTIMATION

Q. Please briefly discuss the ROE in the context of the regulated rate of return.

A. The rate of return for a regulated utility is the weighted average cost of capital, in which the costs of the individual sources of capital are weighted by their respective proportion (*i.e.*, book values) in the utility's capital structure. The ROE is the cost rate applied to the equity capital in calculating the rate of return. Although the costs of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market data.

Q. How is the required cost of equity determined?

A. A range of the required cost of equity is estimated by using analytical techniques that rely on market-based data to quantify investor expectations regarding equity returns. Within that range, the ROE that is recommended is based on a review of the business, regulatory, and financial risks of the subject utility as compared with the proxy group, including the capital structure of the subject utility. A key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general, as well as the subject company (in the context of the proxy

group), in particular. It is also important that the ROE that is authorized takes into consideration the financial risk resulting from the authorized capital structure of the subject utility. An authorized capital structure that has a relatively greater amount of leverage results in relatively greater risk, because equity is the last claimant in the event of the dissolution of a company. Therefore, as the leverage in the capital structure increases, it is necessary for the ROE to increase to recognize the incremental risk to equity holders.

Q. What methods did you use to estimate KAWC's cost of equity?

A. I consider the results of the constant growth DCF model, the CAPM, and the ECAPM. As discussed in more detail below, a reasonable cost of equity estimate considers alternative methodologies, observable market data, and the reasonableness of their individual and collective results.

Q. Why is it important to use more than one analytical approach to estimate the cost of equity?

A. Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. Several models have been developed to estimate the cost of equity, and I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the cost of equity.

1 For example, Copeland, Koller, and Murrin²⁹ suggest using the CAPM and Arbitrage
2 Pricing Theory model, while Brigham and Gapenski³⁰ recommend the CAPM, DCF, and
3 “bond yield plus risk premium” approaches.³¹ Because the cost of equity models rely on
4 different assumptions, it is appropriate to consider multiple models to ensure that changes
5 in market conditions are properly reflected in the range of cost of equity results that are
6 reasonably available for investors to consider.

7 **Q. Has the Commission also relied on multiple models in establishing a utility’s**
8 **authorized ROE?**

9 A. Yes. The Commission stated in the Company’s last rate case that it considered all of the
10 evidence presented in the case to determine the authorized ROE for KAWC. Specifically,
11 the Commission stated:

12 In evaluating the ROE for Kentucky-American, the Commission must
13 evaluate and review each model and all parties' positions and balance the
14 financial integrity of the utility with the interests of the consumer and the
15 statutory obligation that rates be fair, just and reasonable. The Commission
16 notes that in recent cases including Case Nos. 2020-00349/2020-00350,
17 2022-00147, 2022-00222, and 2022-00372 the Commission has discussed
18 that it is appropriate for utilities to present, and for the Commission to
19 evaluate, multiple methodologies to estimate ROEs, and each approach has
20 its own strengths.³²

²⁹ Tom Copeland, Tim Koller and Jack Murrin, *Valuation: Measuring and Managing the Value of Companies*, New York, McKinsey & Company, Inc., 3rd Ed., 2000, at 214.

³⁰ Eugene Brigham, Louis Gapenski, *Financial Management: Theory and Practice*, Orlando, Dryden Press, 1994, at 341.

³¹ While it has historically been my practice to present the results of a bond yield plus risk premium approach in the context of estimating a reasonable cost of equity, I have not done so in this case to limit the number of contested issues.

³² Case No. 2023-00191, *Electronic Application of Kentucky-American Water Company for an Adjustment of Rates, A Certificate of Public Convenience and Necessity for Installation of Advanced Metering Infrastructure, Approval of Regulatory and Accounting Treatments, and Tariff Revisions* (KY PSC May 3, 2023), Order at 36-37; footnotes omitted.

A. Constant Growth DCF Model

Q. Please describe the DCF approach.

A. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its most general form, the DCF model is expressed as follows:

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

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 that can be simplified and rearranged into the following form:

$$k = \frac{D_0(1+g)}{P_0} + g \quad [2]$$

Equation [2] is often referred to as the constant growth DCF model in which the first term is the expected dividend yield and the second term is the expected long-term growth rate.

Q. What assumptions are required for the constant growth DCF model?

A. The constant growth DCF model requires the following four assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ratio; and (4) a discount rate greater than the expected growth rate. To the extent that any of these assumptions are not objectively valid, considered judgment and/or specific adjustments should be applied to the results.

1 **Q. What market data do you use to calculate the dividend yield in your constant growth**
2 **DCF model?**

3 A. The dividend yield in my constant growth DCF model is based on the current annualized
4 dividend and average closing stock prices of the proxy group companies over the most
5 recent 30, 90, and 180 trading days ended March 31, 2025.

6 **Q. Why do you use three averaging periods for stock prices?**

7 A. I use an average of recent trading days to calculate the term P_0 in the DCF model to reflect
8 current market data, while also ensuring that the result of the model is not skewed by
9 anomalous events that may affect stock prices on any given trading day.

10 **Q. Do you make any adjustments to the dividend yield to account for periodic growth in**
11 **dividends?**

12 A. Yes. Since utility companies tend to increase their quarterly dividends at different times
13 throughout the year, it is reasonable to assume that dividend increases will be evenly
14 distributed over calendar quarters. Given that assumption, it is reasonable to apply one-
15 half of the expected annual dividend growth rate for purposes of calculating the expected
16 dividend yield component of the DCF model. This adjustment ensures that the expected
17 first-year dividend yield is, on average, representative of the coming twelve-month period,
18 and does not overstate the aggregated dividends to be paid during that time.

19 **Q. Why is it important to select appropriate measures of long-term growth in applying**
20 **the DCF model?**

21 A. In its constant growth form, the DCF model (*i.e.*, Equation [2]) assumes a single growth
22 estimate in perpetuity. To reduce the long-term growth rate to a single measure, one must
23 assume that the payout ratio remains constant and that earnings per share (“EPS”),

dividends per share, and book value per share all grow at the same constant rate. Over the long run, however, dividend growth can only be sustained by earnings growth. Therefore, it is important to consider a variety of sources in arriving at a singular long-term earnings growth rate for the constant growth DCF model.

Q. Which sources of long-term earnings growth rates did you use?

A. My constant growth DCF model incorporates three sources of long-term earnings growth rates: (1) *Zacks Investment Research* (“Zacks”); (2) *S&P Capital IQ Pro*; and (3) *Value Line*.

Q. Have you previously relied on projected EPS growth rates provided by Yahoo! Finance?

A. Yes; however, *Yahoo! Finance* no longer reports consensus projected 3- to 5-year EPS growth rates. As a result, I now instead rely on the consensus projected 3- to 5-year EPS growth rates reported by *S&P Capital IQ Pro*.

Q. Why do you believe that projected earnings growth rates are the appropriate growth rates in the DCF model?

A. Earnings are the fundamental driver of a company’s ability to pay dividends; therefore, projected EPS growth is the appropriate measure of a company’s long-term growth. In contrast, changes in a company’s dividend payments are based on management decisions related to cash management and other factors. For example, a company may decide to retain earnings rather than pay out a portion of those earnings to shareholders through dividends. Therefore, dividend growth rates are less likely than earnings growth rates to reflect accurately investor perceptions of a company’s growth prospects.

1 **Q. How do you calculate the range of results for the constant growth DCF model?**

2 A. I calculate a low-end result for my DCF model using the minimum growth rate of the three
3 sources (*i.e.*, the lowest of the *Zacks*, *S&P Capital IQ Pro*, and *Value Line* projected
4 earnings growth rates) for each of the proxy group companies. I use a similar approach to
5 calculate a high-end result, using the maximum growth rate of the three sources for each
6 proxy group company. Lastly, I calculate the mean results using the average growth rate
7 from all three sources for each proxy group company.

8 **Q. Did you exclude any earnings growth rates from third party sources?**

9 A. Yes. *S&P Capital IQ Pro* and *Zacks* each report the same projected EPS growth rate for
10 American States Water Company (“AWR”), California Water Service Group (“CWT”),
11 Middlesex Water Company (“MSEX”), and SJW Group (“SJW”). The respective projected
12 EPS growth rates for AWR, CWT, MSEX and SJW are based on the estimate of one
13 analyst. Therefore, to avoid placing two-thirds weight on the estimate of one analyst when
14 calculating the average projected EPS growth rate for each company (*i.e.*, average of
15 projected EPS growth rates from *Value Line*, *Zacks* and *S&P Capital IQ Pro*), I excluded
16 the projected EPS growth rates reported by *Zacks* for AWR, SJW, MSEX and CWT.

17 **Q. Why didn’t you exclude the projected EPS growth rate from *S&P Capital IQ* of 42.44
18 percent for CWT which appears to be an outlier?**

19 A. It is appropriate to remove an outlier if it is determined that the data point is the result of
20 an error. While the projected EPS growth rate for CWT is higher than the range established
21 for the other proxy companies, the growth rate is based on an analyst’s projections and,
22 therefore, does not appear to be the result of an error. Absent an error, there are other
23 alternatives for addressing disparate data. One approach is to select a measure of central

tendency other than the mean, as I have done by relying on the median results for my constant growth DCF analysis. In general, the median is not affected to a large degree by the presence of outliers on both the high and low-end. In fact, as shown in Exhibit AEB-3, the median result for the proxy group does not change if the projected EPS growth rate for CWT is excluded from my constant growth DCF analysis.

Q. What are the results of your constant growth DCF analyses?

A. The results of my constant growth DCF analyses are presented in Exhibit AEB-3 and are summarized below in

A. Figure 6.

Figure 6: Summary of Constant Growth DCF Results

	<i>Constant Growth DCF</i>		
	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Median			
30-Day Avg. Stock Price	9.42%	10.63%	11.36%
90-Day Avg. Stock Price	9.51%	10.92%	11.46%
180-Day Avg. Stock Price	9.36%	11.17%	11.59%
Average	9.43%	10.91%	11.47%

B. CAPM and ECAPM Analysis

Q. Please briefly describe the CAPM.

A. The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium to compensate investors for the non-diversifiable or “systematic” risk of that security.³³ This second component is the product

³³ Systematic risk is the risk inherent in the entire market or market segment, which cannot be diversified away using a portfolio of assets. Unsystematic risk is the risk of a specific company that can, theoretically, be mitigated through portfolio diversification.

of the market risk premium and the beta coefficient, which measures the relative riskiness of the security being evaluated.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

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

Where:

K_e = the required market COE;

β = beta coefficient of an individual security;

r_f = the risk-free rate of return; and

r_m = the required return on the market.

In this specification, the term $(r_m - r_f)$ represents the market risk premium. According to the theory underlying the CAPM, because unsystematic risk can be diversified away, investors should only be concerned with systematic or non-diversifiable risk. Systematic risk is measured by beta, which is a measure of the volatility of a security as compared to the market as a whole. Beta is defined as:

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

Variance (r_m) represents the variance of the market return, which is a measure of the uncertainty of the general market. *Covariance* (r_e, r_m) represents the covariance between the return on a specific security and the general market, which reflects the extent to which the return on that security will respond to a given change in the general market return. Thus, beta represents the risk of the security relative to the general market.

1 **Q. What risk-free rate do you use in your CAPM analysis?**

2 A. I rely on three sources for my estimate of the risk-free rate: (1) the current 30-day average
3 yield on 30-year U.S. Treasury bonds, which is 4.61 percent;³⁴ (2) the average projected
4 30-year U.S. Treasury bond yield for the third quarter of 2025 through the third quarter of
5 2026, which is 4.52 percent;³⁵ and (3) the average projected 30-year U.S. Treasury bond
6 yield for 2026 through 2030, which is 4.30 percent.³⁶

7 **Q. What beta coefficients do you use in your CAPM analyses?**

8 A. As shown in Exhibit AEB-4, I use the average beta coefficients for the proxy group
9 companies as reported by *Bloomberg Professional* (“*Bloomberg*”) and *Value Line*. I use
10 the beta coefficients for the companies in the proxy groups reported by *Bloomberg*
11 *Professional* (“*Bloomberg*”) and *Value Line*. The beta coefficients reported by *Bloomberg*
12 are calculated using ten years of weekly returns relative to the S&P 500 Index. The beta
13 coefficients reported by *Value Line* are calculated based on five years of weekly returns
14 relative to the New York Stock Exchange Composite Index. Additionally, as shown on
15 Exhibit AEB-4 and Exhibit AEB-5, I also consider an additional CAPM analysis that relies
16 on the long-term average beta coefficient reported by *Value Line* for the companies in my
17 proxy group from 2013 through 2024.

18 **Q. How do you estimate the market risk premium in the CAPM?**

19 A. I estimate the market risk premium as the difference between the implied expected equity
20 market return and the risk-free rate. As shown in Exhibit AEB-6, the expected market
21 return is calculated using the constant growth DCF model discussed earlier in my testimony

³⁴ *Bloomberg Professional*, as of March 31, 2025.

³⁵ *Blue Chip Financial Forecasts*, Vol. 44, No. 4, April 1, 2025, at 2.

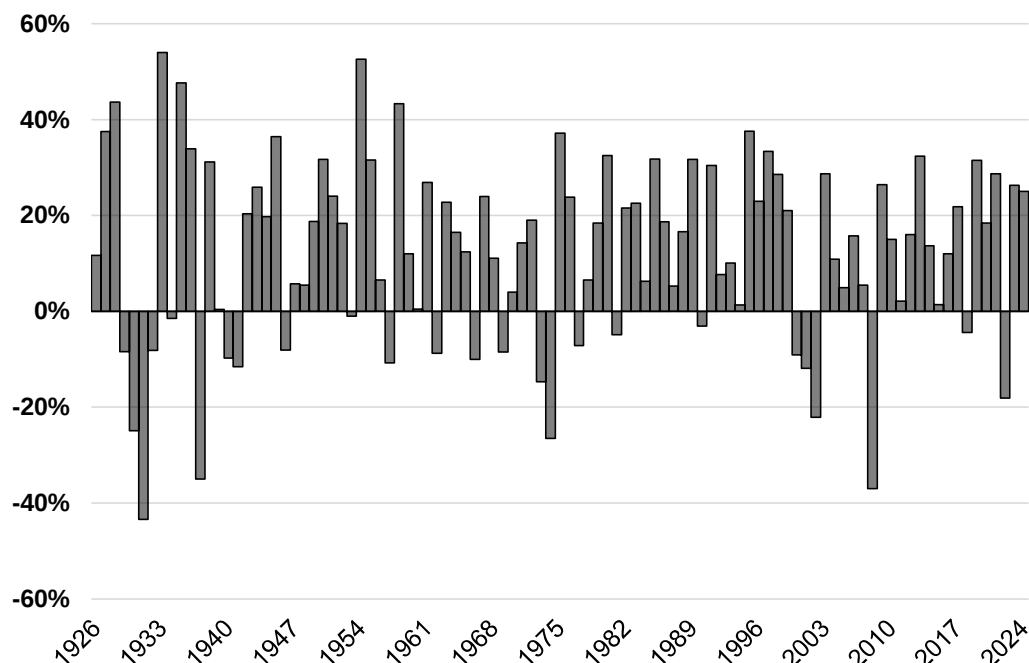
³⁶ *Blue Chip Financial Forecasts*, Vol. 43, No. 12, November 27, 2024, at 14.

for the companies in the S&P 500 Index. Based on an estimated market capitalization-weighted dividend yield of 1.36 percent and a weighted long-term earnings growth rate of 11.15 percent, the estimated required market return for the S&P 500 Index as of March 31, 2025 is 12.58 percent. Based on the three risk-free rates considered, the implied market risk premia ranges from 7.97 percent to 8.28 percent.

Q. How does the current expected market return compare to observed historical market returns?

A. As shown in Figure 7, given the range of annual equity returns that have been observed over the past century, a current expected market return of 12.58 percent is not unreasonable. As shown, in 52 out of the past 99 years (or approximately 53.00 percent of the observations), the realized equity market return was at least 12.58 percent or greater.

Figure 7: Realized U.S. Equity Market Returns (1926-2024)³⁷



³⁷ Depicts total annual returns on large company stocks, as reported in the 2023 *Kroll SBBI Yearbook* and by *S&P Capital IQ Pro*.

1 **Q. Did you consider another form of the CAPM in your analysis?**

2 A. Yes. I have also considered the results of an ECAPM in estimating the cost of equity for
3 KAWC.³⁸ The ECAPM calculates the product of the adjusted beta coefficient and the
4 market risk premium and applies a weight of 75.00 percent to that result. The model then
5 applies a 25.00 percent weight to the market risk premium without any effect from the beta
6 coefficient. The results of the two calculations are summed, along with the risk-free rate,
7 to produce the ECAPM result, as noted in Equation [5] below:

$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \quad [5]$$

9 Where:

10 k_e = the required market COE

11 β = Adjusted Beta coefficient of an individual security

12 r_f = the risk-free rate of return

13 r_m = the required return on the market as a whole

14 The empirical form of the CAPM addresses the tendency of the “traditional” CAPM
15 to underestimate the cost of equity for companies with low beta coefficients such as
16 regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted betas
17 in the traditional CAPM; rather, it recognizes the results of academic research indicating
18 that the risk-return relationship is different (in essence, flatter) than estimated by the
19 CAPM, and that the CAPM underestimates the “alpha,” or the constant return term.³⁹

20 Consistent with my CAPM, my application of the ECAPM uses the same three
21 yields on the 30-year Treasury bonds as the risk-free rate, forward-looking market risk
22 premium estimate, and beta coefficients.

³⁸ See, e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

³⁹ *Id.*, at 191.

1 **Q. What are the results of your CAPM analyses?**

2 A. The results of my CAPM and ECAPM analyses are presented in Exhibit AEB-4 and are
3 summarized below in Figure 8.

4 **Figure 8: CAPM Results**

CAPM and ECAPM

	30-Year Treasury Bond Yield		
	Current	Near-Term	Longer-Term
	30-Day Avg	Projected	Projected
CAPM:			
Current <i>Value Line</i> Beta	11.57%	11.56%	11.53%
Current <i>Bloomberg</i> Beta	10.59%	10.57%	10.52%
Long-term Avg. <i>Value Line</i> Beta	10.65%	10.62%	10.57%
ECAPM:			
Current <i>Value Line</i> Beta	11.82%	11.81%	11.79%
Current <i>Bloomberg</i> Beta	11.09%	11.07%	11.03%
Long-term Avg. <i>Value Line</i> Beta	11.13%	11.11%	11.07%

5
6 **VII. BUSINESS AND REGULATORY RISKS**

7 **Q. Do the results of the cost of equity analyses alone provide an appropriate estimate of**
8 **the cost of equity for the Company?**

9 A. No. The model results provide only a range for the appropriate estimate of the Company's
10 cost of equity. Several additional factors must be considered when determining where the
11 Company's cost of equity falls within the range of analytical results. These factors, which
12 are discussed below, should be considered with respect to their overall effect on the
13 Company's risk profile relative to the proxy group.

14 **A. Capital Expenditures**

15 **Q. Please summarize the Company's projected capital expenditure requirements.**

16 A. KAWC currently projects capital expenditures for 2025 through 2029 of approximately
17 \$468 million for its water utility operations, including significant investment to replace

aging infrastructure necessary to meet the needs of its customers and to comply with various regulations.⁴⁰

Q. How do the Company's capital expenditure requirements compare to those of their respective proxy group companies?

A. As shown on Exhibit AEB-7, I have calculated the ratio of expected capital expenditures to net utility plant for the Company and each of the companies in the proxy group by dividing each company's projected capital expenditures for the period from 2025 through 2029 by its total net utility plant as of December 31, 2024. As shown, KAWC's ratio of capital expenditures as a percentage of net utility plant is slightly below the median for the companies in the proxy group.

Q. How is the Company's risk profile affected by its substantial capital expenditure requirements?

A. As with any utility faced with substantial capital expenditure requirements, the Company's risk profile may be adversely affected in two significant and related ways: (1) the heightened level of investment increases the risk of under-recovery or delayed recovery of the invested capital; and (2) an inadequate return would put downward pressure on key credit metrics.

Q. Do credit rating agencies recognize the risks associated with elevated levels of capital expenditures?

A. Yes. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and,

⁴⁰ Data provided by KAWC.

therefore, credit ratings. To that point, S&P has explained the importance of regulatory support for large capital projects:

When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect of our analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining. Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions that present an opportunity for a higher return on capital projects as an incentive to investors.⁴¹

Recently, S&P evaluated the capital expenditure trends in the utility sector, noting that the balance between operating with negative discretionary cash flow from operations offset by reliable access to capital markets for financing may be tested through ever-increasing capital expenditure requirements as a result of the transformation of the energy sector through the focus on low/no carbon generation, investments to harden the system against physical risk and climate events, and the replacement of aging infrastructure:

Some companies have been unable to support financial metrics consistent with former ratings as their discretionary cash flow deteriorated. This trend was a significant contributor to the sector seeing the median rating decline to 'BBB+' from 'A-' for the first time in 2022. What is less clear is whether or not management teams will take steps to forestall another step down in credit quality as high capital outlays persist. So far in 2023, we have not seen evidence that equity issuance is keeping pace with debt issuance to fill ever-deepening discretionary cash flow shortfalls, but time will tell.

• • • • •

Despite the improvement in the economic outlook, we expect inflation, high interest rates, higher capital spending, and the strategic decision by many companies to operate with only minimal financial cushion from their downgrade thresholds to continue to pressure the industry's credit quality.

⁴¹ S&P Global Ratings, “Assessing U.S. Investor-Owned Utility Regulatory Environments,” August 10, 2016, at 7.

1 We are cautious about the durability of the current stable ratings outlook
2 given persistently high capital spending that now supports a trend of
3 deterioration in discretionary cash flow. Without a commensurate focus on
4 balance sheet preservation through equity support of discretionary cash
5 flow deficits, limited financial cushions could give rise to another round of
6 negative rating actions. The question then comes back to management
7 priorities and financial policy decisions, or utilities may be faced with
8 another step down in the median ratings.⁴²

9 Therefore, to the extent that the Company's rates do not permit the opportunity to
10 recover its capital investments on a regular and timely basis, it will face increased recovery
11 risk and thus increased pressure on its credit metrics.

12 **Q. Does KAWC have a mechanism for timely recovery of infrastructure replacements?**

13 A. Yes. KAWC has a Qualified Infrastructure Program ("QIP") surcharge that provides the
14 Company an opportunity to recover costs associated with replacing some limited aging
15 infrastructure. The recovery of costs through the QIP surcharge are established on an
16 annual basis and recover limited qualified plant additions for the upcoming year. The QIP
17 surcharge does not include recovery of the costs of expansion projects. Although the QIP
18 surcharge is positive in terms of timeliness of cost recovery for KAWC, such surcharges
19 have become quite commonplace in utility regulation across the United States. As shown
20 in Exhibit AEB-8, approximately 75 percent of the operating utilities of the companies in
21 the proxy group also have some form of infrastructure replacement recovery mechanisms.
22 Consequently, the presence of the QIP surcharge for KAWC does not reduce the
23 Company's risk vis-à-vis that of the proxy group.

⁴² S&P Global Ratings, "Record CapEx Fuels Growth Along With Credit Risk For North American Investor-Owned Utilities," September 12, 2023, at 5, 7-8.

1 **Q. What are your conclusions regarding the effect of KAWC's capital spending program**
2 **on its risk profile and cost of capital?**

3 A. The Company's capital expenditure requirements as a percentage of net utility plant are
4 significant and KAWC is projected to need to continue its substantial capital investments
5 over at least the next five years. Similar to the vast majority the operating utilities of the
6 proxy group, KAWC has a mechanism to recover a limited portion of the Company's
7 projected capital expenditures; however, it is important to recognize that the size of the
8 Company's proposed capital additions, much of which is not recoverable through the
9 mechanism, imposes financial strains and risks on the Company.

10 **B. Regulatory Risks**

11 **Q. How does the regulatory environment affect investors' risk assessments?**

12 A. The ratemaking process is premised on the principle that, for investors and companies to
13 commit the capital needed to provide safe and reliable utility service, the subject utility
14 must have the opportunity to recover the return of, and the market-required return on,
15 invested capital. Regulatory commissions recognize that because utility operations are
16 capital intensive, regulatory decisions should enable the utility to attract capital at
17 reasonable terms, and doing so balances the long-term interests of investors and customers.
18 To achieve this balance, the Company must be able to finance its operations assuming a
19 reasonable opportunity to earn an appropriate return on invested capital to maintain an
20 acceptable financial profile. In that respect, the regulatory environment is one of the most
21 important factors considered in both debt and equity investors' risk assessments.

22 From the perspective of debt investors, the authorized return should enable the
23 utility to generate the cash flow needed to meet its near-term financial obligations, make

1 the capital investments needed to maintain and expand its systems, and maintain the
2 necessary levels of liquidity to fund unexpected events. This financial liquidity must be
3 derived not only from internally-generated funds, but also by efficient access to capital
4 markets. Moreover, because fixed income investors have many investment alternatives,
5 even within a given market sector, the utility's financial profile must be adequate on a
6 relative basis to ensure its ability to attract capital under a variety of economic and financial
7 market conditions.

8 Equity investors require that the authorized return be adequate to provide a risk-
9 comparable return on the equity portion of the utility's capital investments. Because equity
10 investors are the residual claimants on the utility's cash flows (which is to say that the
11 equity return is subordinate to interest payments), they are particularly concerned with the
12 strength of regulatory support and its effect on future cash flows.

13 **Q. Do credit rating agencies consider regulatory risk in establishing a company's credit**
14 **rating?**

15 A. Yes. Both S&P and Moody's consider the overall regulatory framework in establishing
16 credit ratings. Moody's establishes credit ratings based on four key factors: (1) business
17 profile; (2) financial policy; (3) leverage and coverage; and (4) uplift for structural
18 considerations. Within the business profile criteria, stability and predictability of
19 regulatory environment and cost and investment recovery (sufficiency and timeliness) are
20 each given a broad rating factor of 15.00 percent, while revenue risk is given a rating factor
21 of 5.00 percent. Therefore, Moody's assigns regulatory risk a 35.00 percent weighting in
22 the overall assessment of business and financial risk for regulated utilities.⁴³

⁴³ Moody's Investors Service, Rating Methodology: Regulated Water Utilities, August 18, 2023, at 3.

1 S&P also identifies the regulatory framework as an important factor in credit ratings
2 for regulated utilities, stating: “we assess regulatory advantage because the influence of the
3 regulatory framework and regime is of critical importance. It defines the environment in
4 which a utility operates and has a significant bearing on a utility’s financial performance.”⁴⁴
5 S&P identifies four specific factors that it uses to assess the credit implications of the
6 regulatory jurisdictions of investor-owned regulated utilities: (1) regulatory stability; (2)
7 tariff-setting procedures and design; (3) financial stability; and (4) regulatory independence
8 and insulation.⁴⁵

9 **Q. How does the regulatory environment in which a utility operates affect its access to**
10 **and cost of capital?**

11 A. The regulatory environment can significantly affect both the access to, and cost of capital
12 in several ways. First, the proportion and cost of debt capital available to utility companies
13 are influenced by the rating agencies’ assessment of the regulatory environment. As noted
14 by Moody’s, “the characteristics and transparency of the concession(s) and regulations
15 under which the utility operates, the track record of the regulatory regime in setting tariffs
16 and applying regulations consistently are core aspects of the overall stability of a water
17 utility’s business profile.”⁴⁶

⁴⁴ Standard & Poor’s Global Ratings, “Sector-Specific Corporate Methodology,” April 4, 2024, at 147.

⁴⁵ *Id.*

⁴⁶ Moody’s Investors Service, Rating Methodology: Regulated Water Utilities, August 18, 2023, at 9.

1 **Q. Have you conducted any analysis of the risk associated with the regulatory**
2 **framework in Kentucky relative to the jurisdictions in which the utility operating**
3 **subsidiaries of the companies in your proxy group operate?**

4 A. Yes. I have evaluated the regulatory framework in Kentucky on three factors that are
5 important in terms of providing a regulated utility a reasonable opportunity to earn its
6 authorized ROE: (1) test year convention (*i.e.*, use of a forecast vs. historical test year); (2)
7 the use of revenue decoupling mechanisms or other clauses that provide revenue
8 stabilization; and (3) the prevalence of capital cost recovery between rate cases. The results
9 of this regulatory risk assessment are shown in Exhibit AEB-8 and are summarized as
10 follows:

- 11 1. Test Year Convention: KAWC is proposing to rely on a fully forecasted test year
12 for the period ending December 31, 2026. Approximately 61 percent of the
13 operating utilities of the proxy group companies provide service in jurisdictions
14 that use a fully or partially forecast test year. Forecasted test years have been
15 relied on for several years and produce cost estimates that are more reflective of
16 future costs which results in more accurate recovery of incurred costs and
17 mitigates the regulatory lag associated with historical test years.
- 18 2. Revenue Stabilization / Volumetric Risk: KAWC does not currently have
19 protection against volumetric risk in Kentucky. However, approximately 61
20 percent of the operating companies held by the proxy group have some form of
21 protection against volumetric risk through either decoupling, formula-based
22 rates, and/or straight-fixed variable rate design that allow them to break the link
23 between customer usage and revenues.
- 24 3. Capital Cost Recovery: As discussed, KAWC has the QIP surcharge that
25 provides for recovery of a limited portion of the Company's capital investment
26 costs. This is consistent with the proxy group, as 75.00 percent of the operating
27 utilities of the proxy group companies have some form of capital cost recovery

mechanism in place.

Q. What is the effect on KAWC of having relatively few timely cost recovery mechanisms?

A. The lack of timely cost recovery mechanisms can result in regulatory lag. Regulatory lag occurs when a regulated utility is not able to recover its just and reasonable costs of providing service to customers on a timely basis. Regulatory lag is reflected in a utility's financial performance through earnings attrition, which is the inability of the utility to earn its authorized ROE due to delays in the recovery of allowable costs that have been incurred to provide regulated service to customers.

Q. Is there evidence that KAWC has been unable to earn its authorized return on equity?

A. Yes. As shown in Figure 9, the Company has not earned its authorized ROE for the past seven years, and particularly in the past two years, has substantially underearned its authorized ROE. As seen, on average, the Company has underearned its authorized ROE by 115 basis points over this period.

Figure 9: KAWC Earned v. Authorized ROE⁴⁷

	Earned ROE	Authorized ROE	Difference
2018	9.40%	9.70%	-0.30%
2019	9.09%	9.70%	-0.61%
2020	9.04%	9.70%	-0.66%
2021	9.10%	9.70%	-0.60%
2022	9.56%	9.70%	-0.14%
2023	6.64%	9.70%	-3.06%
2024	7.07%	9.70%	-2.63%
Average	8.55%	9.70%	-1.15%

⁴⁷ Provided by the Company.

1 **Q. What are your conclusions regarding the perceived risks related to the Kentucky**
2 **regulatory environment?**

3 A. As discussed, both Moody's and S&P have identified the supportiveness of the regulatory
4 environment as an important consideration in developing their overall credit ratings for
5 regulated utilities. Considering the regulatory adjustment mechanisms of the Company
6 relative to the proxy group, many of the companies in the proxy group have more timely
7 cost recovery between rate proceedings than KAWC has in Kentucky. In addition, the
8 Company has significantly under-earned its authorized ROE in each of the last seven years.
9 As a result, I conclude that the Company has greater than average regulatory risk when
10 compared to the proxy group.

11 **C. Flotation Costs**

12 **Q. What are flotation costs?**

13 A. Flotation costs are the costs associated with the sale of new issues of common stock. These
14 costs include out-of-pocket expenditures for preparation, filing, underwriting, and other
15 issuance costs.

16 **Q. Why is it important to consider flotation costs in the allowed ROE?**

17 A. A regulated utility must have the opportunity to earn an ROE that is both competitive and
18 compensatory to attract and retain new investors. To the extent that a company is denied
19 the opportunity to recover prudently incurred flotation costs, actual returns will fall short
20 of expected (or required) returns, thereby diluting equity share value.

21 **Q. Are flotation costs part of the utility's invested costs or part of the utility's expenses?**

22 A. Flotation costs are part of the invested costs of the utility, which are properly reflected on
23 the balance sheet under "paid in capital." They are not current expenses, and, therefore,

1 are not reflected on the income statement. Rather, like investments in rate base or the
2 issuance costs of long-term debt, flotation costs are incurred over time. As a result, the
3 great majority of a utility's flotation cost is incurred prior to the test year but remains part
4 of the cost structure that exists during the test year and beyond, and as such, should be
5 recognized for ratemaking purposes. Therefore, it is irrelevant whether an issuance occurs
6 during the test year or is planned for the test year because failure to allow recovery of past
7 flotation costs may deny KAWC the opportunity to earn its required rate of return in the
8 future.

9 **Q. Please provide an example of why a flotation cost adjustment is necessary to**
10 **compensate investors for the capital they have invested.**

11 A. As shown in Exhibit AEB-9, the offering price in AWK's 2023 stock issuance was \$135.5
12 per share of common stock. After paying flotation costs associated with the equity
13 issuance, which include fees paid to underwriters and attorneys, among others, AWK's net
14 proceeds were only \$133.41 per share invested. The net proceeds (*i.e.*, \$133.41 per share)
15 can then be invested in plant used to serve its customers, which becomes part of rate base
16 on which a return can be earned. Absent a flotation cost adjustment, the investor will
17 thereafter earn a return on only the rate base funded by the proceeds from the \$133.41 per
18 share issued, even though their equity contribution was \$135.50 per share of common
19 stock. Therefore, making a small flotation cost adjustment in establishing the authorized
20 ROE would provide the investor a reasonable opportunity to earn the authorized return,
21 rather than the lower return that results when the authorized return is applied to an amount
22 less than what the investor contributed.

1 **Q. Is the need to consider flotation costs eliminated because KAWC is a wholly-owned**
2 **subsidiary of AWK?**

3 A. No. Although KAWC is a wholly-owned subsidiary of AWK, it is appropriate to consider
4 flotation costs because wholly-owned subsidiaries receive equity capital from their parent
5 and provide returns on the capital that roll up to the parent, which is designated to attract
6 and raise capital based upon the returns of those subsidiaries. To deny recovery of issuance
7 costs associated with the capital that is invested in the subsidiaries ultimately penalizes the
8 investors that fund the utility operations and could inhibit the utility's ability to obtain new
9 equity capital at a reasonable cost. This is important for KAWC because, as I have
10 previously discussed, the Company is planning significant capital expenditures in the near
11 term.

12 **Q. Is the need to consider flotation costs recognized by the academic and financial**
13 **communities?**

14 A. Yes. The need to reimburse shareholders for the lost returns associated with equity
15 issuance costs is recognized by the academic and financial communities in the same spirit
16 that investors are reimbursed for the costs of issuing debt. This treatment is consistent with
17 the philosophy of a fair rate of return. According to Dr. Shannon Pratt:

18 Flotation costs occur when new issues of stock or debt are sold to the public.
19 The firm usually incurs several kinds of flotation or transaction costs, which
20 reduce the actual proceeds received by the firm. Some of these are direct
21 out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and
22 prospectus preparation costs. Because of this reduction in proceeds, the
23 firm's required returns on these proceeds equate to a higher return to
24 compensate for the additional costs. Flotation costs can be accounted for
25 either by amortizing the cost, thus reducing the cash flow to discount, or by
26 incorporating the cost into the cost of capital. Because flotation costs are

not typically applied to operating cash flow, one must incorporate them into the cost of capital.⁴⁸

Q. Has the Commission previously addressed the consideration of flotation costs in establishing the authorized ROE for a utility?

A. Yes. For example, in its decision in the Company's last rate proceeding, the Commission reiterated that "it continues to reject the use of flotation cost adjustments," in addition to other specific adjustments.⁴⁹ While I recognize that the Commission made this determination in the last case, the Company has recently issued equity and incurred a flotation cost as a result, and thus for the various reasons discussed, is a reasonable cost for the Commission to consider in establishing the authorized ROE for KAWC in this proceeding.

Q. How did you calculate the flotation costs for KAWC?

A. My flotation cost calculation is based on the costs incurred by AWK in its most recent equity offering on March 3, 2023. That flotation cost percentage is then applied to the DCF analysis to estimate impact of the flotation cost on the cost of equity. As shown in Exhibit AEB-9, based on the flotation costs incurred in the most recent AWK issuance, the impact on the cost of equity is approximately 7 basis points (i.e., 0.07 percent) based on the median results of the proxy group.

Q. Do your final cost of equity results include an adjustment for flotation cost recovery?

A. No. While the final cost of equity results do not incorporate an explicit adjustment for flotation costs, the estimated effect of flotation cost on the cost of equity is considered in

⁴⁸ Shannon P. Pratt, *Cost of Capital Estimation and Applications*, Second Edition, at 220-221.

⁴⁹ Case No. 2023-00191, *Electronic Application of Kentucky-American Water Company for an Adjustment of Rates, A Certificate of Public Convenience and Necessity for Installation of Advanced Metering Infrastructure, Approval of Regulatory and Accounting Treatments, and Tariff Revisions* (KY PSC May 3, 2023), Order at 38.

1 identifying a recommended ROE within the range of cost of equity estimates from the
2 various models.

3 **VIII. CAPITAL STRUCTURE**

4 **Q. Is the capital structure of the Company an important consideration in the**
5 **determination of the appropriate ROE?**

6 A. Yes. It is a fundamental tenet of finance that the greater the amount of financial risk borne
7 by common shareholders, the greater the return required by shareholders in order to be
8 compensated for the added financial risk imparted by the greater use of senior debt
9 financing. In other words, assuming all else equal, the greater the debt ratio, the greater
10 the risk to equity investors, and thus the greater the return required by equity investors.
11 This is because the claim of equity holders on the cash flows of the Company is secondary
12 to debt holders, meaning the greater the debt service requirement, the less cash flow is
13 available for common equity holders.

14 In this proceeding, a proxy group of comparable companies is being used to
15 determine the Company's ROE. The returns that are required by investors for the proxy
16 companies take into consideration the risk related to the capitalization of those companies.
17 Thus, to the extent that the capital structure authorized for the Company was to deviate
18 significantly from the range established by the proxy group used to determine the ROE,
19 that risk difference must be reflected in the equity return

20 **Q. What is the KAWC's proposed capital structure?**

21 A. KAWC is proposing a ratemaking capital structure composed of 52.26 percent common
22 equity, 46.10 percent long-term debt, 1.31 percent short-term debt and 0.33 percent

1 preferred stock, representing the 13-month average for the forecast period ending
2 December 31, 2026.

3 **Q. Have you conducted any analysis to determine whether the Company's proposed**
4 **equity ratio is reasonable?**

5 A. Yes, I have reviewed the Company's proposed capital structure as compared with the actual
6 capital structures of the operating utilities of the proxy group companies for the most recent
7 three years.

8 **Q. Why is it appropriate to consider the equity ratio for the proxy companies?**

9 A. The determination of the cost of equity and ultimately the authorized ROE is based on the
10 expected return for a proxy group of companies that are comparable in risk to KAWC. The
11 equity ratio is a measure of the financial risk of the company, and the authorized ROE is
12 the return to compensate investors for that risk. If the Commission is going to rely on the
13 cost of equity estimates for the proxy companies to establish the authorized ROE for
14 KAWC, it is important that the financial risk of KAWC be similar to the financial risk of
15 the proxy group. This is accomplished when the equity ratio of the subject company (in
16 this case KAWC) is within the range established by the proxy group.

17 **Q. What is the result of your analysis of the proxy group capital structures?**

18 A. As shown on Exhibit AEB-10, the common equity ratio for the operating subsidiaries of
19 the proxy group companies over the past three years ranged from 45.22 percent to 60.03
20 percent, with an average of 52.77 percent. Thus, KAWC's proposed equity ratio of 52.26
21 percent is well within the equity ratio range established by the utility operating subsidiaries
22 of the proxy group, and in fact, below the average equity ratio of the proxy group.

1 **Q. Are there other factors to be considered in setting the Company’s capital structure?**

2 A. Yes, there are other factors that should be considered in setting the Company’s capital
3 structure, namely the challenges that the credit rating agencies have highlighted as placing
4 pressure on the credit metrics for utilities.

5 For example, Moody’s recently maintained its “stable” 2025 outlook for the
6 regulated gas and electric utilities sector on the expectation of continued regulatory
7 support, which includes supportive legislature, timely recovery of excess purchased power
8 costs, and weather-related cost recovery. Moody’s “stable” rating also considers its
9 expectation for declining interest rates and inflation, as well as favorable natural gas prices.
10 Moody’s makes clear that constructive regulatory outcomes that promote timely cost
11 recovery is the key factor in supporting utility credit quality.⁵⁰

12 S&P continues to maintain a negative outlook for the utility industry, noting that
13 downgrades have outpaced upgrades for the fifth consecutive year and the most common
14 investor-owned utility credit rating is a “BBB+”.⁵¹ S&P expects the industry to have
15 increased cash flow deficits as a result of significant capital spending.⁵² Weak common
16 equity issuance contributes pressure to the industry’s financial health. The utility industry
17 will need ongoing access to capital markets to fund the capital expenditures. Furthermore,
18 S&P also notes that there is a significant increase physical risk due to climate change and
19 elevated wildfire risk.

20 Fitch Ratings (“Fitch”) has a “neutral” outlook for the utility industry noting that

⁵⁰ Moody’s Investors Service, Outlook. “Outlook Stable; regulatory support, economic factors offset financial pressure.” November 7, 2024.

⁵¹ S&P Global Ratings. Industry Credit Outlook 2025, “North American Regulated Utilities: Capex and climate change pressure credit quality.” January 14, 2025.

⁵² *Id.*

1 moderation in inflation and “subdued” commodity costs have eased pressures on customer
2 bills. However, Fitch cautions that utility capital expenditures are expected to grow at a
3 “double-digit rate” and thus, rate case outcomes will be key to watch as regulators balance
4 rate requests and customer bill pressures.⁵³

5 The credit ratings agencies’ continued concerns over increased capital expenditures
6 underscore the importance of maintaining adequate cash flow metrics for the Company in
7 the context of this proceeding.

8 **Q. Will the capital structure and ROE authorized in these proceedings affect the**
9 **Company’s access to capital at reasonable rates?**

10 A. Yes. The level of earnings authorized by the Commission directly affects the Company’s
11 ability to fund its operations with internally-generated funds. Both bond investors and
12 rating agencies expect a significant portion of ongoing capital investments to be financed
13 with internally-generated funds. In addition, it is important to recognize that because a
14 utility’s investment horizon is very long, investors require the assurance of a sufficiently
15 high return to satisfy the long-term financing requirements of the assets placed into service.
16 Those assurances, which often are measured by the relationship between internally
17 generated cash flows and debt (or interest expense), depend quite heavily on the capital
18 structure. As a consequence, both the ROE and capital structure are very important to debt
19 and equity investors, particularly given the capital market conditions discussed previously

⁵³ Fitch Ratings, “North American Utilities, Power & Gas Outlook 2025,” December 5, 2024, at 1.

IX. CONCLUSION AND RECOMMENDATIONS

Q. What is your conclusion regarding a reasonable and appropriate ROE for KAWC?

A. Figure 10 summarizes the results of my cost of equity analyses. Based on the quantitative and qualitative analyses presented in my direct testimony, and the business and financial risks of the Company as compared to the proxy group, a reasonable range for KAWC's ROE in this proceeding is from 10.25 percent to 11.25 percent, and within that range, an ROE of 10.75 percent reasonably reflects the investor-required return.

Figure 10: Summary of Analytical Results

<i>Constant Growth DCF</i>			
	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Median			
30-Day Avg. Stock Price	9.42%	10.63%	11.36%
90-Day Avg. Stock Price	9.51%	10.92%	11.46%
180-Day Avg. Stock Price	9.36%	11.17%	11.59%
Average	9.43%	10.91%	11.47%
 <i>CAPM and ECAPM</i>			
	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current <i>Value Line</i> Beta	11.57%	11.56%	11.53%
Current <i>Bloomberg</i> Beta	10.59%	10.57%	10.52%
Long-term Avg. <i>Value Line</i> Beta	10.65%	10.62%	10.57%
ECAPM:			
Current <i>Value Line</i> Beta	11.82%	11.81%	11.79%
Current <i>Bloomberg</i> Beta	11.09%	11.07%	11.03%
Long-term Avg. <i>Value Line</i> Beta	11.13%	11.11%	11.07%

- 1 **Q. What is your conclusion regarding KAWC's proposed capital structure?**
- 2 A. Based on the actual capital structures of the operating utilities of the proxy group
- 3 companies, KAWC's proposed common equity ratio of 52.26 percent is reasonable. The
- 4 proposed equity ratio is well within the range, and moderately below the mean, established
- 5 by the capital structures of the utility operating subsidiaries of the proxy companies.
- 6 **Q. Does this conclude your direct testimony?**
- 7 A. Yes, it does.

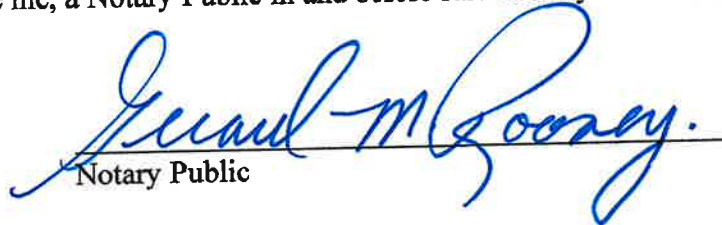
VERIFICATION

COMMONWEALTH OF MASSACHUSETTS)
) SS:
COUNTY OF SUFFOLK)

The undersigned, Ann E. Bulkley, being duly sworn, deposes and says that she is a Principal at The Brattle Group, that she has personal knowledge of the matters set forth in the accompanying testimony for which she is identified as the responsible witness, and that the answers contained therein are true and correct to the best of her information, knowledge and belief.


Ann E. Bulkley

Subscribed and sworn to before me, a Notary Public in and before said County and State,
this 6th day of May, 202.


Notary Public

My Commission Expires:

6/30/2028



Gerard M. Rooney
NOTARY PUBLIC
Commonwealth of
Massachusetts
My Commission Expires
6/30/2028





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With more than 25 years of experience in the energy industry, Ms. Bulkley specializes in regulatory economics for the electric and natural gas and water utility sectors, including valuation of regulated and unregulated utility assets, cost of capital, and capital structure issues.

Ms. Bulkley has extensive state and federal regulatory experience, and she has provided expert testimony on the cost of capital in nearly 100 regulatory proceedings before 32 state regulatory commissions and the Federal Energy Regulatory Commission (FERC).

In addition to her regulatory experience, Ms. Bulkley has provided valuation and appraisal services for a variety of purposes, including the sale or acquisition of utility assets, regulated ratemaking, ad valorem tax disputes, and other litigation purposes. In addition, she has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring, and regulatory and litigation support.

Ms. Bulkley is a Certified General Appraiser licensed in the Commonwealth of Massachusetts and the State of New Hampshire.

Prior to joining Brattle, Ms. Bulkley was a Senior Vice President at an economic consultancy and held senior positions at several other consulting firms.

AREAS OF EXPERTISE

- Regulatory Economics, Finance & Rates
- Regulatory Investigations & Enforcement
- Tax Controversy & Transfer Pricing
- Electricity Litigation & Regulatory Disputes
- M&A Litigation



EDUCATION

- **Boston University**
MA in Economics
- **Simmons College**
BA in Economics and Finance

PROFESSIONAL EXPERIENCE

- **The Brattle Group (2022–Present)**
Principal
- **Concentric Energy Advisors, Inc. (2002–2021)**
Senior Vice President
Vice President
Assistant Vice President
Project Manager
- **Navigant Consulting, Inc. (1997–2002)**
Project Manager
- **Reed Consulting Group (1995-1997)**
Consultant- Project Manager
- **Cahners Publishing Company (1995)**
Economist

SELECTED CONSULTING EXPERIENCE & EXPERT TESTIMONY

REGULATORY ANALYSIS AND RATEMAKING

Have provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking, with specific services including:

- Cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies
- Development of merchant function exit strategies



- Analysis and program development to address residual energy supply and/or provider of last resort obligations
- Stranded costs assessment and recovery
Performance-based ratemaking analysis and design
- Many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation)

COST OF CAPITAL

Have provided expert testimony on the cost of capital and capital structure in nearly 100 regulatory proceedings before state and federal regulatory commissions in the United States.

RATEMAKING

Have assisted several clients with analysis to support investor-owned and municipal utility clients in the preparation of rate cases. Sample engagements include:

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.
- Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Along with analyzing and evaluating rate application, attended hearings and conducted investigation of rate application for regulatory staff and prepared, supported, and defended recommendations for revenue requirements and rates for the company. Additionally, developed rates for gas utility for transportation program and ancillary services.

VALUATION

Have provided valuation services to utility clients, unregulated generators, and private equity clients for a variety of purposes, including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal Practice.

Representative projects/clients have included:

- Prepared appraisals of electric utility transmission and distribution assets for ad valorem tax purposes.
- Prepared appraisals of hydroelectric generating facilities for ad valorem tax purposes.
- Conducted appraisals of fossil fuel generating facilities for ad valorem tax purposes.
- Conducted appraisals of generating assets for the purposes of unwinding sale-leaseback agreements.
- For a confidential utility client, prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.



- Conducted a strategic review of the acquisition of nuclear generation assets. Review included the evaluation of the operating costs of the facilities and the long-term liabilities associated with the assets including the decommissioning of the assets.
- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis, and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, and a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approach. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Conducted a valuation of regulated utility assets for the fair value rate base estimate used in electric rate proceedings in Indiana.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.
- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Prepared feasibility reports analyzing the expected net benefits resulting from municipal ownership of investor-owned utility operations.
- Prepared independent analyses of proposal for the proposed government condemnation of the investor-owned utilities in Maine and the formation of a public power district.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

STRATEGIC AND FINANCIAL ADVISORY SERVICES

Have assisted several clients across North America with analytically-based strategic planning, due diligence, and financial advisory services.

Representative projects include:



- Preparation of feasibility studies for bond issuances for municipal and district steam clients.
- Assisted in the development of a generation strategy for an electric utility. Analyzed various NERC regions to identify potential market entry points. Evaluated potential competitors and alliance partners. Assisted in the development of gas and electric price forecasts. Developed a framework for the implementation of a risk management program.
- Assisted clients in identifying potential joint venture opportunities and alliance partners. Contacted interviewed and evaluated potential alliance candidates based on company-established criteria for several LDCs and marketing companies. Worked with several LDCs and unregulated marketing companies to establish alliances to enter into the retail energy market. Prepared testimony in support of several merger cases and participated in the regulatory process to obtain approval for these mergers.
- Assisted clients in several buy-side due diligence efforts, providing regulatory insight and developing valuation recommendations for acquisitions of both electric and gas properties.



BULKLEY TESTIMONY LISTING

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
UNS Gas	11/24	UNS Gas	Docket No. G-04204A-24-0237	Return on Equity
Southwest Gas Corporation	02/24	Southwest Gas Corporation	Docket No. G-01551A-23-0341	Return on Equity
UNS Electric	11/22	UNS Electric	Docket No. E-04204A-15-0251	Return on Equity
Tucson Electric Power Company	6/22	Tucson Electric Power Company	Docket No. G-01933A-22-0107	Return on Equity
Southwest Gas Corporation	12/21	Southwest Gas Corporation	Docket No. G-01551A-21-0368	Return on Equity
Arizona Public Service Company	10/19	Arizona Public Service Company	Docket No. E-01345A-19-0236	Return on Equity
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Oklahoma Gas and Electric Co	10/21	Oklahoma Gas and Electric Co	Docket No. D-18-046-FR	Return on Equity
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
California Public Utilities Commission				
PacifiCorp, d/b/a Pacific Power	5/22	PacifiCorp, d/b/a Pacific Power	Docket No. A-22-05-006	Return on Equity
San Jose Water Company	05/21	San Jose Water Company	A2105004	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Colorado Public Utilities Commission				
Public Service Company of Colorado	01/24	Public Service Company of Colorado	Docket No. 24AL-___G	Return on Equity
Public Service Company of Colorado	11/22	Public Service Company of Colorado	Docket No. 22AL-0530E	Return on Equity
Public Service Company of Colorado	01/22	Public Service Company of Colorado	Docket No. 22AL-0046G	Return on Equity
Public Service Company of Colorado	07/21	Public Service Company of Colorado	21AL-0317E	Return on Equity
Public Service Company of Colorado	02/20	Public Service Company of Colorado	20AL-0049G	Return on Equity
Public Service Company of Colorado	05/19	Public Service Company of Colorado	19AL-0268E	Return on Equity
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
United Illuminating	11/12/24	United Illuminating	Docket No. 24-10-04	Return on Equity
The Southern Connecticut Gas Company	11/23	The Southern Connecticut Gas Company	Docket No. 23-11-02	Return on Equity
Connecticut Natural Gas Corporation	11/23	Connecticut Natural Gas Corporation	Docket No. 23-11-02	Return on Equity
Connecticut Water Company	10/23	Connecticut Water Company	Docket No. 23-08-32	Return on Equity
United Illuminating	09/22	United Illuminating	Docket No. 22-08-08	Return on Equity
United Illuminating	05/21	United Illuminating	Docket No. 17-12-03RE11	Return on Equity
Connecticut Water Company	01/21	Connecticut Water Company	Docket No. 20-12-30	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline	12/22	Sea Robin Pipeline	Docket No. RP22-____	Return on Equity
Northern Natural Gas Company	07/22	Northern Natural Gas Company	Docket No. RP22-____	Return on Equity
Transwestern Pipeline Company, LLC	07/22	Transwestern Pipeline Company, LLC	Docket No. RP22-____	Return on Equity
Florida Gas Transmission	02/21	Florida Gas Transmission	Docket No. RP21-441	Return on Equity
TransCanyon	01/21	TransCanyon	Docket No. ER21-1065	Return on Equity
Duke Energy	12/20	Duke Energy	Docket No. EL21-9-000	Return on Equity
Wisconsin Electric Power Company	08/20	Wisconsin Electric Power Company	Docket No. EL20-57-000	Return on Equity
Panhandle Eastern Pipe Line Company, LP	10/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-78-000 RP19-78-001	Return on Equity
Panhandle Eastern Pipe Line Company, LP	08/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-1523	Return on Equity
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-352-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Idaho Public Utilities Commission				
PacifiCorp d/b/a Rocky Mountain Power	05/24	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-24-04	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-24-04	Return on Equity
Intermountain Gas Co	12/22	Intermountain Gas Co	C-INT-G-22-07	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-21-07	Return on Equity
Illinois Commerce Commission				
Illinois American Water	01/24	Illinois American Water	Docket No. 24-0097	Return on Equity
Peoples Gas Light & Coke Company	01/23	Peoples Gas Light & Coke Company	D-23-0069	Return on Equity
North Shore Gas Company	01/23	North Shore Gas Company	D-23-0068	Return on Equity
Illinois American Water	02/22	Illinois American Water	Docket No. 22-0210	Return on Equity
North Shore Gas Company	02/21	North Shore Gas Company	No. 20-0810	Return on Equity
Indiana Utility Regulatory Commission				
Ohio Valley Gas Corporation and Ohio Valley Gas, Inc.	02/24	Ohio Valley Gas Corporation and Ohio Valley Gas, Inc.	Cause No. 46011	Return on Equity
Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	12/23	Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	IURC Cause No. 45990	Return on Equity
Indiana Michigan Power Co.	08/23	Indiana Michigan Power Co.	IURC Cause No. 45933	Return on Equity
Indiana American Water Company	03/23	Indiana and Michigan American Water Company	IURC Cause No. 45870	Return on Equity
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Iowa Department of Commerce Utilities Board				
Iowa-American Water Company	04/24	Iowa-American Water Company	Docket No. RPU-2024-000_	Return on Equity
MidAmerican Energy Company	06/23	MidAmerican Energy Company	Docket No. RPU-2023-—	Return on Equity
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
Kansas Corporation Commission				
Evergy Kansas	04/23	Evergy Kansas	Docket No. 23-EKCE-775-RTS	Return on Equity
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Kentucky American Water Company	06/23	Kentucky American Water Company	Docket No. 2023-_____	Return on Equity
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	08/22	Central Maine Power	Docket No. 2022-00152	Return on Equity
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
Hopkinton LNG Corporation	03/20	Hopkinton LNG Corporation	Docket No.	Valuation of LNG Facility
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	11/23	Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	DPU 23-150	Return on Equity
National Grid USA	11/20	Boston Gas Company	DPU 20-120	Return on Equity
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Return on Equity
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Consumers Energy	12/16/24	Consumers Energy	C-U-21806	Return on Equity
Upper Michigan Energy Resources Corporation	05/24	Upper Michigan Energy Resources Corporation	Case No. U-21541	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Michigan Gas Utilities Corporation	03/24	Michigan Gas Utilities Corporation	Case No. U-21540	Return on Equity
Indiana Michigan Power Co.	09/23	Indiana Michigan Power Co.	Case No. U-21461	Return on Equity
Michigan Gas Utilities Corporation	03/23	Michigan Gas Utilities Corporation	Case No. U-21366	Return on Equity
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
ALLETE, Inc. d/b/a Minnesota Power	11/23	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-23-155	Return on Equity
CenterPoint Energy Resources	11/23	CenterPoint Energy Resources	D-G-008/GR-23-173	Return on Equity
Minnesota Energy Resources Corporation	11/22	Minnesota Energy Resources Corporation	Docket No. G011/GR-22-504	Return on Equity
CenterPoint Energy Resources	11/21	CenterPoint Energy Resources	D-G-008/GR-21-435	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/21	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-21-630	Return on Equity
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR-19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
Ameren Missouri	09/24	Ameren Missouri	File No. GR-2024-0369	Return on Equity
Missouri American Water Company	07/24	Missouri American Water Company	WR-2024-0320	Return on Equity
Ameren Missouri	06/24	Ameren Missouri	File No. ER-2024-0319	Return on Equity
Evergy Missouri West	02/24	Evergy Missouri West	File No. ER-2024-0189	Return on Equity
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022-0337	Return on Equity
Missouri American Water Company	07/22	Missouri American Water Company	Case No. WR-2022-0303 Case No. SR-2022-0304	Return on Equity
Evergy Missouri West	01/22	Evergy Missouri West	File No. ER-2022-0130	Return on Equity
Evergy Missouri Metro	01/22	Evergy Missouri Metro	File No. ER-2022-0129	Return on Equity
Ameren Missouri	03/21	Ameren Missouri	Docket No. ER-2021-0240 Docket No. GR-2021-0241	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Missouri American Water Company	06/20	Missouri American Water Company	Case No. WR-2020-0344 Case No. SR-2020-0345	Return on Equity
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-0285 Case No. SR-17-0286	Return on Equity
Montana Public Service Commission				
Montana-Dakota Utilities Co.	7/24	Montana-Dakota Utilities Co.	D2024-05-061	Return on Equity
Montana-Dakota Utilities Co.	11/22	Montana-Dakota Utilities Co.	D2022.11.099	Return on Equity
Montana-Dakota Utilities Co.	06/20	Montana-Dakota Utilities Co.	D2020.06.076	Return on Equity
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
Public Utilities Commission of Nevada				
Nevada Power Company d/b/a NV Energy	02/25	Nevada Power Company d/b/a NV Energy	25-02016	Return on Equity
Sierra Pacific Power Company d/b/a NV Energy	02/24	Sierra Pacific Power Company d/b/a NV Energy	24-02026	Return on Equity
Nevada Power Company d/b/a NV Energy	06/23	Nevada Power Company d/b/a NV Energy	23-06007	Return on Equity
Nevada Power Company d/b/a NV Energy	03/23	Nevada Power Company d/b/a NV Energy	22-03028	Merger benefits
New Hampshire - Board of Tax and Land Appeals				
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
New Hampshire Public Utilities Commission				
Liberty Utilities (EnergyNorth Natural Gas)	07/23	Liberty Utilities (EnergyNorth Natural Gas)	Docket No. DG 23-067	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Liberty Utilities (Granite State Electric)	05/23	Liberty Utilities (Granite State Electric)	Docket No. DE 23-039	Return on Equity
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
New Jersey American Water Company, Inc.	02/24	New Jersey American Water Company, Inc.	WR2401056	Return on Equity
Elizabethtown Gas Company	2/24	Elizabethtown Gas Company	GR24020158	Return on Equity
Public Service Electric and Gas Company	12/23	Public Service Electric and Gas Company	ER23120924 GR23120925	Return on Equity
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-00139-UT	Return on Equity
New York State Department of Public Service				
Liberty Utilities (New York Water)	5/23	Liberty Utilities (New York Water)	Case 23-W-0235	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/22	New York State Electric and Gas Company Rochester Gas and Electric	22-E-0317 22-G-0318 22-E-0319 22-G-0320	Return on Equity
Corning Natural Gas Corporation	07/21	Corning Natural Gas Corporation	Case No. 21-G-0394	Return on Equity
Central Hudson Gas and Electric Corporation	08/20	Central Hudson Gas and Electric Corporation	Electric 20-E-0428 Gas 20-G-0429	Return on Equity
Niagara Mohawk Power Corporation	07/20	National Grid USA	Case No. 20-E-0380 20-G-0381	Return on Equity
Corning Natural Gas Corporation	02/20	Corning Natural Gas Corporation	Case No. 20-G-0101	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/19	New York State Electric and Gas Company Rochester Gas and Electric	19-E-0378 19-G-0379 19-E-0380 19-G-0381	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	04/19	Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	19-G-0309 19-G-0310	Return on Equity
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Electric 17-E-0459 Gas 17-G-0460	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. 17-E-0238 17-G-0239	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0058 Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/15	New York State Electric and Gas Company Rochester Gas and Electric	Case No. 15-E-0283 Case No. 15-G-0284 Case No. 15-E-0285 Case No. 15-G-0286	Return on Equity
North Dakota Public Service Commission				
Otter Tail Power Company	11/23	Otter Tail Power Company	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	11/23	Montana-Dakota Utilities Co.	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	05/22	Montana-Dakota Utilities Co.	C-PU-22-194	Return on Equity
Montana-Dakota Utilities Co.	08/20	Montana-Dakota Utilities Co.	C-PU-20-379	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Oklahoma Corporation Commission				
Oklahoma Gas & Electric	12/23	Oklahoma Gas & Electric	Cause No. PUD2023-000087	Return on Equity
Oklahoma Gas & Electric	12/21	Oklahoma Gas & Electric	Cause No. PUD 202100164	Return on Equity
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Oregon Public Service Commission				
PacifiCorp d/b/a Pacific Power & Light	02/24	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-433	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	03/22	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-399	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	02/20	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-374	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	11/23	Pennsylvania-American Water Company	Docket No. R-2023-3043189 (water) Docket No. R-2023-3043190 (wastewater)	Return on Equity
American Water Works Company Inc.	04/22	Pennsylvania-American Water Company	Docket No. R-2020-3031672 (water) Docket No. R-2020-3031673 (wastewater)	Return on Equity
American Water Works Company Inc.	04/20	Pennsylvania-American Water Company	Docket No. R-2020-3019369 (water) Docket No. R-2020-3019371 (wastewater)	Return on Equity
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
MidAmerican Energy Company	05/22	MidAmerican Energy Company	D-NG22-005	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
Tennessee Public Utility Commission				
Tennessee American Water Company	04/24	Tennessee American Water Company	Docket No.24-00032	Return on Equity
Texas Public Utility Commission				
Electric Transmission Texas LLC	02/25	Electric Transmission Texas LLC	Docket No. 57518	Return on Equity
CenterPoint Energy Houston	03/24	CenterPoint Energy Houston	D-56211	Return on Equity
AEP Texas	02/24	AEP Texas	D-56165	Return on Equity
Entergy Texas, Inc.	07/22	Entergy Texas, Inc.	D-53719	Return on Equity
Southwestern Public Service Commission	08/19	Southwestern Public Service Commission	Docket No. D-49831	Return on Equity
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Texas Railroad Commission				
CenterPoint Energy Entex and CenterPoint Energy Texas Gas	10/23	CenterPoint Energy Entex and CenterPoint Energy Texas Gas	2023 Texas Division Rate Case Case No. OS-23-00015513	Return on Equity
Utah Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	06/24	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 24-035-04	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/23	Virginia American Water Company, Inc.	Docket No. PUR-2023-00194	Return on Equity
Virginia American Water Company, Inc.	11/21	Virginia American Water Company, Inc.	Docket No. PUR-2021-00255	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
Cascade Natural Gas Corporation	03/24	Cascade Natural Gas Corporation	Docket No. UG-240008	Return on Equity
Puget Sound Energy Inc.	02/24	Puget Sound Energy Inc.	Docket No. UE-240004 UG-240005	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	03/23	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-230172	Return on Equity
Cascade Natural Gas Corporation	06/20	Cascade Natural Gas Corporation	Docket No. UG-200568	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	12/19	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-191024	Return on Equity
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket No. UG-190210	Return on Equity
West Virginia Public Service Commission				
West Virginia American Water Company	05/23	West Virginia American Water Company	Case No. 23-0383-W-42T	Return on Equity
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Power and Light	04/24	Wisconsin Power and Light	Docket No. 6680-UR-128	Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/24	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-111	Return on Equity
Wisconsin Power and Light	05/23	Wisconsin Power and Light	Docket No. 6680-UR-124	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/22	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-110	Return on Equity
Wisconsin Public Service Corp.	04/22	Wisconsin Public Service Corp.	6690-UR-127	Return on Equity
Alliant Energy		Alliant Energy		Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corp.	03/19	Wisconsin Public Service Corp.	6690-UR-126	Return on Equity
Wyoming Public Service Commission				
Montana-Dakota Utilities Co.	10/24	Montana-Dakota Utilities Co.	Docket No. 30013-415-GR-24	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	08/24	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-671-ER-24	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	02/23	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-633-ER-23	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	03/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-578-ER-20	Return on Equity
Montana-Dakota Utilities Co.	05/19	Montana-Dakota Utilities Co.	30013-351-GR-19	Return on Equity

CERTIFICATIONS/ACCREDITATIONS

Certified General Appraiser, licensed in the Commonwealth of Massachusetts

**COST OF EQUITY ANALYSES
SUMMARY OF RESULTS**

<i>Constant Growth DCF</i>			
	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Median			
30-Day Avg. Stock Price	9.42%	10.63%	11.36%
90-Day Avg. Stock Price	9.51%	10.92%	11.46%
180-Day Avg. Stock Price	9.36%	11.17%	11.59%
Average	9.43%	10.91%	11.47%
<i>CAPM and ECAPM</i>			
	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current <i>Value Line</i> Beta	11.57%	11.56%	11.53%
Current <i>Bloomberg</i> Beta	10.59%	10.57%	10.52%
Long-term Avg. <i>Value Line</i> Beta	10.65%	10.62%	10.57%
ECAPM:			
Current <i>Value Line</i> Beta	11.82%	11.81%	11.79%
Current <i>Bloomberg</i> Beta	11.09%	11.07%	11.03%
Long-term Avg. <i>Value Line</i> Beta	11.13%	11.11%	11.07%

PROXY GROUP SCREENING DATA AND RESULTS

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Positive Growth Rates from at least two sources (Value Line, S&P Capital IQ, and Zacks)	% Regul. Oper. Income to Total Oper. Income > 70%	Announced Merger
Atmos Energy Corporation	ATO	No	A-	Yes	100.00%	No
NiSource Inc.	NI	Yes	BBB+	Yes	99.89%	No
Northwest Natural Gas Company	NWN	Yes	A-	Yes	100.00%	No
ONE Gas, Inc.	OGS	Yes	A-	Yes	100.00%	No
Southwest Gas Corporation	SWX	Yes	BBB-	Yes	86.75%	No
Spire, Inc.	SR	Yes	BBB+	Yes	83.38%	No
American States Water Company	AWR	No	A	Yes	84.27%	No
California Water Service Group	CWT	Yes	A+	Yes	95.94%	No
Middlesex Water Company	MSEX	Yes	A	Yes	91.29%	No
SJW Group	SJW	Yes	A-	Yes	98.03%	No
Essential Utilities, Inc.	WTRG	Yes	A-	Yes	99.01%	No

Notes:

[1] Bloomberg Professional

[2] Bloomberg Professional

[3] Value Line, Zacks and S&P Capital IQ

[4] Form 10-K's for 2023, 2022, and 2021

[5] S&P Capital IQ Pro Financial News Releases

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	\$3.48	\$149.66	2.33%	2.41%	6.00%	7.52%	7.10%	6.87%	8.40%	9.28%	9.94%
NiSource Inc.	NI	\$1.12	\$39.62	2.83%	2.95%	9.50%	8.22%	8.20%	8.64%	11.14%	11.59%	12.46%
Northwest Natural Gas Company	NWN	\$1.96	\$41.60	4.71%	4.86%	6.50%	6.50%	n/a	6.50%	11.36%	11.36%	11.36%
ONE Gas, Inc.	OGS	\$2.68	\$73.90	3.63%	3.70%	4.00%	3.83%	4.70%	4.18%	7.52%	7.88%	8.41%
Southwest Gas Corporation	SWX	\$2.48	\$74.65	3.32%	3.48%	10.00%	12.60%	6.60%	9.73%	10.03%	13.22%	16.13%
Spire, Inc.	SR	\$3.14	\$75.89	4.14%	4.27%	4.50%	8.08%	6.50%	6.36%	8.73%	10.63%	12.39%
American States Water Company	AWR	\$1.86	\$76.98	2.42%	2.47%	6.50%	1.75%	n/a	4.12%	4.19%	6.59%	9.00%
California Water Service Group	CWT	\$1.20	\$46.56	2.58%	2.93%	13.00%	42.44%	n/a	27.72%	15.74%	30.66%	45.57%
Middlesex Water Company	MSEX	\$1.36	\$58.28	2.33%	2.46%	7.00%	13.96%	n/a	10.48%	9.42%	12.94%	16.46%
SJW Group	SJW	\$1.68	\$53.31	3.15%	3.24%	7.00%	4.52%	n/a	5.76%	7.74%	9.00%	10.26%
Essential Utilities, Inc.	WTRG	\$1.30	\$38.40	3.39%	3.50%	7.00%	6.51%	6.60%	6.70%	10.01%	10.21%	10.51%
Median										9.42%	10.63%	11.36%

Notes:

[1] Bloomberg Professional as of March 31, 2025

[2] Bloomberg Professional 30-day average as of March 31, 2025

[3] Equals [1]/[2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Value Line

[6] S&P Capital IQ

[7] Zacks

[8] Equals average of [5], [6], [7]

[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7]))

[12] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	\$3.48	\$144.43	2.41%	2.49%	6.00%	7.52%	7.10%	6.87%	8.48%	9.37%	10.02%
NiSource Inc.	NI	\$1.12	\$37.85	2.96%	3.09%	9.50%	8.22%	8.20%	8.64%	11.28%	11.73%	12.60%
Northwest Natural Gas Company	NWN	\$1.96	\$40.77	4.81%	4.96%	6.50%	6.50%	n/a	6.50%	11.46%	11.46%	11.46%
ONE Gas, Inc.	OGS	\$2.68	\$71.89	3.73%	3.81%	4.00%	3.83%	4.70%	4.18%	7.63%	7.98%	8.52%
Southwest Gas Corporation	SWX	\$2.48	\$73.75	3.36%	3.53%	10.00%	12.60%	6.60%	9.73%	10.07%	13.26%	16.18%
Spire, Inc.	SR	\$3.14	\$71.09	4.42%	4.56%	4.50%	8.08%	6.50%	6.36%	9.02%	10.92%	12.68%
American States Water Company	AWR	\$1.86	\$77.33	2.41%	2.46%	6.50%	1.75%	n/a	4.12%	4.18%	6.58%	8.99%
California Water Service Group	CWT	\$1.20	\$46.26	2.59%	2.95%	13.00%	42.44%	n/a	27.72%	15.76%	30.67%	45.59%
Middlesex Water Company	MSEX	\$1.36	\$56.07	2.43%	2.55%	7.00%	13.96%	n/a	10.48%	9.51%	13.03%	16.56%
SJW Group	SJW	\$1.68	\$51.54	3.26%	3.35%	7.00%	4.52%	n/a	5.76%	7.85%	9.11%	10.37%
Essential Utilities, Inc.	WTRG	\$1.30	\$37.07	3.51%	3.63%	7.00%	6.51%	6.60%	6.70%	10.14%	10.33%	10.64%
Median										9.51%	10.92%	11.46%

Notes:

[1] Bloomberg Professional as of March 31, 2025

[2] Bloomberg Professional 90-day average as of March 31, 2025

[3] Equals [1]/[2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Value Line

[6] S&P Capital IQ

[7] Zacks

[8] Equals average of [5], [6], [7]

[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7]))

[12] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	\$3.48	\$138.49	2.51%	2.60%	6.00%	7.52%	7.10%	6.87%	8.59%	9.47%	10.13%
NiSource Inc.	NI	\$1.12	\$35.34	3.17%	3.31%	9.50%	8.22%	8.20%	8.64%	11.50%	11.95%	12.82%
Northwest Natural Gas Company	NWN	\$1.96	\$39.77	4.93%	5.09%	6.50%	6.50%	n/a	6.50%	11.59%	11.59%	11.59%
ONE Gas, Inc.	OGS	\$2.68	\$70.66	3.79%	3.87%	4.00%	3.83%	4.70%	4.18%	7.69%	8.05%	8.58%
Southwest Gas Corporation	SWX	\$2.48	\$72.79	3.41%	3.57%	10.00%	12.60%	6.60%	9.73%	10.12%	13.31%	16.22%
Spire, Inc.	SR	\$3.14	\$67.37	4.66%	4.81%	4.50%	8.08%	6.50%	6.36%	9.27%	11.17%	12.93%
American States Water Company	AWR	\$1.86	\$79.44	2.34%	2.39%	6.50%	1.75%	n/a	4.12%	4.11%	6.52%	8.92%
California Water Service Group	CWT	\$1.20	\$49.28	2.43%	2.77%	13.00%	42.44%	n/a	27.72%	15.59%	30.49%	45.39%
Middlesex Water Company	MSEX	\$1.36	\$59.54	2.28%	2.40%	7.00%	13.96%	n/a	10.48%	9.36%	12.88%	16.40%
SJW Group	SJW	\$1.68	\$54.43	3.09%	3.18%	7.00%	4.52%	n/a	5.76%	7.68%	8.93%	10.19%
Essential Utilities, Inc.	WTRG	\$1.30	\$37.87	3.44%	3.55%	7.00%	6.51%	6.60%	6.70%	10.06%	10.26%	10.56%
Median										9.36%	11.17%	11.59%

Notes:

[1] Bloomberg Professional as of March 31, 2025

[2] Bloomberg Professional 180-day average as of March 31, 2025

[3] Equals [1]/[2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Value Line

[6] S&P Capital IQ

[7] Zacks

[8] Equals average of [5], [6], [7]

[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7]))

[12] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

30-DAY CONSTANT GROWTH DCF - EXCL. CWT'S S&P PROJ EPS GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	\$3.48	\$149.66	2.33%	2.41%	6.00%	7.52%	7.10%	6.87%	8.40%	9.28%	9.94%
NiSource Inc.	NI	\$1.12	\$39.62	2.83%	2.95%	9.50%	8.22%	8.20%	8.64%	11.14%	11.59%	12.46%
Northwest Natural Gas Company	NWN	\$1.96	\$41.60	4.71%	4.86%	6.50%	6.50%	n/a	6.50%	11.36%	11.36%	11.36%
ONE Gas, Inc.	OGS	\$2.68	\$73.90	3.63%	3.70%	4.00%	3.83%	4.70%	4.18%	7.52%	7.88%	8.41%
Southwest Gas Corporation	SWX	\$2.48	\$74.65	3.32%	3.48%	10.00%	12.60%	6.60%	9.73%	10.03%	13.22%	16.13%
Spire, Inc.	SR	\$3.14	\$75.89	4.14%	4.27%	4.50%	8.08%	6.50%	6.36%	8.73%	10.63%	12.39%
American States Water Company	AWR	\$1.86	\$76.98	2.42%	2.47%	6.50%	1.75%	n/a	4.12%	4.19%	6.59%	9.00%
California Water Service Group	CWT	\$1.20	\$46.56	2.58%	2.74%	13.00%	n/a	n/a	13.00%	15.74%	15.74%	15.74%
Middlesex Water Company	MSEX	\$1.36	\$58.28	2.33%	2.46%	7.00%	13.96%	n/a	10.48%	9.42%	12.94%	16.46%
SJW Group	SJW	\$1.68	\$53.31	3.15%	3.24%	7.00%	4.52%	n/a	5.76%	7.74%	9.00%	10.26%
Essential Utilities, Inc.	WTRG	\$1.30	\$38.40	3.39%	3.50%	7.00%	6.51%	6.60%	6.70%	10.01%	10.21%	10.51%
Median										9.42%	10.63%	11.36%

Notes:

[1] Bloomberg Professional as of March 31, 2025

[2] Bloomberg Professional 30-day average as of March 31, 2025

[3] Equals [1]/[2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Value Line

[6] S&P Capital IQ

[7] Zacks

[8] Equals average of [5], [6], [7]

[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7]))

[12] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

90-DAY CONSTANT GROWTH DCF - EXCL. CWT'S S&P PROJ EPS GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	\$3.48	\$144.43	2.41%	2.49%	6.00%	7.52%	7.10%	6.87%	8.48%	9.37%	10.02%
NiSource Inc.	NI	\$1.12	\$37.85	2.96%	3.09%	9.50%	8.22%	8.20%	8.64%	11.28%	11.73%	12.60%
Northwest Natural Gas Company	NWN	\$1.96	\$40.77	4.81%	4.96%	6.50%	6.50%	n/a	6.50%	11.46%	11.46%	11.46%
ONE Gas, Inc.	OGS	\$2.68	\$71.89	3.73%	3.81%	4.00%	3.83%	4.70%	4.18%	7.63%	7.98%	8.52%
Southwest Gas Corporation	SWX	\$2.48	\$73.75	3.36%	3.53%	10.00%	12.60%	6.60%	9.73%	10.07%	13.26%	16.18%
Spire, Inc.	SR	\$3.14	\$71.09	4.42%	4.56%	4.50%	8.08%	6.50%	6.36%	9.02%	10.92%	12.68%
American States Water Company	AWR	\$1.86	\$77.33	2.41%	2.46%	6.50%	1.75%	n/a	4.12%	4.18%	6.58%	8.99%
California Water Service Group	CWT	\$1.20	\$46.26	2.59%	2.76%	13.00%	n/a	n/a	13.00%	15.76%	15.76%	15.76%
Middlesex Water Company	MSEX	\$1.36	\$56.07	2.43%	2.55%	7.00%	13.96%	n/a	10.48%	9.51%	13.03%	16.56%
SJW Group	SJW	\$1.68	\$51.54	3.26%	3.35%	7.00%	4.52%	n/a	5.76%	7.85%	9.11%	10.37%
Essential Utilities, Inc.	WTRG	\$1.30	\$37.07	3.51%	3.63%	7.00%	6.51%	6.60%	6.70%	10.14%	10.33%	10.64%
Median										9.51%	10.92%	11.46%

Notes:

[1] Bloomberg Professional as of March 31, 2025

[2] Bloomberg Professional 90-day average as of March 31, 2025

[3] Equals [1]/[2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Value Line

[6] S&P Capital IQ

[7] Zacks

[8] Equals average of [5], [6], [7]

[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7]))

[12] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

180-DAY CONSTANT GROWTH DCF - EXCL. CWT'S S&P PROJ EPS GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	\$3.48	\$138.49	2.51%	2.60%	6.00%	7.52%	7.10%	6.87%	8.59%	9.47%	10.13%
NiSource Inc.	NI	\$1.12	\$35.34	3.17%	3.31%	9.50%	8.22%	8.20%	8.64%	11.50%	11.95%	12.82%
Northwest Natural Gas Company	NWN	\$1.96	\$39.77	4.93%	5.09%	6.50%	6.50%	n/a	6.50%	11.59%	11.59%	11.59%
ONE Gas, Inc.	OGS	\$2.68	\$70.66	3.79%	3.87%	4.00%	3.83%	4.70%	4.18%	7.69%	8.05%	8.58%
Southwest Gas Corporation	SWX	\$2.48	\$72.79	3.41%	3.57%	10.00%	12.60%	6.60%	9.73%	10.12%	13.31%	16.22%
Spire, Inc.	SR	\$3.14	\$67.37	4.66%	4.81%	4.50%	8.08%	6.50%	6.36%	9.27%	11.17%	12.93%
American States Water Company	AWR	\$1.86	\$79.44	2.34%	2.39%	6.50%	1.75%	n/a	4.12%	4.11%	6.52%	8.92%
California Water Service Group	CWT	\$1.20	\$49.28	2.43%	2.59%	13.00%	n/a	n/a	13.00%	15.59%	15.59%	15.59%
Middlesex Water Company	MSEX	\$1.36	\$59.54	2.28%	2.40%	7.00%	13.96%	n/a	10.48%	9.36%	12.88%	16.40%
SJW Group	SJW	\$1.68	\$54.43	3.09%	3.18%	7.00%	4.52%	n/a	5.76%	7.68%	8.93%	10.19%
Essential Utilities, Inc.	WTRG	\$1.30	\$37.87	3.44%	3.55%	7.00%	6.51%	6.60%	6.70%	10.06%	10.26%	10.56%
Median										9.36%	11.17%	11.59%

Notes:

[1] Bloomberg Professional as of March 31, 2025

[2] Bloomberg Professional 180-day average as of March 31, 2025

[3] Equals [1]/[2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Value Line

[6] S&P Capital IQ

[7] Zacks

[8] Equals average of [5], [6], [7]

[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7]))

[12] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.61%	0.90	12.58%	7.97%	11.78%	11.98%
NiSource Inc.	NI	4.61%	0.95	12.58%	7.97%	12.18%	12.28%
Northwest Natural Gas Company	NWN	4.61%	0.90	12.58%	7.97%	11.78%	11.98%
ONE Gas, Inc.	OGS	4.61%	0.85	12.58%	7.97%	11.39%	11.69%
Southwest Gas Corporation	SWX	4.61%	0.95	12.58%	7.97%	12.18%	12.28%
Spire, Inc.	SR	4.61%	0.90	12.58%	7.97%	11.78%	11.98%
American States Water Company	AWR	4.61%	0.75	12.58%	7.97%	10.59%	11.09%
California Water Service Group	CWT	4.61%	0.75	12.58%	7.97%	10.59%	11.09%
Middlesex Water Company	MSEX	4.61%	0.80	12.58%	7.97%	10.99%	11.39%
SJW Group	SJW	4.61%	0.85	12.58%	7.97%	11.39%	11.69%
Essential Utilities, Inc.	WTRG	4.61%	1.00	12.58%	7.97%	12.58%	12.58%
Mean						11.57%	11.82%
Median						11.78%	11.98%

Notes:

[1] Bloomberg Professional 30-day average as of March 31, 2025

[2] Value Line

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
NEAR TERM PROJECTED RISK-FREE RATE AND VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2025 - Q3 2026)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.52%	0.90	12.58%	8.06%	11.78%	11.98%
NiSource Inc.	NI	4.52%	0.95	12.58%	8.06%	12.18%	12.28%
Northwest Natural Gas Company	NWN	4.52%	0.90	12.58%	8.06%	11.78%	11.98%
ONE Gas, Inc.	OGS	4.52%	0.85	12.58%	8.06%	11.37%	11.68%
Southwest Gas Corporation	SWX	4.52%	0.95	12.58%	8.06%	12.18%	12.28%
Spire, Inc.	SR	4.52%	0.90	12.58%	8.06%	11.78%	11.98%
American States Water Company	AWR	4.52%	0.75	12.58%	8.06%	10.57%	11.07%
California Water Service Group	CWT	4.52%	0.75	12.58%	8.06%	10.57%	11.07%
Middlesex Water Company	MSEX	4.52%	0.80	12.58%	8.06%	10.97%	11.37%
SJW Group	SJW	4.52%	0.85	12.58%	8.06%	11.37%	11.68%
Essential Utilities, Inc.	WTRG	4.52%	1.00	12.58%	8.06%	12.58%	12.58%
Mean						11.56%	11.81%
Median						11.78%	11.98%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 44, No. 4, April 1, 2025, at 2.

[2] Value Line

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
LONG-TERM PROJECTED RISK-FREE RATE AND VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2026 - 2030)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.30%	0.90	12.58%	8.28%	11.75%	11.96%
NiSource Inc.	NI	4.30%	0.95	12.58%	8.28%	12.17%	12.27%
Northwest Natural Gas Company	NWN	4.30%	0.90	12.58%	8.28%	11.75%	11.96%
ONE Gas, Inc.	OGS	4.30%	0.85	12.58%	8.28%	11.34%	11.65%
Southwest Gas Corporation	SWX	4.30%	0.95	12.58%	8.28%	12.17%	12.27%
Spire, Inc.	SR	4.30%	0.90	12.58%	8.28%	11.75%	11.96%
American States Water Company	AWR	4.30%	0.75	12.58%	8.28%	10.51%	11.03%
California Water Service Group	CWT	4.30%	0.75	12.58%	8.28%	10.51%	11.03%
Middlesex Water Company	MSEX	4.30%	0.80	12.58%	8.28%	10.93%	11.34%
SJW Group	SJW	4.30%	0.85	12.58%	8.28%	11.34%	11.65%
Essential Utilities, Inc.	WTRG	4.30%	1.00	12.58%	8.28%	12.58%	12.58%
Mean						11.53%	11.79%
Median						11.75%	11.96%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 12, November 27, 2024, at 14

[2] Value Line

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND BLOOMBERG BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.61%	0.74	12.58%	7.97%	10.53%	11.04%
NiSource Inc.	NI	4.61%	0.78	12.58%	7.97%	10.87%	11.29%
Northwest Natural Gas Company	NWN	4.61%	0.69	12.58%	7.97%	10.13%	10.75%
ONE Gas, Inc.	OGS	4.61%	0.76	12.58%	7.97%	10.66%	11.14%
Southwest Gas Corporation	SWX	4.61%	0.83	12.58%	7.97%	11.21%	11.55%
Spire, Inc.	SR	4.61%	0.76	12.58%	7.97%	10.65%	11.14%
American States Water Company	AWR	4.61%	0.64	12.58%	7.97%	9.73%	10.44%
California Water Service Group	CWT	4.61%	0.68	12.58%	7.97%	10.05%	10.68%
Middlesex Water Company	MSEX	4.61%	0.75	12.58%	7.97%	10.58%	11.08%
SJW Group	SJW	4.61%	0.78	12.58%	7.97%	10.85%	11.28%
Essential Utilities, Inc.	WTRG	4.61%	0.84	12.58%	7.97%	11.27%	11.60%
Mean						10.59%	11.09%
Median						10.65%	11.14%

Notes:

[1] Bloomberg Professional 30-day average as of March 31, 2025

[2] Bloomberg Professional

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
NEAR TERM PROJECTED RISK-FREE RATE AND BLOOMBERG BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2025 - Q3 2026)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.52%	0.74	12.58%	8.06%	10.50%	11.02%
NiSource Inc.	NI	4.52%	0.78	12.58%	8.06%	10.85%	11.28%
Northwest Natural Gas Company	NWN	4.52%	0.69	12.58%	8.06%	10.11%	10.73%
ONE Gas, Inc.	OGS	4.52%	0.76	12.58%	8.06%	10.64%	11.13%
Southwest Gas Corporation	SWX	4.52%	0.83	12.58%	8.06%	11.19%	11.54%
Spire, Inc.	SR	4.52%	0.76	12.58%	8.06%	10.63%	11.12%
American States Water Company	AWR	4.52%	0.64	12.58%	8.06%	9.69%	10.42%
California Water Service Group	CWT	4.52%	0.68	12.58%	8.06%	10.02%	10.66%
Middlesex Water Company	MSEX	4.52%	0.75	12.58%	8.06%	10.55%	11.06%
SJW Group	SJW	4.52%	0.78	12.58%	8.06%	10.83%	11.27%
Essential Utilities, Inc.	WTRG	4.52%	0.84	12.58%	8.06%	11.26%	11.59%
Mean						10.57%	11.07%
Median						10.63%	11.12%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 44, No. 4, April 1, 2025, at 2.

[2] Bloomberg Professional

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
LONG-TERM PROJECTED RISK-FREE RATE AND BLOOMBERG BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2026 - 2030)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.30%	0.74	12.58%	8.28%	10.45%	10.98%
NiSource Inc.	NI	4.30%	0.78	12.58%	8.28%	10.80%	11.24%
Northwest Natural Gas Company	NWN	4.30%	0.69	12.58%	8.28%	10.04%	10.67%
ONE Gas, Inc.	OGS	4.30%	0.76	12.58%	8.28%	10.59%	11.09%
Southwest Gas Corporation	SWX	4.30%	0.83	12.58%	8.28%	11.16%	11.51%
Spire, Inc.	SR	4.30%	0.76	12.58%	8.28%	10.58%	11.08%
American States Water Company	AWR	4.30%	0.64	12.58%	8.28%	9.61%	10.36%
California Water Service Group	CWT	4.30%	0.68	12.58%	8.28%	9.95%	10.61%
Middlesex Water Company	MSEX	4.30%	0.75	12.58%	8.28%	10.50%	11.02%
SJW Group	SJW	4.30%	0.78	12.58%	8.28%	10.78%	11.23%
Essential Utilities, Inc.	WTRG	4.30%	0.84	12.58%	8.28%	11.22%	11.56%
Mean						10.52%	11.03%
Median						10.58%	11.08%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 12, November 27, 2024, at 14

[2] Bloomberg Professional

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND LONG-TERM VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.61%	0.76	12.58%	7.97%	10.69%	11.16%
NiSource Inc.	NI	4.61%	0.78	12.58%	7.97%	10.79%	11.24%
Northwest Natural Gas Company	NWN	4.61%	0.73	12.58%	7.97%	10.39%	10.94%
ONE Gas, Inc.	OGS	4.61%	0.75	12.58%	7.97%	10.59%	11.09%
Southwest Gas Corporation	SWX	4.61%	0.84	12.58%	7.97%	11.29%	11.61%
Spire, Inc.	SR	4.61%	0.75	12.58%	7.97%	10.62%	11.11%
American States Water Company	AWR	4.61%	0.70	12.58%	7.97%	10.16%	10.76%
California Water Service Group	CWT	4.61%	0.71	12.58%	7.97%	10.26%	10.84%
Middlesex Water Company	MSEX	4.61%	0.74	12.58%	7.97%	10.52%	11.04%
SJW Group	SJW	4.61%	0.77	12.58%	7.97%	10.76%	11.21%
Essential Utilities, Inc.	WTRG	4.61%	0.81	12.58%	7.97%	11.05%	11.44%
Mean						10.65%	11.13%
Median						10.62%	11.11%

Notes:

[1] Bloomberg Professional 30-day average as of March 31, 2025

[2] Source: LT Beta

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
NEAR-TERM PROJECTED RISK FREE RATE AND LONG-TERM VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2025 - Q3 2026)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.52%	0.76	12.58%	8.06%	10.67%	11.15%
NiSource Inc.	NI	4.52%	0.78	12.58%	8.06%	10.77%	11.22%
Northwest Natural Gas Company	NWN	4.52%	0.73	12.58%	8.06%	10.37%	10.92%
ONE Gas, Inc.	OGS	4.52%	0.75	12.58%	8.06%	10.57%	11.07%
Southwest Gas Corporation	SWX	4.52%	0.84	12.58%	8.06%	11.27%	11.60%
Spire, Inc.	SR	4.52%	0.75	12.58%	8.06%	10.60%	11.10%
American States Water Company	AWR	4.52%	0.70	12.58%	8.06%	10.13%	10.74%
California Water Service Group	CWT	4.52%	0.71	12.58%	8.06%	10.23%	10.82%
Middlesex Water Company	MSEX	4.52%	0.74	12.58%	8.06%	10.50%	11.02%
SJW Group	SJW	4.52%	0.77	12.58%	8.06%	10.73%	11.20%
Essential Utilities, Inc.	WTRG	4.52%	0.81	12.58%	8.06%	11.04%	11.42%
Mean						10.62%	11.11%
Median						10.60%	11.10%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 44, No. 4, April 1, 2025, at 2.

[2] Source: LT Beta

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
LONG-TERM PROJECTED RISK FREE RATE AND LONG-TERM VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2026 - 2030)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Atmos Energy Corporation	ATO	4.30%	0.76	12.58%	8.28%	10.62%	11.11%
NiSource Inc.	NI	4.30%	0.78	12.58%	8.28%	10.72%	11.18%
Northwest Natural Gas Company	NWN	4.30%	0.73	12.58%	8.28%	10.30%	10.87%
ONE Gas, Inc.	OGS	4.30%	0.75	12.58%	8.28%	10.51%	11.03%
Southwest Gas Corporation	SWX	4.30%	0.84	12.58%	8.28%	11.24%	11.57%
Spire, Inc.	SR	4.30%	0.75	12.58%	8.28%	10.55%	11.06%
American States Water Company	AWR	4.30%	0.70	12.58%	8.28%	10.06%	10.69%
California Water Service Group	CWT	4.30%	0.71	12.58%	8.28%	10.17%	10.77%
Middlesex Water Company	MSEX	4.30%	0.74	12.58%	8.28%	10.44%	10.98%
SJW Group	SJW	4.30%	0.77	12.58%	8.28%	10.68%	11.16%
Essential Utilities, Inc.	WTRG	4.30%	0.81	12.58%	8.28%	10.99%	11.39%
Mean						10.57%	11.07%
Median						10.55%	11.06%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 12, November 27, 2024, at 14

[2] Source: LT Beta

[3] Exhibit AEB-6

[4] Equals [3]-[1]

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

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

HISTORICAL VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Company	Ticker	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024	Average
Atmos Energy Corporation	ATO	0.80	0.80	0.80	0.70	0.70	0.60	0.60	0.80	0.80	0.80	0.85	0.90	0.76
NiSource Inc.	NI	0.85	0.85	NMF	NMF	0.60	0.50	0.55	0.85	0.85	0.85	0.90	0.95	0.78
Northwest Natural Gas Company	NWN	0.65	0.70	0.65	0.65	0.70	0.60	0.60	0.80	0.85	0.80	0.80	0.90	0.73
ONE Gas, Inc.	OGS				0.70	0.70	0.65	0.65	0.80	0.80	0.80	0.80	0.85	0.75
Southwest Gas Corporation	SWX	0.80	0.85	0.80	0.75	0.80	0.70	0.70	0.95	0.95	0.90	0.90	0.95	0.84
Spire, Inc.	SR	0.65	0.70	0.70	0.70	0.70	0.65	0.65	0.85	0.85	0.85	0.85	0.90	0.75
American States Water Company	AWR	0.65	0.70	0.70	0.75	0.80	0.70	0.65	0.65	0.65	0.65	0.70	0.75	0.70
California Water Service Group	CWT	0.60	0.70	0.75	0.75	0.80	0.70	0.70	0.65	0.70	0.70	0.70	0.75	0.71
Middlesex Water Company	MSEX	0.75	0.70	0.70	0.75	0.80	0.75	0.75	0.75	0.70	0.70	0.75	0.80	0.74
SJW Group	SJW	0.85	0.85	0.75	0.75	0.70	0.60	0.60	0.85	0.80	0.80	0.85	0.85	0.77
Essential Utilities, Inc.	WTRG	0.60	0.70	0.75	0.70	0.75	0.70	0.65	0.95	0.95	0.95	1.00	1.00	0.81
Mean		0.72	0.76	0.73	0.72	0.73	0.65	0.65	0.81	0.81	0.80	0.83	0.87	0.76

Notes:

[1] Value Line, dated December 26, 2013

[2] Value Line, dated December 31, 2014

[3] Value Line, dated December 30, 2015

[4] Value Line, dated December 29, 2016

[5] Value Line, dated December 28, 2017

[6] Value Line, dated December 27, 2018

[7] Value Line, dated December 26, 2019

[8] Value Line, dated December 30, 2020

[9] Value Line, dated December 29, 2021

[10] Value Line, dated December 30, 2022

[11] Value Line, Dated December 29, 2023

[12] Value Line, Dated December 27, 2024

[13] Average ([1] - [12])

MARKET RETURN DERIVED FROM S&P 500 INDEX

[1] Estimate of the S&P 500 Dividend Yield	1.36%
[2] Estimate of the S&P 500 Growth Rate	11.15%
[3] S&P 500 Estimated Required Market Return	12.58%

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	323.446	70.4	22,770.61	0.07%	7.61%	0.00%	11.14%	0.01%
American Express Co	AXP	701.110	269.05	188,633.52	0.54%	1.22%	0.01%	15.16%	0.08%
Verizon Communications Inc	VZ	4209.704	45.36	190,952.17	0.55%	5.97%	0.03%	1.43%	0.01%
Texas Pacific Land Corp	TPL	22.985	1324.99	30,454.63		0.48%			
Broadcom Inc	AVGO	4701.949	167.43	787,247.27		1.41%		23.48%	
Boeing Co/The	BA	752.407	170.55	128,323.10				30.85%	
Solventum Corp	SOLV	173.003	76.04	13,155.14				-0.35%	
Caterpillar Inc	CAT	477.932	329.8	157,621.98	0.45%	1.71%	0.01%	7.23%	0.03%
JPMorgan Chase & Co	JPM	2796.106	245.3	685,884.83		2.28%			
Chevron Corp	CVX	1749.716	167.29	292,709.95		4.09%			
Coca-Cola Co/The	KO	4303.567	71.62	308,221.45	0.89%	2.85%	0.03%	5.69%	0.05%
AbbVie Inc	ABBV	1768.978	209.52	370,636.33	1.07%	3.13%	0.03%	15.54%	0.17%
Walt Disney Co/The	DIS	1807.789	98.7	178,428.76	0.51%	1.01%	0.01%	11.36%	0.06%
Corpay Inc	CPAY	70.250	348.72	24,497.55	0.07%			12.58%	0.01%
Extra Space Storage Inc	EXR	211.998	148.49	31,479.60		4.36%			
Exxon Mobil Corp	XOM	4339.143	118.93	516,054.31		3.33%			
Phillips 66	PSX	407.698	123.48	50,342.59		3.73%			
General Electric Co	GE	1066.579	200.15	213,475.74	0.61%	0.72%	0.00%	18.22%	0.11%
HP Inc	HPQ	942.703	27.69	26,103.45	0.08%	4.18%	0.00%	1.55%	0.00%
Home Depot Inc/The	HD	994.032	366.49	364,302.85	1.05%	2.51%	0.03%	5.11%	0.05%
Monolithic Power Systems Inc	MPWR	47.866	579.98	27,761.32		1.08%			
International Business Machines Corp	IBM	927.264	248.66	230,573.55	0.66%	2.69%	0.02%	3.46%	0.02%
Johnson & Johnson	JNJ	2409.848	165.84	399,649.15		2.99%			
Lululemon Athletica Inc	LULU	115.521	283.06	32,699.44	0.09%			9.55%	0.01%
McDonald's Corp	MCD	714.461	312.37	223,176.23	0.64%	2.27%	0.01%	9.12%	0.06%
Merck & Co Inc	MRK	2526.036	89.76	226,737.01	0.65%	3.61%	0.02%	14.65%	0.10%
3M Co	MMM	539.318	146.86	79,204.29	0.23%	1.99%	0.00%	6.59%	0.02%
American Water Works Co Inc	AWK	195.011	147.52	28,768.02		2.07%			
Bank of America Corp	BAC	7602.798	41.73	317,264.77		2.49%			
Pfizer Inc	PFE	5671.455	25.34	143,714.66		6.79%		-2.32%	
Procter & Gamble Co/The	PG	2344.852	170.42	399,609.65	1.15%	2.36%	0.03%	6.24%	0.07%
AT&T Inc	T	7178.183	28.28	202,999.02	0.58%	3.93%	0.02%	5.16%	0.03%
Travelers Cos Inc/The	TRV	226.727	264.46	59,960.11	0.17%	1.59%	0.00%	1.10%	0.00%
RTX Corp	RTX	1335.090	132.46	176,846.01	0.51%	1.90%	0.01%	8.65%	0.04%
Analog Devices Inc	ADI	495.976	201.67	100,023.58	0.29%	1.96%	0.01%	11.79%	0.03%
Walmart Inc	WMT	8016.849	87.79	703,799.21	2.03%	1.07%	0.02%	7.43%	0.15%
Cisco Systems Inc	CSCO	3978.292	61.71	245,500.43	0.71%	2.66%	0.02%	4.69%	0.03%
Intel Corp	INTC	4360.592	22.71	99,029.04				28.44%	
General Motors Co	GM	995.002	47.03	46,794.94	0.13%	1.02%	0.00%	8.53%	0.01%
Microsoft Corp	MSFT	7433.982	375.39	2,790,642.59	8.03%	0.88%	0.07%	13.09%	1.05%
Dollar General Corp	DG	219.947	87.93	19,339.95	0.06%	2.68%	0.00%	5.74%	0.00%
Cigna Group/The	CI	271.108	329	89,194.56	0.26%	1.84%	0.00%	5.07%	0.01%
Kinder Morgan Inc	KMI	2221.963	28.53	63,392.61		4.03%			
Citigroup Inc	C	1882.160	70.99	133,614.54		3.16%			
American International Group Inc	AIG	593.333	86.94	51,584.37	0.15%	1.84%	0.00%	12.18%	0.02%
Altria Group Inc	MO	1690.662	60.02	101,473.51	0.29%	6.80%	0.02%	4.48%	0.01%
HCA Healthcare Inc	HCA	246.203	345.55	85,075.55	0.24%	0.83%	0.00%	9.26%	0.02%
International Paper Co	IP	526.126	53.35	28,068.80		3.47%			
Hewlett Packard Enterprise Co	HPE	1313.578	15.43	20,268.51	0.06%	3.37%	0.00%	4.02%	0.00%
Abbott Laboratories	ABT	1734.323	132.65	230,058.00	0.66%	1.78%	0.01%	10.26%	0.07%
Aflac Inc	AFL	545.815	111.19	60,689.13	0.17%	2.09%	0.00%	4.80%	0.01%
Air Products and Chemicals Inc	APD	222.476	293.1301	65,214.32	0.19%	2.44%	0.00%	6.37%	0.01%
Super Micro Computer Inc	SMCI	593.481	34.24	20,320.80					
Royal Caribbean Cruises Ltd	RCL	269.129	205.44	55,289.81	0.16%	1.46%	0.00%	19.67%	0.03%
Hess Corp	HES	308.292	159.73	49,243.43		1.25%			
Lennox International Inc	LII	35.580	560.83	19,954.14		0.82%			
Archer-Daniels-Midland Co	ADM	480.156	48.01	23,052.27	0.07%	4.25%	0.00%	7.27%	0.00%
Automatic Data Processing Inc	ADP	406.871	305.53	124,311.26	0.36%	0.020161686	0.01%	9.07%	0.03%
Verisk Analytics Inc	VRSK	140.276	297.62	41,748.99		0.006047981			
AutoZone Inc	AZO	16.729	3812.78	63,782.70	0.18%			9.56%	0.02%
Linde PLC	LIN	472.912	465.64	220,206.57	0.63%	0.012885491	0.01%	8.04%	0.05%
Avery Dennison Corp	AVY	78.966	177.97	14,053.58	0.04%	0.019778614	0.00%	8.96%	0.00%
Enphase Energy Inc	ENPH	132.471	62.05	8,219.80					
MSCI Inc	MSCI	77.602	565.5	43,883.72		0.012732095			
Ball Corp	BALL	282.379	52.07	14,703.47	0.04%	0.015363933	0.00%	11.85%	0.01%

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Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Axon Enterprise Inc	AXON	76.623	525.95	40,300.01				27.80%	
Dayforce Inc	DAY	158.262	58.33	9,231.44					
Carrier Global Corp	CARR	863.988	63.4	54,776.81	0.16%	0.014195584	0.00%	13.57%	0.02%
Bank of New York Mellon Corp/The	BK	717.974	83.87	60,216.47	0.17%	0.022415643	0.00%	12.56%	0.02%
Otis Worldwide Corp	OTIS	396.519	103.2	40,920.72		0.015116279			
Baxter International Inc	BAX	512.924	34.23	17,557.39	0.05%	0.019865615	0.00%	14.67%	0.01%
Becton Dickinson & Co	BDX	287.135	229.06	65,771.24	0.19%	0.01816118	0.00%	9.31%	0.02%
Berkshire Hathaway Inc	BRK/B	1339.906	532.58	713,606.95					
Best Buy Co Inc	BBY	211.370	73.61	15,558.92	0.04%	0.051623421	0.00%	5.78%	0.00%
Boston Scientific Corp	BSX	1479.070	100.88	149,208.60	0.43%			12.77%	0.05%
Bristol-Myers Squibb Co	BMY	2034.763	60.99	124,100.21		0.040662404		82.16%	
Brown-Forman Corp	BF/B	303.540	33.94	10,302.15		0.026694166		-2.71%	
Coterra Energy Inc	CTRA	764.096	28.9	22,082.38	0.06%	0.030449827	0.00%	15.54%	0.01%
Hilton Worldwide Holdings Inc	HLT	239.614	227.55	54,524.17	0.16%	0.002636783	0.00%	13.66%	0.02%
Carnival Corp	CCL	1166.607	19.53	22,783.83				25.25%	
Builders FirstSource Inc	BLDR	113.621	124.94	14,195.85	0.04%			8.55%	0.00%
UDR Inc	UDR	331.133	45.17	14,957.29	0.04%	0.038078371	0.00%	1.98%	0.00%
Clorox Co/The	CLX	123.190	147.25	18,139.71	0.05%	0.033140917	0.00%	8.97%	0.00%
Paycom Software Inc	PAYC	57.265	218.48	12,511.20	0.04%	0.006865617	0.00%	7.82%	0.00%
CMS Energy Corp	CMS	299.115	75.11	22,466.50	0.06%	0.02889096	0.00%	7.64%	0.00%
Colgate-Palmolive Co	CL	811.084	93.7	75,998.60	0.22%	0.022198506	0.00%	5.69%	0.01%
EPAM Systems Inc	EPAM	56.888	168.84	9,604.99					
Conagra Brands Inc	CAG	477.320	26.67	12,730.14		0.052493438		-3.22%	
Airbnb Inc	ABNB	440.002	119.46	52,562.65	0.15%			10.66%	0.02%
Consolidated Edison Inc	ED	353.072	110.59	39,046.20	0.11%	0.03074419	0.00%	4.89%	0.01%
Corning Inc	GLW	856.777	45.78	39,223.25	0.11%	0.024464832	0.00%	17.92%	0.02%
GoDaddy Inc	GDDY	141.356	180.14	25,463.85					
Cummins Inc	CMI	137.481	313.44	43,092.09	0.12%	0.023226136	0.00%	10.37%	0.01%
Caesars Entertainment Inc	CZR	212.013	25	5,300.33				51.64%	
Danaher Corp	DHR	715.450	205	146,667.31	0.42%	0.006243902	0.00%	8.67%	0.04%
Target Corp	TGT	455.576	104.36	47,543.96	0.14%	0.042928325	0.01%	11.25%	0.02%
Williams-Sonoma Inc	WSM	123.510	158.1	19,526.85	0.06%	0.016698292	0.00%	4.50%	0.00%
Deere & Co	DE	271.414	469.35	127,388.13	0.37%	0.013806328	0.01%	0.48%	0.00%
Dominion Energy Inc	D	852.215	56.07	47,783.71		0.047619048		23.10%	
Dover Corp	DOV	137.062	175.68	24,079.10	0.07%	0.011725865	0.00%	10.22%	0.01%
Alliant Energy Corp	LNT	256.692	64.35	16,518.15	0.05%	0.031546232	0.00%	6.14%	0.00%
Steel Dynamics Inc	STLD	149.897	125.08	18,749.09	0.05%	0.015989767	0.00%	14.29%	0.01%
Duke Energy Corp	DUK	777.022	121.97	94,773.33	0.27%	0.034270722	0.01%	7.90%	0.02%
Regency Centers Corp	REG	181.526	73.76	13,389.35	0.04%	0.038232104	0.00%	4.59%	0.00%
Eaton Corp PLC	ETN	391.769	271.83	106,494.67	0.31%	0.015303682	0.00%	11.73%	0.04%
Ecolab Inc	ECL	283.633	253.52	71,906.52	0.21%	0.010255601	0.00%	12.49%	0.03%
Revvity Inc	RVTY	120.147	105.8	12,711.58	0.04%	0.002646503	0.00%	8.81%	0.00%
Dell Technologies Inc	DELL	358.710	91.15	32,696.45	0.09%	0.023038947	0.00%	12.40%	0.01%
Emerson Electric Co	EMR	563.900	109.64	61,826.00	0.18%	0.019244801	0.00%	8.28%	0.01%
EOG Resources Inc	EOG	551.544	128.24	70,730.05		0.030411728		-3.30%	
Aon PLC	AON	216.001	399.09	86,203.88	0.25%	0.006765391	0.00%	10.68%	0.03%
Entergy Corp	ETR	446.341	85.49	38,157.68	0.11%	0.028073459	0.00%	7.73%	0.01%
Equifax Inc	EFX	124.799	243.56	30,395.97		0.006404993			
EQT Corp	EQT	597.441	53.43	31,921.27		0.011791129			
IQVIA Holdings Inc	IQV	176.315	176.3	31,084.34	0.09%			8.80%	0.01%
Gartner Inc	IT	76.818	419.74	32,243.67					
FedEx Corp	FDX	239.599	243.78	58,409.42	0.17%	0.022643367	0.00%	11.22%	0.02%
Brown & Brown Inc	BRO	286.628	124.4	35,656.47	0.10%	0.004823151	0.00%	9.12%	0.01%
Ford Motor Co	F	3905.695	10.03	39,174.12	0.11%	0.014955135	0.00%	0.18%	0.00%
NextEra Energy Inc	NEE	2057.026	70.89	145,822.59	0.42%	0.031965016	0.01%	7.09%	0.03%
Franklin Resources Inc	BEN	525.398	19.25	10,113.91		0.066493506			
Garmin Ltd	GRMN	192.404	217.13	41,776.63		0.016579929			
Freeport-McMoRan Inc	FCX	1437.073	37.86	54,407.58	0.16%	0.015847861	0.00%	14.30%	0.02%
Expand Energy Corp	EXE	232.700	111.32	25,904.16		0.020661157		-29.49%	
Dexcom Inc	DXCM	392.108	68.29	26,777.02	0.08%			19.18%	0.01%
General Dynamics Corp	GD	268.382	272.58	73,155.52	0.21%	0.022011886	0.00%	13.45%	0.03%
General Mills Inc	GIS	547.601	59.79	32,741.04		0.040140492		-2.42%	
Genuine Parts Co	GPC	138.782	119.14	16,534.49		0.034581165			
Atmos Energy Corp	ATO	158.728	154.58	24,536.21	0.07%	0.022512615	0.00%	7.27%	0.01%
WW Grainger Inc	GWV	48.171	987.83	47,585.18	0.14%	0.008301023	0.00%	5.85%	0.01%
Halliburton Co	HAL	868.092	25.37	22,023.48		0.026803311		-2.16%	
L3Harris Technologies Inc	LHX	187.716	209.31	39,290.91	0.11%	0.022932492	0.00%	12.47%	0.01%
Healthpeak Properties Inc	DOC	698.596	20.22	14,125.61	0.04%	0.060336301	0.00%	4.91%	0.00%
Insulet Corp	PODD	70.226	262.61	18,442.08				24.42%	
Fortive Corp	FTV	340.290	73.18	24,902.43	0.07%	0.004372779	0.00%	7.56%	0.01%
Hershey Co/The	HSY	147.949	171.03	25,303.80		0.032041162		-9.26%	
Synchrony Financial	SYF	388.749	52.94	20,580.40	0.06%	0.018889309	0.00%	14.88%	0.01%
Hormel Foods Corp	HRL	549.913	30.94	17,014.29	0.05%	0.03749192	0.00%	7.27%	0.00%
Arthur J Gallagher & Co	AJG	255.735	345.24	88,289.88		0.007530993			
Mondelez International Inc	MDLZ	1293.525	67.85	87,765.68	0.25%	0.02770818	0.01%	0.40%	0.00%
CenterPoint Energy Inc	CNP	652.727	36.23	23,648.29	0.07%	0.024289263	0.00%	8.15%	0.01%
Humana Inc	HUM	120.693	264.6	31,935.27	0.09%	0.013378685	0.00%	6.50%	0.01%
Willis Towers Watson PLC	WTW	99.381	337.95	33,585.75	0.10%	0.010889185	0.00%	7.49%	0.01%
Illinois Tool Works Inc	ITW	293.366	248.01	72,757.70	0.21%	0.024192573	0.01%	1.21%	0.00%
CDW Corp/DE	CDW	132.492	160.26	21,233.21	0.06%	0.015599651	0.00%	6.38%	0.00%
Trane Technologies PLC	TT	224.291	336.92	75,568.11	0.22%	0.011559919	0.00%	9.97%	0.02%
Interpublic Group of Cos Inc/The	IPG	372.649	27.16	10,121.15		0.048600884			

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Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
International Flavors & Fragrances Inc	IFF	255.735	77.61	19,847.59	0.06%	0.0206159	0.00%	7.72%	0.00%
Generac Holdings Inc	GNRC	59.614	126.65	7,550.12	0.02%			19.45%	0.00%
NXP Semiconductors NV	NXPI	253.620	190.06	48,203.04	0.14%	0.021340629	0.00%	4.62%	0.01%
Kellanova	K	345.216	82.49	28,476.86	0.08%	0.027639714	0.00%	4.55%	0.00%
Broadridge Financial Solutions Inc	BR	117.019	242.46	28,372.35		0.014517859			
Kimberly-Clark Corp	KMB	331.652	142.22	47,167.51	0.14%	0.035438054	0.00%	3.87%	0.01%
Kimco Realty Corp	KIM	679.499	21.24	14,432.55	0.04%	0.047080979	0.00%	3.40%	0.00%
Oracle Corp	ORCL	2804.234	139.81	392,059.96	1.13%	0.014305128	0.02%	8.75%	0.10%
Kroger Co/The	KR	723.606	67.69	48,980.90	0.14%	0.018909736	0.00%	6.11%	0.01%
Lennar Corp	LEN	232.685	114.78	26,707.63		0.017424638		-1.58%	
Eli Lilly & Co	LLY	947.989	825.91	782,953.72	2.25%	0.007264714	0.02%	20.00%	0.45%
Charter Communications Inc	CHTR	142.014	368.53	52,336.49	0.15%			18.16%	0.03%
Loews Corp	L	212.861	91.91	19,564.08		0.002720052			
Lowe's Cos Inc	LOW	559.707	233.23	130,540.36	0.38%	0.01972302	0.01%	6.05%	0.02%
Hubbell Inc	HUBB	53.573	330.91	17,727.96		0.015956			
IDEX Corp	IEX	75.544	180.97	13,671.22		0.015251147			
Marsh & McLennan Cos Inc	MMC	492.903	244.03	120,283.15	0.35%	0.013359013	0.00%	8.55%	0.03%
Masco Corp	MAS	211.652	69.54	14,718.30	0.04%	0.017831464	0.00%	9.14%	0.00%
S&P Global Inc	SPGI	313.840	508.1	159,462.14		0.007557567			
Medtronic PLC	MDT	1282.544	89.86	115,249.36	0.33%	0.031159582	0.01%	6.49%	0.02%
Viatis Inc	VTRS	1193.689	8.71	10,397.03		0.05510907		-3.79%	
CVS Health Corp	CVS	1260.795	67.75	85,418.87	0.25%	0.039261993	0.01%	14.47%	0.04%
DuPont de Nemours Inc	DD	418.049	74.68	31,219.91	0.09%	0.021960364	0.00%	8.02%	0.01%
Micron Technology Inc	MU	1117.572	86.89	97,105.79		0.00529405		86.81%	
Motorola Solutions Inc	MSI	166.964	437.81	73,098.31	0.21%	0.009958658	0.00%	7.04%	0.01%
Cboe Global Markets Inc	CBOE	104.702	226.29	23,692.95	0.07%	0.011136153	0.00%	13.35%	0.01%
Newmont Corp	NEM	1127.258	48.28	54,423.99		0.02071251		-4.72%	
NIKE Inc	NKE	1181.239	63.48	74,985.06		0.025204789		-7.00%	
NiSource Inc	NI	470.605	40.09	18,866.57		0.027937141			
Norfolk Southern Corp	NSC	246.558	236.85	58,397.28	0.17%	0.02279924	0.00%	11.89%	0.02%
Principal Financial Group Inc	PFG	225.571	84.37	19,031.45	0.05%	0.035557663	0.00%	13.66%	0.01%
Eversource Energy	ES	367.082	62.11	22,799.46	0.07%	0.048462405	0.00%	4.42%	0.00%
Northrop Grumman Corp	NOC	144.756	512.01	74,116.35	0.21%	0.016093436	0.00%	5.70%	0.01%
Wells Fargo & Co	WFC	3265.159	71.79	234,405.75	0.67%	0.022287227	0.02%	16.95%	0.11%
Nucor Corp	NUE	230.746	120.34	27,767.99	0.08%	0.018281536	0.00%	19.06%	0.02%
Occidental Petroleum Corp	OXY	939.783	49.36	46,387.67		0.019448947			
Omnicom Group Inc	OMC	196.556	82.91	16,296.48	0.05%	0.03377156	0.00%	5.45%	0.00%
ONEOK Inc	OKE	624.340	99.22	61,946.97		0.041523886			
Raymond James Financial Inc	RJF	204.910	138.4101	28,361.62	0.08%	0.014449813	0.00%	15.42%	0.01%
PG&E Corp	PCG	2193.577	17.18	37,685.65		0.005820722			
Parker-Hannifin Corp	PH	128.765	607.85	78,269.71	0.23%	0.010726331	0.00%	7.54%	0.02%
Rollins Inc	ROL	485.076	54.03	26,208.64		0.012215436			
PPL Corp	PPL	738.294	36.11	26,659.80		0.030185544			
Aptiv PLC	APTIV	229.446	59.5	13,652.06	0.04%			15.17%	0.01%
ConocoPhillips	COP	1264.165	105.02	132,762.65	0.38%	0.029708627	0.01%	4.50%	0.02%
PulteGroup Inc	PHM	201.585	102.8	20,722.98	0.06%	0.008560311	0.00%	0.98%	0.00%
Pinnacle West Capital Corp	PNW	119.244	95.25	11,357.94	0.03%	0.037585302	0.00%	2.12%	0.00%
PNC Financial Services Group Inc/The	PNC	395.750	175.77	69,560.90	0.20%	0.036411219	0.01%	8.09%	0.02%
PPG Industries Inc	PPG	226.975	109.35	24,819.71	0.07%	0.024874257	0.00%	7.69%	0.01%
DoorDash Inc	DASH	394.485	182.77	72,100.03					
Progressive Corp/The	PGR	586.236	283.01	165,910.68	0.48%	0.001413378	0.00%	14.79%	0.07%
Veralto Corp	VLTO	248.052	97.45	24,172.64		0.004515136			
Public Service Enterprise Group Inc	PEG	498.561	82.3	41,031.61	0.12%	0.030619684	0.00%	9.40%	0.01%
Cooper Cos Inc/The	COO	199.981	84.35	16,868.41	0.05%			9.91%	0.00%
Edison International	EIX	385.024	58.92	22,685.59		0.056177868			
Schlumberger NV	SLB	1359.855	41.8	56,841.95	0.16%	0.027272727	0.00%	1.25%	0.00%
Charles Schwab Corp/The	SCHW	1813.568	78.28	141,966.08		0.013796627			
Sherwin-Williams Co/The	SHW	251.510	349.19	87,824.83	0.25%	0.009049515	0.00%	6.20%	0.02%
West Pharmaceutical Services Inc	WST	72.293	223.88	16,184.90	0.05%	0.00375201	0.00%	5.83%	0.00%
J M Smucker Co/The	SJM	106.417	118.41	12,600.79		0.036483405			
Snap-on Inc	SNA	52.418	337.01	17,665.31	0.05%	0.02539984	0.00%	4.26%	0.00%
AMETEK Inc	AME	230.747	172.14	39,720.77	0.11%	0.007203439	0.00%	8.60%	0.01%
Uber Technologies Inc	UBER	2091.258	72.86	152,369.07				-6.02%	
Southern Co/The	SO	1094.633	91.95	100,651.54	0.29%	0.03132137	0.01%	6.37%	0.02%
Truist Financial Corp	TFC	1305.391	41.15	53,716.83	0.15%	0.05054678	0.01%	8.22%	0.01%
Southwest Airlines Co	LUV	592.661	33.58	19,901.56		0.021441334		50.33%	
W R Berkley Corp	WRB	379.226	71.16	26,985.73	0.08%	0.004496908	0.00%	8.92%	0.01%
Stanley Black & Decker Inc	SWK	154.538	76.88	11,880.84		0.042663892			
Public Storage	PSA	175.416	299.29	52,500.11		0.040094891			
Arista Networks Inc	ANET	1261.123	77.48	97,711.78	0.28%			14.64%	0.04%
Sysco Corp	SY	489.230	75.04	36,711.79		0.027185501			
Corteva Inc	CTVA	683.015	62.93	42,982.11	0.12%	0.010805657	0.00%	15.89%	0.02%
Texas Instruments Inc	TXN	909.918	179.7	163,512.23	0.47%	0.030272677	0.01%	12.68%	0.06%
Textron Inc	TXT	181.621	72.25	13,122.11	0.04%	0.001107266	0.00%	10.03%	0.00%
Thermo Fisher Scientific Inc	TMO	377.261	497.6	187,725.16	0.54%	0.003456592	0.00%	9.24%	0.05%
TJX Cos Inc/The	TJX	1124.158	121.8	136,922.45	0.39%	0.013957307	0.01%	7.62%	0.03%
Globe Life Inc	GL	83.243	131.72	10,964.74		0.00819921			
Johnson Controls International plc	JCI	660.139	80.11	52,883.75	0.15%	0.018474597	0.00%	9.69%	0.01%
Ulta Beauty Inc	ULTA	45.309	366.54	16,607.74	0.05%			3.98%	0.00%
Union Pacific Corp	UNP	599.318	236.24	141,582.93	0.41%	0.022688791	0.01%	9.95%	0.04%
Keysight Technologies Inc	KEYS	172.811	149.77	25,881.83	0.07%			12.64%	0.01%
UnitedHealth Group Inc	UNH	914.712	523.75	479,080.58	1.38%	0.016038186	0.02%	11.45%	0.16%

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Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Blackstone Inc	BX	729,416	139.78	101,957.76		0.041207612		24.94%	
Ventas Inc	VTR	437,617	68.76	30,090.52	0.09%	0.027923211	0.00%	9.17%	0.01%
Labcorp Holdings Inc	LH	83,700	232.74	19,480.34	0.06%	0.012374323	0.00%	10.01%	0.01%
Vulcan Materials Co	VMC	132,101	233.3	30,819.21	0.09%	0.0084012	0.00%	13.04%	0.01%
Weyerhaeuser Co	WY	725,849	29.28	21,252.86	0.06%	0.028688525	0.00%	8.13%	0.00%
Williams Cos Inc/The	WMB	1220,687	59.76	72,948.24		0.033467202			
Constellation Energy Corp	CEG	315,121	201.63	63,537.84	0.18%	0.0076933	0.00%	12.12%	0.02%
WEC Energy Group Inc	WEC	315,821	108.98	34,418.15	0.10%	0.032758304	0.00%	7.53%	0.01%
Adobe Inc	ADBE	426,200	383.53	163,460.49	0.47%			13.63%	0.06%
Vistra Corp	VST	340,157	117.44	39,948.05		0.007612398		-5.61%	
AES Corp/The	AES	711,901	12.42	8,841.80	0.03%	0.056666667	0.00%	3.32%	0.00%
Expeditors International of Washington Inc	EXPD	137,757	120.25	16,565.24	0.05%	0.012141372	0.00%	4.35%	0.00%
Amgen Inc	AMGN	537,205	311.55	167,366.20	0.48%	0.030556893	0.01%	6.91%	0.03%
Apple Inc	AAPL	15022,073	222.13	3,336,853.08	9.60%	0.004501868	0.04%	14.47%	1.39%
Autodesk Inc	ADSK	213,000	261.8	55,763.40	0.16%			14.19%	0.02%
Cintas Corp	CTAS	403,544	205.53	82,940.38		0.007590133			
Comcast Corp	CMCSA	3771,578	36.9	139,171.24	0.40%	0.035772358	0.01%	4.62%	0.02%
Molson Coors Beverage Co	TAP	190,158	60.87	11,574.92	0.03%	0.030885494	0.00%	8.44%	0.00%
KLA Corp	KLAC	132,887	679.8	90,336.41	0.26%	0.010002942	0.00%	15.45%	0.04%
Marriott International Inc/MD	MAR	275,373	238.2	65,593.80	0.19%	0.010579345	0.00%	10.85%	0.02%
Fiserv Inc	FI	561,289	220.83	123,949.44	0.36%			15.74%	0.06%
McCormick & Co Inc/MD	MKC	252,682	82.31	20,798.23	0.06%	0.021868546	0.00%	6.37%	0.00%
PACCAR Inc	PCAR	524,935	97.37	51,112.90	0.15%	0.013556537	0.00%	6.90%	0.01%
Costco Wholesale Corp	COST	443,683	945.78	419,626.85	1.21%	0.004906004	0.01%	8.86%	0.11%
Stryker Corp	SYK	381,689	372.25	142,083.67	0.41%	0.009026192	0.00%	9.83%	0.04%
Tyson Foods Inc	TSN	286,185	63.81	18,261.49		0.03134305		21.06%	
Lamb Weston Holdings Inc	LW	142,641	53.3	7,602.75		0.027767355		-11.26%	
Applied Materials Inc	AMAT	812,441	145.12	117,901.42	0.34%	0.012679162	0.00%	10.64%	0.04%
Cardinal Health Inc	CAH	241,568	137.2644	33,158.69	0.10%	0.014733609	0.00%	9.07%	0.01%
Cincinnati Financial Corp	CINF	156,565	147.72	23,127.74	0.07%	0.023558083	0.00%	2.85%	0.00%
Paramount Global	PARA	630,008	11.96	7,534.89		0.016722408			
DR Horton Inc	DHI	315,122	127.13	40,061.52	0.12%	0.012585542	0.00%	7.26%	0.01%
Electronic Arts Inc	EA	260,618	144.52	37,664.45	0.11%	0.005258788	0.00%	5.98%	0.01%
Erie Indemnity Co	ERIE	46,189	419.05	19,355.53		0.013029471			
Fair Isaac Corp	FICO	24,418	1844.16	45,030.96					
Fastenal Co	FAST	573,451	77.55	44,471.13	0.13%	0.022179239	0.00%	10.52%	0.01%
M&T Bank Corp	MTB	164,290	178.75	29,366.90	0.08%	0.03020979	0.00%	11.88%	0.01%
Xcel Energy Inc	XEL	574,553	70.79	40,672.58		0.032207939			
Fifth Third Bancorp	FITB	668,099	39.2	26,189.48		0.037755102			
Gilead Sciences Inc	GILD	1245,163	112.05	139,520.49		0.028201696		21.66%	
Hasbro Inc	HAS	139,531	61.49	8,579.78	0.02%	0.045535859	0.00%	6.73%	0.00%
Huntington Bancshares Inc/OH	HBAN	1460,754	15.01	21,925.92	0.06%	0.041305796	0.00%	12.50%	0.01%
Welltower Inc	WELL	641,308	153.21	98,254.81	0.28%	0.017492331	0.00%	16.50%	0.05%
Biogen Inc	BIIB	146,375	136.84	20,029.95					
Northern Trust Corp	NTRS	194,972	98.65	19,233.95	0.06%	0.030410542	0.00%	8.91%	0.00%
Packaging Corp of America	PKG	89,928	198.02	17,807.57		0.025249975			
Paychex Inc	PAYX	360,191	154.28	55,570.22	0.16%	0.025408348	0.00%	6.24%	0.01%
QUALCOMM Inc	QCOM	1106,000	153.61	169,892.66	0.49%	0.022133976	0.01%	15.26%	0.07%
Ross Stores Inc	ROST	329,929	127.79	42,161.65	0.12%	0.012677048	0.00%	6.48%	0.01%
IDEXX Laboratories Inc	IDXX	81,039	419.95	34,032.34	0.10%			12.27%	0.01%
Starbucks Corp	SBUX	1135,900	98.09	111,420.43	0.32%	0.024875115	0.01%	9.20%	0.03%
KeyCorp	KEY	1095,717	15.99	17,520.52	0.05%	0.051282051	0.00%	18.11%	0.01%
Fox Corp	FOXA	217,847	56.6	12,330.13	0.04%	0.009540636	0.00%	8.98%	0.00%
Fox Corp	FOX	235,581	52.71	12,417.48	0.04%	0.010244735	0.00%	8.98%	0.00%
State Street Corp	STT	288,469	88.77	25,607.40	0.07%	0.034245804	0.00%	10.32%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	439,945	18.96	8,341.35	0.02%			18.95%	0.00%
US Bancorp	USB	1558,011	42.22	65,779.20	0.19%	0.047370914	0.01%	9.30%	0.02%
A O Smith Corp	AOS	117,659	65.36	7,690.19		0.020807834			
Gen Digital Inc	GEN	616,301	26.54	16,356.64	0.05%	0.018839488	0.00%	11.23%	0.01%
T Rowe Price Group Inc	TROW	222,242	91.87	20,417.41		0.055295526			
Waste Management Inc	WM	402,115	231.51	93,093.75	0.27%	0.014254244	0.00%	10.93%	0.03%
Constellation Brands Inc	STZ	180,705	183.52	33,162.90	0.10%	0.022013949	0.00%	8.23%	0.01%
Invesco Ltd	IVZ	447,414	15.17	6,787.26	0.02%	0.054054054	0.00%	12.05%	0.00%
Intuit Inc	INTU	279,562	613.99	171,648.27	0.49%	0.006775355	0.00%	13.97%	0.07%
Morgan Stanley	MS	1612,856	116.67	188,171.86	0.54%	0.03171338	0.02%	11.82%	0.06%
Microchip Technology Inc	MCHP	537,819	48.41	26,035.82		0.037595538		-33.30%	
CrowdStrike Holdings Inc	CRWD	247,873	352.58	87,395.21				24.67%	
Chubb Ltd	CB	400,412	301.99	120,920.44	0.35%	0.012053379	0.00%	3.77%	0.01%
Hologic Inc	HOLX	225,723	61.77	13,942.92	0.04%			9.04%	0.00%
Citizens Financial Group Inc	CFG	437,134	40.97	17,909.38		0.041005614		21.23%	
Jabil Inc	JBL	109,179	136.07	14,855.92	0.04%	0.002351731	0.00%	12.83%	0.01%
O'Reilly Automotive Inc	ORLY	57,241	1432.58	82,001.61	0.24%			10.30%	0.02%
Allstate Corp/The	ALL	265,026	207.07	54,878.94	0.16%	0.019317139	0.00%	12.65%	0.02%
Equity Residential	EQR	379,705	71.58	27,179.30	0.08%	0.03869796	0.00%	4.03%	0.00%
Keurig Dr Pepper Inc	KDP	1356,751	34.22	46,428.02	0.13%	0.026884863	0.00%	6.20%	0.01%
Host Hotels & Resorts Inc	HST	699,107	14.21	9,934.31		0.056298381		-0.80%	
Incyte Corp	INCY	193,524	60.55	11,717.90					
Simon Property Group Inc	SPG	326,243	166.08	54,182.51	0.16%	0.050578035	0.01%	1.29%	0.00%
Eastman Chemical Co	EMN	115,460	88.11	10,173.17	0.03%	0.037680173	0.00%	10.17%	0.00%
AvalonBay Communities Inc	AVB	142,255	214.62	30,530.72	0.09%	0.032615786	0.00%	5.26%	0.00%
Prudential Financial Inc	PRU	354,427	111.68	39,582.42	0.11%	0.048352436	0.01%	7.89%	0.01%
United Parcel Service Inc	UPS	733,482	109.99	80,675.67	0.23%	0.059641786	0.01%	7.91%	0.02%

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Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Walgreens Boots Alliance Inc	WBA	864.735	11.17	9,659.09				-21.88%	
STERIS PLC	STE	98.251	226.65	22,268.54		0.010059563			
McKesson Corp	MCK	125.326	672.99	84,343.40	0.24%	0.004219974	0.00%	13.47%	0.03%
Lockheed Martin Corp	LMT	234.573	446.71	104,786.13	0.30%	0.029549372	0.01%	11.65%	0.04%
Cencora Inc	COR	193.713	278.09	53,869.53	0.16%	0.007911108	0.00%	9.83%	0.02%
Capital One Financial Corp	COF	381.479	179.3	68,399.27	0.20%	0.013385388	0.00%	14.58%	0.03%
The Campbell's Company	CPB	298.182	39.92	11,903.42	0.03%	0.039078156	0.00%	2.22%	0.00%
Waters Corp	WAT	59.411	368.57	21,897.09	0.06%			7.42%	0.00%
Nordson Corp	NDSN	56.912	201.72	11,480.24		0.015466984			
Dollar Tree Inc	DLTR	215.083	75.07	16,146.28	0.05%			7.94%	0.00%
Darden Restaurants Inc	DRI	117.147	207.76	24,338.42	0.07%	0.026954178	0.00%	9.10%	0.01%
Evergy Inc	EVRG	229.746	68.95	15,840.98	0.05%	0.038723713	0.00%	5.71%	0.00%
Match Group Inc	MTCH	250.429	31.2	7,813.39		0.024358974			
NVR Inc	NVR	2.969	7244.39	21,508.67	0.06%			6.01%	0.00%
NetApp Inc	NTAP	203.412	87.84	17,867.67	0.05%	0.023679417	0.00%	8.16%	0.00%
Old Dominion Freight Line Inc	ODFL	212.545	165.45	35,165.58	0.10%	0.006769417	0.00%	9.27%	0.01%
DaVita Inc	DVA	80.000	152.97	12,237.60	0.04%			10.03%	0.00%
Hartford Insurance Group Inc/The	HIG	285.387	123.73	35,310.93	0.10%	0.016810798	0.00%	8.76%	0.01%
Iron Mountain Inc	IRM	293.741	86.04	25,273.47		0.036494654			
Estee Lauder Cos Inc/The	EL	234.173	66	15,455.45	0.04%	0.021212121	0.00%	8.85%	0.00%
Cadence Design Systems Inc	CDNS	274.314	254.33	69,766.18	0.20%			14.79%	0.03%
Tyler Technologies Inc	TYL	43.106	581.39	25,061.41					
Universal Health Services Inc	UHS	57.751	187.9	10,851.45	0.03%	0.004257584	0.00%	11.19%	0.00%
Skyworks Solutions Inc	SWKS	153.575	64.63	9,925.54		0.043323534		-9.02%	
Quest Diagnostics Inc	DGX	110.978	169.2	18,777.49	0.05%	0.01891253	0.00%	9.07%	0.00%
Rockwell Automation Inc	ROK	113.073	258.38	29,215.79	0.08%	0.020280207	0.00%	12.57%	0.01%
Kraft Heinz Co/The	KHC	1193.398	30.43	36,315.11		0.052579691		-3.61%	
American Tower Corp	AMT	467.457	217.6	101,718.70		0.03125		23.12%	
Regeneron Pharmaceuticals Inc	REGN	107.508	634.23	68,184.51	0.20%	0.005550037	0.00%	2.86%	0.01%
Amazon.com Inc	AMZN	10597.729	190.26	2,016,323.99	5.80%			13.61%	0.79%
Jack Henry & Associates Inc	JKHY	72.898	182.6	13,311.11	0.04%	0.012705367	0.00%	9.25%	0.00%
Ralph Lauren Corp	RL	39.883	220.74	8,803.76	0.03%	0.014949715	0.00%	13.79%	0.00%
BXP Inc	BXP	158.210	67.19	10,630.10	0.03%	0.058342015	0.00%	1.55%	0.00%
Amphenol Corp	APH	1211.783	65.59	79,480.87	0.23%	0.01006251	0.00%	15.74%	0.04%
Howmet Aerospace Inc	HWM	405.023	129.73	52,543.57	0.15%	0.003083327	0.00%	12.69%	0.02%
Valero Energy Corp	VLO	314.461	132.07	41,530.82		0.034224275			
Synopsys Inc	SNPS	154.620	428.85	66,308.82	0.19%			13.35%	0.03%
CH Robinson Worldwide Inc	CHRW	118.258	102.4	12,109.57	0.03%	0.02421875	0.00%	16.60%	0.01%
Accenture PLC	ACN	625.480	312.04	195,174.76	0.56%	0.018971927	0.01%	7.12%	0.04%
TransDigm Group Inc	TDG	56.085	1383.29	77,581.25	0.22%			13.51%	0.03%
Yum! Brands Inc	YUM	279.102	157.36	43,919.48	0.13%	0.018047789	0.00%	10.30%	0.01%
Prologis Inc	PLD	926.175	111.79	103,537.10	0.30%	0.03613919	0.01%	6.63%	0.02%
FirstEnergy Corp	FE	576.697	40.42	23,310.11	0.07%	0.044037605	0.00%	3.61%	0.00%
VeriSign Inc	VRSN	94.600	253.87	24,016.10					
Quanta Services Inc	PWR	148.198	254.18	37,669.05	0.11%	0.001573688	0.00%	13.20%	0.01%
Henry Schein Inc	HSIC	124.177	68.49	8,504.87	0.02%			5.92%	0.00%
Ameren Corp	AEE	270.158	100.4	27,123.83		0.028286853			
ANSYS Inc	ANSS	87.652	316.56	27,747.05					
FactSet Research Systems Inc	FDS	38.030	454.64	17,289.98		0.009150097			
NVIDIA Corp	NVDA	24400.000	108.38	2,644,472.00		0.000369072		31.31%	
Cognizant Technology Solutions Corp	CTSH	494.616	76.5	37,838.09	0.11%	0.01620915	0.00%	6.14%	0.01%
Intuitive Surgical Inc	ISRG	358.275	495.27	177,442.65	0.51%			16.58%	0.08%
Take-Two Interactive Software Inc	TTWO	176.496	207.25	36,578.74				60.65%	
Republic Services Inc	RSG	312.285	242.16	75,622.92	0.22%	0.009580443	0.00%	8.71%	0.02%
eBay Inc	EBAY	466.000	67.73	31,562.18	0.09%	0.017126827	0.00%	7.84%	0.01%
Goldman Sachs Group Inc/The	GS	310.790	546.29	169,781.68	0.49%	0.021966355	0.01%	9.26%	0.05%
SBA Communications Corp	SBAC	107.615	220.01	23,676.43	0.07%	0.020180901	0.00%	7.17%	0.00%
Sempra	SRE	651.913	71.36	46,520.54	0.13%	0.036154709	0.00%	7.02%	0.01%
Moody's Corp	MCO	179.889	465.69	83,772.66		0.008074041			
ON Semiconductor Corp	ON	421.421	40.69	17,147.63				-0.17%	
Booking Holdings Inc	BKNG	32.815	4606.91	151,176.67	0.44%	0.008335305	0.00%	15.92%	0.07%
F5 Inc	FFIV	57.652	266.27	15,351.07	0.04%			7.07%	0.00%
Akamai Technologies Inc	AKAM	150.387	80.5	12,106.19					
Charles River Laboratories International Inc	CRL	51.142	150.52	7,697.84	0.02%			3.82%	0.00%
MarketAxess Holdings Inc	MKTX	37.693	216.35	8,154.93	0.02%	0.014051306	0.00%	1.36%	0.00%
Devon Energy Corp	DVN	649.000	37.4	24,272.60		0.025668449		-5.51%	
Bio-Techne Corp	TECH	158.088	58.63	9,268.68		0.005457957			
Alphabet Inc	GOOGL	5833.000	154.64	902,015.12	2.60%	0.005173306	0.01%	12.25%	0.32%
Allegion plc	ALLE	86.290	130.46	11,257.44	0.03%	0.015636977	0.00%	4.12%	0.00%
Netflix Inc	NFLX	427.757	932.53	398,896.33				22.93%	
Agilent Technologies Inc	A	285.103	116.732	33,280.61	0.10%	0.008498098	0.00%	8.80%	0.01%
Warner Bros Discovery Inc	WBD	2454.764	10.73	26,339.62				41.11%	
Trimble Inc	TRMB	245.792	65.65	16,136.25					
Elevance Health Inc	ELV	226.387	434.96	98,469.26	0.28%	0.015725584	0.00%	9.93%	0.03%
CME Group Inc	CME	360.380	265.29	95,605.10	0.28%	0.018847299	0.01%	3.60%	0.01%
Juniper Networks Inc	JNPR	333.190	36.19	12,058.14	0.03%	0.024316109	0.00%	12.36%	0.00%
DTE Energy Co	DTE	207.518	138.27	28,693.48	0.08%	0.031532509	0.00%	5.80%	0.00%
Nasdaq Inc	NDAQ	575.145	75.86	43,630.52	0.13%	0.012654891	0.00%	13.47%	0.02%
Philip Morris International Inc	PM	1556.488	158.73	247,061.37	0.71%	0.034020034	0.02%	10.11%	0.07%
Ingersoll Rand Inc	IR	403.083	80.03	32,258.75		0.000999625			
Salesforce Inc	CRM	961.000	268.36	257,893.96	0.74%	0.006200626	0.00%	12.53%	0.09%
Roper Technologies Inc	ROP	107.385	589.58	63,312.17		0.005597205			

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Huntington Ingalls Industries Inc	HHI	39,236	204.04	8,005.63	0.02%	0.026465399	0.00%	13.85%	0.00%
MetLife Inc	MET	681,228	80.29	54,695.80	0.16%	0.027151576	0.00%	12.81%	0.02%
Tapestry Inc	TPR	207,015	70.41	14,575.96	0.04%	0.019883539	0.00%	9.55%	0.00%
CSX Corp	CSX	1884,745	29.43	55,468.06	0.16%	0.017669045	0.00%	8.69%	0.01%
Edwards Lifesciences Corp	EW	587,865	72.48	42,608.45					
Ameriprise Financial Inc	AMP	95,814	484.11	46,384.50	0.13%	0.012228626	0.00%	11.93%	0.02%
Zebra Technologies Corp	ZBRA	51,143	282.56	14,451.06					
Zimmer Biomet Holdings Inc	ZBH	199,063	113.18	22,529.97		0.008482064			
Camden Property Trust	CPT	108,799	122.3	13,306.14	0.04%	0.034341783	0.00%	1.25%	0.00%
CBRE Group Inc	CBRE	300,037	130.78	39,238.90					
Mastercard Inc	MA	904,890	548.12	495,988.04	1.43%	0.005546231	0.01%	13.27%	0.19%
CarMax Inc	KMX	153,800	77.92	11,984.09	0.03%			16.70%	0.01%
Intercontinental Exchange Inc	ICE	574,565	172.5	99,112.44	0.29%	0.011130435	0.00%	16.02%	0.05%
Fidelity National Information Services Inc	FIS	529,692	74.68	39,557.37	0.11%	0.021424746	0.00%	9.27%	0.01%
Smurfit WestRock PLC	SW	521,976	45.06	23,520.25		0.038242344		63.58%	
Chipotle Mexican Grill Inc	CMG	1355,337	50.21	68,051.47	0.20%			19.68%	0.04%
Wynn Resorts Ltd	WYNN	106,167	83.5	8,864.97	0.03%	0.011976048	0.00%	8.30%	0.00%
Live Nation Entertainment Inc	LYV	233,401	130.58	30,477.52	0.09%			12.10%	0.01%
Assurant Inc	AIZ	50,792	209.75	10,653.61		0.015256257			
NRG Energy Inc	NRG	203,667	95.46	19,442.05		0.018437042			
Monster Beverage Corp	MNST	973,159	58.52	56,949.26	0.16%			14.23%	0.02%
Regions Financial Corp	RF	905,465	21.73	19,675.76	0.06%	0.046019328	0.00%	5.90%	0.00%
Baker Hughes Co	BKR	990,350	43.95	43,525.86		0.020932878			
Mosaic Co/The	MOS	316,939	27.01	8,560.53		0.032580526		-8.84%	
Expedia Group Inc	EXPE	123,334	168.1	20,732.38	0.06%	0.009518144	0.00%	19.43%	0.01%
CF Industries Holdings Inc	CF	166,467	78.15	13,009.41		0.025591811		-6.30%	
APA Corp	APA	364,064	21.02	7,652.63		0.047573739		-13.72%	
Leidos Holdings Inc	LDOS	128,214	134.94	17,301.18	0.05%	0.011857122	0.00%	7.40%	0.00%
Alphabet Inc	GOOG	5497,000	156.23	858,796.31	2.47%	0.005120655	0.01%	12.25%	0.30%
TKO Group Holdings Inc	TKO	81,554	152.81	12,462.24		0.009946993			
First Solar Inc	FSLR	107,062	126.43	13,535.86				41.85%	
Discover Financial Services	DFS	251,604	170.7	42,948.82		0.016403046		-0.84%	
Visa Inc	V	1723,362	350.46	603,969.57	1.74%	0.006734007	0.01%	12.19%	0.21%
Mid-America Apartment Communities Inc	MAA	116,902	167.58	19,590.40	0.06%	0.036161833	0.00%	2.74%	0.00%
Xylem Inc/NY	XYL	243,349	119.46	29,070.53		0.013393605			
Marathon Petroleum Corp	MPC	311,531	145.69	45,387.00		0.024984556			
Tractor Supply Co	TSCO	531,615	55.1	29,292.01	0.08%	0.016696915	0.00%	9.11%	0.01%
Advanced Micro Devices Inc	AMD	1616,298	102.74	166,058.41				23.60%	
ResMed Inc	RMD	146,867	223.85	32,876.16	0.09%	0.009470628	0.00%	14.08%	0.01%
Mettler-Toledo International Inc	MTD	20,841	1180.91	24,611.29	0.07%			9.24%	0.01%
VICI Properties Inc	VICI	1056,703	32.62	34,469.64	0.10%	0.053034948	0.01%	2.59%	0.00%
Copart Inc	CPRT	966,093	56.59	54,671.20					
Jacobs Solutions Inc	J	122,544	120.89	14,814.30	0.04%	0.010588138	0.00%	12.45%	0.01%
Albemarle Corp	ALB	117,651	72.02	8,473.19		0.022493752		79.84%	
Fortinet Inc	FTNT	768,974	96.26	74,021.44	0.21%			9.01%	0.02%
Moderna Inc	MRNA	386,623	28.35	10,960.75					
Essex Property Trust Inc	ESS	64,326	306.57	19,720.29	0.06%	0.033532309	0.00%	3.33%	0.00%
CoStar Group Inc	CSGP	421,763	79.23	33,416.26					
Realty Income Corp	O	891,769	57.7415	51,492.09		0.055800421			
Westinghouse Air Brake Technologies Corp	WAB	170,848	181.35	30,983.31	0.09%	0.005514199	0.00%	15.34%	0.01%
Plantir Technologies Inc	PLTR	2248,951	84.4	189,811.45				31.39%	
Pool Corp	POOL	37,718	318.35	12,007.59	0.03%	0.015077745	0.00%	8.77%	0.00%
Western Digital Corp	WDC	347,824	40.43	14,062.52				189.78%	
PepsiCo Inc	PEP	1371,312	149.94	205,614.46	0.59%	0.036147792	0.02%	5.01%	0.03%
TE Connectivity PLC	TEL	298,353	141.32	42,163.27	0.12%	0.020096235	0.00%	7.32%	0.01%
Diamondback Energy Inc	FANG	289,441	159.88	46,275.81		0.025018764		-7.45%	
Palo Alto Networks Inc	PANW	662,100	170.64	112,980.74	0.33%			13.48%	0.04%
ServiceNow Inc	NOW	207,199	796.14	164,959.72					
Church & Dwight Co Inc	CHD	246,109	110.09	27,094.14		0.010718503			
Federal Realty Investment Trust	FRT	85,780	96.72	8,296.65	0.02%	0.045492142	0.00%	4.52%	0.00%
MGM Resorts International	MGM	282,951	29.64	8,386.66	0.02%			17.73%	0.00%
American Electric Power Co Inc	AEP	533,988	109.27	58,348.83	0.17%	0.034044111	0.01%	5.15%	0.01%
Invitation Homes Inc	INVH	612,690	34.85	21,352.23	0.06%	0.033285509	0.00%	3.76%	0.00%
PTC Inc	PTC	120,324	154.95	18,644.13	0.05%			16.78%	0.01%
JB Hunt Transport Services Inc	JBHT	100,008	147.95	14,796.21	0.04%	0.011895911	0.00%	16.22%	0.01%
Lam Research Corp	LRCX	1283,662	72.7	93,322.23	0.27%	0.012654746	0.00%	16.87%	0.05%
Mohawk Industries Inc	MHK	62,587	114.18	7,146.21	0.02%			8.38%	0.00%
GE HealthCare Technologies Inc	GEHC	457,298	80.71	36,908.55	0.11%	0.001734605	0.00%	9.53%	0.01%
Pentair PLC	PNR	164,970	87.48	14,431.55	0.04%	0.011431184	0.00%	9.27%	0.00%
Vertex Pharmaceuticals Inc	VRTX	256,790	484.82	124,496.86				305.00%	
Amcpr PLC	AMCR	1445,343	9.7	14,019.83	0.04%	0.05257732	0.00%	7.10%	0.00%
Meta Platforms Inc	META	2189,898	576.36	1,262,169.70	3.63%	0.003643556	0.01%	13.81%	0.50%
T-Mobile US Inc	TMUS	1141,745	266.71	304,514.80		0.013197855			
United Rentals Inc	URI	65,332	626.7	40,943.62	0.12%	0.011424924	0.00%	9.68%	0.01%
Alexandria Real Estate Equities Inc	ARE	173,092	92.51	16,012.72	0.05%	0.057074911	0.00%	2.61%	0.00%
Honeywell International Inc	HON	648,768	211.75	137,376.57		0.021345927			
Delta Air Lines Inc	DAL	645,962	43.6	28,163.94	0.08%	0.013761468	0.00%	11.42%	0.01%
United Airlines Holdings Inc	UAL	328,803	69.05	22,703.85	0.07%			12.86%	0.01%
Seagate Technology Holdings PLC	STX	211,707	84.95	17,984.54		0.033902295			
News Corp	NWS	189,341	30.37	5,750.28		0.006585446			
Centene Corp	CNC	496,060	60.71	30,115.81	0.09%			7.97%	0.01%
Apollo Global Management Inc	APO	570,480	136.94	78,121.60	0.22%	0.013509566	0.00%	13.50%	0.03%
Martin Marietta Materials Inc	MLM	60,974	478.13	29,153.57		0.006609081		-11.04%	

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Teradyne Inc	TER	161.539	82.6	13,343.11	0.04%	0.005811138	0.00%	6.69%	0.00%
PayPal Holdings Inc	PYPL	989.242	65.25	64,548.07	0.19%			12.44%	0.02%
Tesla Inc	TSLA	3216.517	259.16	833,592.56					
Blackrock Inc	BLK	155.253	946.48	146,944.28		0.022018426			
KKR & Co Inc	KKR	888.251	115.61	102,690.64		0.00605484			
Arch Capital Group Ltd	ACGL	375.716	96.18	36,136.37	0.10%			2.86%	0.00%
Dow Inc	DOW	705.764	34.92	24,645.29		0.080183276		32.49%	
Everest Group Ltd	EG	42.934	363.33	15,599.25		0.022018551		28.71%	
Teledyne Technologies Inc	TDY	46.837	497.71	23,311.39	0.07%			9.78%	0.01%
Domino's Pizza Inc	DPZ	34.297	459.45	15,757.78	0.05%	0.015148547	0.00%	9.24%	0.00%
GE Vernova Inc	GEV	273.346	305.28	83,446.94		0.003275681		97.07%	
News Corp	NWSA	378.055	27.22	10,290.66		0.007347539			
Exelon Corp	EXC	1009.536	46.08	46,519.40	0.13%	0.034722222	0.00%	8.40%	0.01%
Global Payments Inc	GPN	245.876	97.92	24,076.21	0.07%	0.010212418	0.00%	9.66%	0.01%
Crown Castle Inc	CCI	435.434	104.23	45,385.26		0.060059484		33.10%	
Align Technology Inc	ALGN	73.210	158.86	11,630.19	0.03%			10.64%	0.00%
Kenvue Inc	KVUE	1911.241	23.98	45,831.55		0.034195163		34.17%	
Targa Resources Corp	TRGP	217.585	200.47	43,619.33		0.014964833			
Bunge Global SA	BG	133.968	76.42	10,237.84	0.03%	0.035592777	0.00%	3.46%	0.00%
LKQ Corp	LKQ	258.553	42.54	10,998.85		0.028208745			
Deckers Outdoor Corp	DECK	151.774	111.81	16,969.81				22.63%	
Workday Inc	WDAY	215.000	233.53	50,208.95					
Zoetis Inc	ZTS	447.792	164.65	73,728.94	0.21%	0.012146978	0.00%	7.96%	0.02%
Equinix Inc	EQIX	97.332	815.35	79,359.65		0.023008524			
Digital Realty Trust Inc	DLR	336.644	143.29	48,237.75		0.034056808			
Molina Healthcare Inc	MOH	54.700	329.39	18,017.59	0.05%			9.45%	0.00%
Las Vegas Sands Corp	LVS	715.935	38.63	27,656.56	0.08%	0.025886617	0.00%	7.35%	0.01%

Notes:

- [1] Equals sum of Col. [9]
[2] Equals sum of Col. [11]
[3] Equals $((1) \times (1 + (0.5 \times [2]))) + [2]$
[4] Bloomberg Professional as of March 31, 2025
[5] Bloomberg Professional as of March 31, 2025
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%
[8] Bloomberg Professional, as of March 31, 2025
[9] Equals [7] x [8]
[10] Value Line, as of March 31, 2025
[11] Equals [7] x [10]

PROJECTED CAPITAL EXPENDITURES AS A PERCENT OF NET PLANT
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2024	2025	2026	2027	2028	2029	2025-2029 Projected Cap. Ex. / 2024 Net Plant
Atmos Energy Corporation	ATO							
Capital Spending per Share			\$22.70	\$22.60	\$22.10	\$21.60	\$21.60	
Common Shares Outstanding			163.00	168.00	\$176.50	185.00	185.00	
Capital Expenditures			\$3,700.1	\$3,796.8	\$3,900.7	\$3,996.0	\$3,996.0	87.3%
Net Plant		\$22,204.0						
NiSource Inc.	NI							
Capital Spending per Share			\$5.50	\$6.00	\$6.50	\$7.00	\$7.00	
Common Shares Outstanding			485.00	500.00	\$512.50	525.00	525.00	
Capital Expenditures			\$2,667.5	\$3,000.0	\$3,331.3	\$3,675.0	\$3,675.0	63.5%
Net Plant		\$25,750.0						
Northwest Natural Gas Company	NWN							
Capital Spending per Share			\$9.50	\$10.00	\$10.75	\$11.50	\$11.50	
Common Shares Outstanding			43.00	45.00	\$47.50	50.00	50.00	
Capital Expenditures			\$408.5	\$450.0	\$510.6	\$575.0	\$575.0	67.2%
Net Plant		\$3,750.0						
ONE Gas, Inc.	OGS							
Capital Spending per Share			\$12.30	\$12.45	\$12.60	\$12.75	\$12.75	
Common Shares Outstanding			56.50	56.50	\$56.75	57.00	57.00	
Capital Expenditures			\$695.0	\$703.4	\$715.1	\$726.8	\$726.8	53.6%
Net Plant		\$6,650.0						
Southwest Gas Corporation	SWX							
Capital Spending per Share			\$12.50	\$13.50	\$14.00	\$14.50	\$14.50	
Common Shares Outstanding			73.00	73.00	\$74.00	75.00	75.00	
Capital Expenditures			\$912.5	\$985.5	\$1,036.0	\$1,087.5	\$1,087.5	63.1%
Net Plant		\$8,100.0						
Spire, Inc.	SR							
Capital Spending per Share			\$13.15	\$13.25	\$13.00	\$12.75	\$12.75	
Common Shares Outstanding			60.00	62.00	\$67.00	72.00	72.00	
Capital Expenditures			\$789.0	\$821.5	\$871.0	\$918.0	\$918.0	69.2%
Net Plant		\$6,243.3						
American States Water Company	AWR							
Capital Spending per Share			\$5.90	\$5.83	\$5.75	\$5.75	\$5.75	
Common Shares Outstanding			39.00	39.00	\$39.00	39.00	39.00	
Capital Expenditures			\$230.1	\$227.2	\$224.3	\$224.3	\$224.3	54.1%
Net Plant		\$2,090.0						
California Water Service Group	CWT							
Capital Spending per Share			\$6.25	\$6.35	\$6.45	\$6.45	\$6.45	
Common Shares Outstanding			55.00	52.50	\$50.00	50.00	50.00	
Capital Expenditures			\$343.8	\$333.4	\$322.5	\$322.5	\$322.5	43.0%
Net Plant		\$3,825.0						
Middlesex Water Company	MSEX							
Capital Spending per Share			\$5.65	\$5.83	\$6.00	\$6.00	\$6.00	
Common Shares Outstanding			17.95	17.98	\$18.00	18.00	18.00	
Capital Expenditures			\$101.4	\$104.7	\$108.0	\$108.0	\$108.0	51.2%
Net Plant		\$1,035.0						
SJW Group	SJW							
Capital Spending per Share			\$8.50	\$8.63	\$8.75	\$8.75	\$8.75	
Common Shares Outstanding			31.00	30.50	\$30.00	30.00	30.00	
Capital Expenditures			\$263.5	\$263.1	\$262.5	\$262.5	\$262.5	41.1%
Net Plant		\$3,200.0						
Essential Utilities, Inc.	WTRG							
Capital Spending per Share			\$5.10	\$5.05	\$5.00	\$5.00	\$5.00	
Common Shares Outstanding			279.00	283.50	\$288.00	288.00	288.00	
Capital Expenditures			\$1,422.9	\$1,431.7	\$1,440.0	\$1,440.0	\$1,440.0	59.3%
Net Plant		\$12,097.0						
Kentucky American Water	KAWC							
Capital Expenditures [8]			\$84.95	\$96.36	\$90.98	\$94.85	\$100.71	56.3%
Net Plant [9]		\$830.7						

Notes:

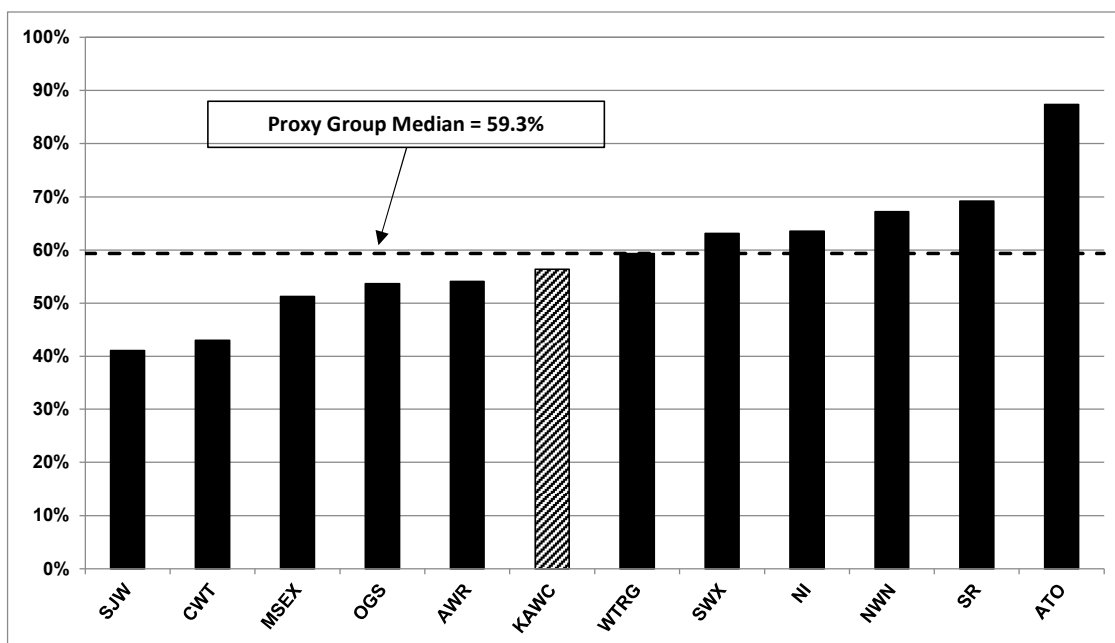
[1] - [6] Value Line, dated January 3, 2025 and February 21, 2025

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

[8] Company Provided Data

[9] Company provided data from KY 2024 Water Annual Report

PROJECTED CAPITAL EXPENDITURES AS A PERCENT OF NET PLANT



Projected CAPEX / Net Plant

Rank	Company	Percent
1	SJW Group	41.1%
2	California Water Service Group	43.0%
3	Middlesex Water Company	51.2%
4	ONE Gas, Inc.	53.6%
5	American States Water Company	54.1%
6	Kentucky American Water	56.3%
7	Essential Utilities, Inc.	59.3%
8	Southwest Gas Corporation	63.1%
9	NiSource Inc.	63.5%
10	Northwest Natural Gas Company	67.2%
11	Spire, Inc.	69.2%
12	Atmos Energy Corporation	87.3%
Proxy Group Median		59.3%
Kentucky American Water as % of Median		0.95

Notes:

Exhibit AEB-7, pp. 1-2 col. [7]

**COMPARISON OF KAWC AND PROXY GROUP COMPANIES
COST RECOVERY MECHANISMS**

Company	Ticker	State	Utility Type	Infrastructure Cost Recovery Mechanism	Citation	Future Test Year	Revenue Stabilization or Decoupling	Citations
American States Water Co	AWR	California	Water	Yes		Fully Forecast	Full	Infrastructure Cost Recovery: 2024 10-K, p. 91-92, and p. 94 Revenue Stabilization or Decoupling: 2024 10-K, p. 50 and p. 95 Test Year: S&P Cap IQ Pro, Commission Profiles; 10-K p. 61
Atmos Energy Corporation	AWR	California	Electric	Yes		Fully Forecast	Full	
	ATO	Colorado	Gas	Yes		Historical	No	Infrastructure Cost Recovery: 2024 10-K, p. 7-10
	ATO	Kansas	Gas	Yes		Historical	No	Revenue Stabilization or Decoupling: 2024 10-K, p. 8-10, S&P Global Market Intelligence,
	ATO	Kentucky	Gas	Yes		Fully Forecast	Partial	Regulatory Focus: Adjustment Clauses, dated 7/18/22
	ATO	Louisiana	Gas	Yes		Historical	FRP	Infrastructure mechanism: 2024 10-K p. 8
	ATO	Mississippi	Gas	Yes		Historical	FRP	Test Year: S&P Cap IQ Pro, Rate Case History and Commission Profiles; Infrastructure
	ATO	Tennessee	Gas	Yes		Fully Forecast	FRP	mechanism: 2024 10-K p. 8
	ATO	Texas	Gas	Yes		Historical	FRP	
	ATO	Virginia	Gas	Yes		Historical	Partial	
California Water Service Group	CWT	California	Water	Yes		Fully Forecast	Full	Infrastructure Cost Recovery and Revenue Stabilization or Decoupling: 2024 10-K, p.9
	CWT	Hawaii	Water	No		Fully Forecast	No	(California Water); Company Tariffs (HI, WA, NM)
	CWT	New Mexico	Water	No		Partially Forecast	No	Test Year: S&P Cap IQ Pro, Commission Profiles
	CWT	Washington	Water	Yes		Historical	No	
Essential Utilities, Inc.	WTRG	Pennsylvania	Water	Yes		Fully Forecast	No	Infrastructure Cost Recovery: 2024 10-K, p. 9, 39; S&P Global Market Intelligence, Regulatory
	WTRG	Pennsylvania	Gas	Yes		Fully Forecast	Partial	Focus: Adjustment Clauses, dated 7/18/22.
	WTRG	Ohio	Water	Yes		Partially Forecast	No	Test Year: S&P Cap IQ Pro, Rate Case History and Commission Profiles; 2024 10-K p. 39;
	WTRG	Illinois	Water	Yes		Fully Forecast	Full	Aqua Virginia (WTRG) Case No. PUR-2023-00073
	WTRG	Texas	Water	Yes		Historical	No	Revenue Stabilization or Decoupling: 2024 10-K, pgs. 8, 9 & 39.
	WTRG	New Jersey	Water	Yes		Partially Forecast	No	
	WTRG	North Carolina	Water	Yes		Partially Forecast	No	
	WTRG	Indiana	Water	Yes		Fully Forecast	No	
	WTRG	Virginia	Water	Yes		Partially Forecast	No	
	WTRG	Kentucky	Gas	Yes		Fully Forecast	Partial	
	WTRG	West Virginia	Gas	No		Historical	No	
Middlesex Water Company	MSEX	New Jersey	Water	Yes		Partially Forecast	No	Infrastructure Cost Recovery/Revenue Decoupling: 2024 10-K p. 26; Tariffs (NJ, DE)
	MSEX	Delaware	Water	Yes		Historical	No	Test Year: S&P Cap IQ Pro, Rate Case History
	MSEX	Pennsylvania	Water	No		Fully Forecast	No	
NiSource Inc.	NI	Indiana	Electric	Yes		Fully Forecast	Partial	Infrastructure Cost Recovery and Revenue Stabilization or Decoupling: S&P Global Market
	NI	Indiana	Gas	Yes		Fully Forecast	No	Intelligence, Regulatory Focus: Adjustment Clauses, dated 7/18/22; 2024 10-K p. 11 & 50; S&P
	NI	Kentucky	Gas	Yes		Fully Forecast	Partial	Commissions Profiles
	NI	Maryland	Gas	Yes		Partially Forecast	Partial	Test Year: S&P Cap IQ Pro, Rate Case History; Case 21-637-GA-AIR (Ohio)
	NI	Ohio	Gas	Yes		Partially Forecast	SFV	
	NI	Pennsylvania	Gas	Yes		Fully Forecast	Partial	
	NI	Virginia	Gas	Yes		Historical	Partial	
Northwest Natural Gas Company	NWN	Oregon	Gas	No		Fully Forecast	Partial	Infrastructure Cost Recovery and Revenue Stabilization or Decoupling: S&P Global Market
	NWN	Washington	Gas	No		Historical	No	Intelligence, Regulatory Focus: Adjustment Clauses, dated 7/18/22
ONE Gas, Inc.	OGS	Kansas	Gas	Yes		Historical	Partial	Test Year: S&P Cap IQ Pro, Rate Case History
	OGS	Oklahoma	Gas	No		Historical	FRP	Infrastructure Cost Recovery and Revenue Stabilization or Decoupling: S&P Global Market
	OGS	Texas	Gas	Yes		Historical	FRP	Intelligence, Regulatory Focus: Adjustment Clauses, dated 7/18/22
SJW Group	SJW	California	Water	Yes		Fully Forecast	Full	Test Year: S&P Cap IQ Pro, Rate Case History
	SJW	Connecticut	Water	Yes		Fully Forecast	Full	Infrastructure Cost Recovery: 2024 10-K, p. 5-8 for CA, p. 7-8 for CT, p. 8 for TX (SIC), p. 8-9
	SJW	Maine	Water	Yes		Historical	No	for ME.
	SJW	Texas	Water	No		Historical	No	Revenue Stabilization or Decoupling: 2024 10-K, p. 62-64
Southwest Gas Corporation	SWX	Arizona	Gas	No		Historical	Full	Test Year: S&P Cap IQ Pro, Rate Case History and Commission Profiles
	SWX	California	Gas	No		Fully Forecast	Full	Infrastructure Cost Recovery and Revenue Stabilization or Decoupling: S&P Global Market
	SWX	Nevada	Gas	Yes		Historical	Full	Intelligence, Regulatory Focus: Adjustment Clauses, dated 7/18/22
Spire, Inc.	SR	Alabama (AL)	Gas	No		Fully Forecast	FRP	Test Year: S&P Cap IQ Pro, Rate Case History and Commission Profiles
	SR	Alabama (Gulf)	Gas	No		Fully Forecast	FRP	Infrastructure Cost Recovery and Revenue Stabilization or Decoupling: S&P Global Market
	SR	Mississippi	Gas	No		Historical	FRP	Intelligence, Regulatory Focus: Adjustment Clauses, dated 7/18/22; 10-K 2024 p. 112-114.
	SR	Missouri	Gas	Yes		Partially Forecast	Partial	Test Year: S&P Cap IQ Pro, Rate Case History; 10-K 2024 p. 112-114.
Proxy Group Totals				Yes	38	Historical	Full	9
				No	13	Fully Forecast	Partial	12
						Partially Forecast	FRP	9
							SFV	1
							No	20
Infrastructure Cost Recovery Mechanism				74.51%	FTY	60.78%	RSM	60.78%
Kentucky American Water		Kentucky	Water	Yes		Fully Forecast	No	Data Provided by Company.

FLOTATION COST ADJUSTMENT

			[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Date [i]	Shares Issued (000)	Offering Price	Under-writing Discount [ii]	Offering Expense (\$000)	Net Proceeds Per Share	Total Flotation Costs (\$000)	Gross Equity Issue Before Costs (\$000)	Net Proceeds (\$000)	Flotation Cost Percentage
American Water Works Company	AWK	2/28/2023	12,650	135.50	2.033	700	133.41	26,411	1,714,075	1,687,664	1.54% [iii]

[i] Offering Completion Date

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

[iii] American Water Works Company: AWK Prospectus 424B7 02.28.2023

The flotation cost adjustment is derived by dividing the dividend yield by $1 - F$ (where F = flotation costs expressed in percentage terms), or by 0.9846, 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:

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

		[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	
												Cost of Equity Adjusted for Flotation Costs	
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	Cost of Equity: Mean Growth Rate		
Atmos Energy Corporation	ATO	\$3.48	\$149.66	2.33%	2.41%	2.44%	6.00%	7.52%	7.10%	6.87%	9.28%	9.32%	
NiSource Inc.	NI	\$1.12	\$39.62	2.83%	2.95%	3.00%	9.50%	8.22%	8.20%	8.64%	11.59%	11.64%	
Northwest Natural Gas Company	NWN	\$1.96	\$41.60	4.71%	4.86%	4.94%	6.50%	6.50%	n/a	6.50%	11.36%	11.44%	
ONE Gas, Inc.	OGS	\$2.68	\$73.90	3.63%	3.70%	3.76%	4.00%	3.83%	4.70%	4.18%	7.88%	7.94%	
Southwest Gas Corporation	SWX	\$2.48	\$74.65	3.32%	3.48%	3.54%	10.00%	12.60%	6.60%	9.73%	13.22%	13.27%	
Spire, Inc.	SR	\$3.14	\$75.89	4.14%	4.27%	4.34%	4.50%	8.08%	6.50%	6.36%	10.63%	10.70%	
American States Water Company	AWR	\$1.86	\$76.98	2.42%	2.47%	2.51%	6.50%	1.75%	n/a	4.12%	6.59%	6.63%	
California Water Service Group	CWT	\$1.20	\$46.56	2.58%	2.93%	2.98%	13.00%	42.44%	n/a	27.72%	30.66%	30.70%	
Middlesex Water Company	MSEX	\$1.36	\$58.28	2.33%	2.46%	2.49%	7.00%	13.96%	n/a	10.48%	12.94%	12.97%	
SJW Group	SJW	\$1.68	\$53.31	3.15%	3.24%	3.29%	7.00%	4.52%	n/a	5.76%	9.00%	9.05%	
Essential Utilities, Inc.	WTRG	\$1.30	\$38.40	3.39%	3.50%	3.56%	7.00%	6.51%	6.60%	6.70%	10.21%	10.26%	
Median											10.63%	10.70%	
Flotation Cost Adjustment												0.07%	[21]

Notes:

[1] - [4] See Notes [i] to [iii] above

[5] Equals [8]/[1]

[6] Equals [4] + ([1] x [3])

[7] Equals [1] x [2]

[8] Equals [7] - [6]

[9] Equals [6] / [7]

[10] Bloomberg Professional

[11] Bloomberg Professional, equals 30-day average as of March 31, 2025

[12] Equals [10] / [11]

[13] Equals [12] x (1 + 0.5 x [18])

[14] Equals [13] / (1 - Flotation Cost)

[15] Value Line

[16] Yahoo! Finance

[17] Zacks Investment Research

[18] Equals Average of [15], [16], [17]

[19] Equals [13] + [18]

[20] Equals [14] + [18]

[21] Equals [20] (Median) - [19] (Median)

[22] S&P Capital IQ and Zacks reported an equivalent projected EPS growth rate for AWR, CWT, MSEX and SJW. To avoid doubling counting, I excluded the projected EPS growth rate from Zacks for AWR, CWT, MSEX and SJW.

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]					
Proxy Group Company	Ticker	2023	2022	2021	3-yr Avg.
American States Water Company	AWR	50.32%	54.16%	56.91%	53.80%
Atmos Energy Corporation	ATO	60.20%	60.01%	59.88%	60.03%
California Water Service Group	CWT	50.28%	50.00%	48.82%	49.70%
Essential Utilities, Inc.	WTRG	55.79%	56.75%	53.58%	55.38%
Middlesex Water Company	MSEX	56.62%	57.46%	57.39%	57.16%
NiSource Inc.	NI	55.44%	54.17%	54.85%	54.82%
Northwest Natural Gas Company	NWN	46.96%	47.72%	44.08%	46.25%
ONE Gas, Inc.	OGS	60.41%	58.24%	61.09%	59.92%
SJW Group	SJW	51.33%	50.45%	50.85%	50.88%
Southwest Gas Corporation	SWX	47.45%	42.33%	45.87%	45.22%
Spire, Inc.	SR	46.19%	47.22%	48.62%	47.34%
Proxy Group					
MEAN		52.82%	52.59%	52.91%	52.77%
LOW		46.19%	42.33%	44.08%	45.22%
HIGH		60.41%	60.01%	61.09%	60.03%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES					
Company Name	Ticker	2023	2022	2021	3-yr Avg.
Golden State Water / Bear Valley	AWR	50.32%	54.16%	56.91%	53.80%
Atmos Energy Corporation	ATO	60.20%	60.01%	59.88%	60.03%
California Water Service	CWT	49.94%	49.51%	48.07%	49.17%
New Mexico Water Service Water Division	CWT	59.90%	63.85%	65.25%	63.00%
New Mexico Water Service Sewer Division	CWT	62.32%	63.61%	61.90%	62.61%
Washington Water Service	CWT	56.97%	60.27%	65.96%	61.07%
Hawaii Water Service Kaanapali Division	CWT	49.38%	49.85%	51.93%	50.39%
Hawaii Water Service Pukalani Division	CWT	67.08%	65.87%	65.58%	66.18%
Aqua Pennsylvania Water	WTRG	51.23%	55.77%	53.84%	53.62%
Aqua Pennsylvania Wastewater	WTRG	99.92%	99.90%	98.06%	99.29%
Peoples Natural Gas Company	WTRG	55.92%	53.41%	53.44%	54.25%
Peoples Gas Company	WTRG	54.83%	56.67%	54.83%	55.44%
Aqua Ohio Water	WTRG	53.47%	54.03%	52.11%	53.20%
Aqua Ohio Wastewater	WTRG	90.58%	74.40%	73.67%	79.55%
Aqua Illinois	WTRG	58.81%	56.55%	57.99%	57.78%
Aqua Texas	WTRG	52.80%	49.99%	49.81%	50.87%
Aqua New Jersey, Inc. Water	WTRG	49.09%	55.74%	53.19%	52.67%
Aqua New Jersey, Inc. Wastewater	WTRG	100.00%	100.00%	79.06%	93.02%
Aqua North Carolina	WTRG	50.21%	50.21%	48.75%	49.48%
Aqua Virginia	WTRG	50.31%	47.83%	48.83%	48.99%
Delta Natural Gas Company	WTRG	58.03%	52.45%	49.69%	53.39%
Peoples Gas of WV	WTRG		31.35%	39.38%	35.36%
Middlesex Water Company	MSEX	56.91%	57.50%	57.46%	57.29%
Pinelands Water	MSEX	36.86%	52.71%	51.34%	46.97%
Pinelands WW	MSEX	39.89%	55.29%	51.48%	48.89%
Northern Indiana Public Service Company LLC	NI	59.26%	56.92%	58.59%	58.26%
Columbia Gas of Kentucky, Inc.	NI	53.66%	54.91%	53.87%	54.15%
Columbia Gas of Maryland, Inc.	NI	52.00%	51.96%	55.26%	53.07%
Columbia Gas of Ohio, Inc.	NI	50.50%	50.67%	50.79%	50.65%
Columbia Gas of Pennsylvania, Inc.	NI	55.88%	56.64%	56.05%	56.19%
Columbia Gas of Virginia, Inc.	NI	45.25%	44.25%	44.52%	44.67%
Northwest Natural Gas Company	NWN	46.96%	47.72%	44.08%	46.25%
Kansas Gas Service Company, Inc.	OGS	60.44%	58.37%	61.37%	60.06%
Oklahoma Natural Gas Company	OGS	60.46%	58.26%	60.99%	59.90%
Texas Gas Service Company, Inc.	OGS	60.35%	58.13%	60.98%	59.82%
San Jose Water	SJW	49.64%	48.74%	50.22%	49.53%
CT Water	SJW	53.99%	52.92%	50.95%	52.62%
Maine Water Co.	SJW	52.77%	48.91%	48.30%	49.99%
Canyon Lake Water Service Company	SJW	48.92%	53.74%	59.53%	54.06%
Southwest Gas Corporation	SWX	47.45%	42.33%	45.87%	45.22%
Spire Alabama Inc.	SR	51.50%	52.01%	54.91%	52.81%
Spire Gulf Inc.	SR	44.44%	41.35%	41.14%	42.31%
Spire Mississippi Inc.	SR	36.88%	38.02%	39.18%	38.03%
Spire Missouri Inc.	SR	44.11%	45.49%	46.20%	45.27%

Notes:

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

[2] Natural Gas, Electric and Water operating subsidiaries where data was unable to be obtained for 2023, 2022 and 2021 were removed from the analysis.

CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]					
Proxy Group Company	Ticker	2023	2022	2021	3-yr Avg.
American States Water Company	AWR	38.91%	34.94%	38.45%	37.43%
Atmos Energy Corporation	ATO	39.80%	39.99%	40.12%	39.97%
California Water Service Group	CWT	44.46%	48.28%	51.10%	47.95%
Essential Utilities, Inc.	WTRG	43.50%	39.63%	43.69%	42.27%
Middlesex Water Company	MSEX	37.85%	35.79%	39.54%	37.73%
NiSource Inc.	NI	44.56%	45.83%	45.15%	45.18%
Northwest Natural Gas Company	NWN	52.40%	45.46%	44.85%	47.57%
ONE Gas, Inc.	OGS	25.06%	41.76%	38.91%	35.24%
SJW Group	SJW	42.65%	43.32%	46.96%	44.31%
Southwest Gas Corporation	SWX	52.55%	53.97%	49.59%	52.04%
Spire, Inc.	SR	42.51%	39.45%	40.00%	40.65%
Proxy Group					
MEAN		42.20%	42.58%	43.49%	42.76%
LOW		25.06%	34.94%	38.45%	35.24%
HIGH		52.55%	53.97%	51.10%	52.04%

LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES					
Company Name	Ticker	2023	2022	2021	3-yr Avg.
Golden State Water / Bear Valley	AWR	38.91%	34.94%	38.45%	37.43%
Atmos Energy Corporation	ATO	39.80%	39.99%	40.12%	39.97%
California Water Service	CWT	44.58%	48.85%	51.85%	48.43%
New Mexico Water Service Water Division	CWT	37.97%	33.63%	32.45%	34.68%
New Mexico Water Service Sewer Division	CWT	36.26%	34.70%	36.53%	35.83%
Washington Water Service	CWT	42.43%	35.60%	34.04%	37.36%
Hawai Water Service Kaanapali Division	CWT	50.62%	50.15%	48.07%	49.61%
Hawai Water Service Pukalani Division	CWT	32.92%	34.13%	34.42%	33.82%
Aqua Pennsylvania Water	WTRG	48.05%	43.55%	45.28%	45.63%
Aqua Pennsylvania Wastewater	WTRG	0.08%	0.10%	1.94%	0.71%
Peoples Natural Gas Company	WTRG	43.18%	37.35%	39.09%	39.88%
Peoples Gas Company	WTRG	43.12%	27.32%	43.12%	37.85%
Aqua Ohio Water	WTRG	46.53%	45.97%	47.89%	46.80%
Aqua Ohio Wastewater	WTRG	9.42%	25.60%	26.33%	20.45%
Aqua Illinois	WTRG	41.19%	43.45%	42.01%	42.22%
Aqua Texas	WTRG	47.20%	50.01%	50.19%	49.13%
Aqua New Jersey, Inc. Water	WTRG	50.91%	44.26%	46.81%	47.33%
Aqua New Jersey, Inc. Wastewater	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua North Carolina	WTRG	49.79%	49.79%	51.25%	50.52%
Aqua Virginia	WTRG	49.69%	52.17%	51.17%	51.01%
Delta Natural Gas Company	WTRG	36.96%	37.19%	41.51%	38.55%
Peoples Gas of WV	WTRG		21.98%	43.11%	32.55%
Middlesex Water Company	MSEX	37.46%	36.24%	40.01%	37.90%
Pinelands Water	MSEX	63.14%	0.00%	0.00%	21.05%
Pinelands WW	MSEX	60.11%	0.00%	0.00%	20.04%
Northern Indiana Public Service Company LLC	NI	40.74%	43.08%	41.41%	41.74%
Columbia Gas of Kentucky, Inc.	NI	46.34%	45.09%	46.13%	45.85%
Columbia Gas of Maryland, Inc.	NI	48.00%	48.04%	44.74%	46.93%
Columbia Gas of Ohio, Inc.	NI	49.50%	49.33%	49.21%	49.35%
Columbia Gas of Pennsylvania, Inc.	NI	44.12%	43.36%	43.95%	43.81%
Columbia Gas of Virginia, Inc.	NI	54.75%	55.75%	55.48%	55.33%
Northwest Natural Gas Company	NWN	52.40%	45.46%	44.85%	47.57%
Kansas Gas Service Company, Inc.	OGS	39.56%	41.63%	38.63%	39.94%
Oklahoma Natural Gas Company	OGS	39.54%	41.74%	39.01%	40.10%
Texas Gas Service Company, Inc.	OGS	0.00%	41.87%	39.02%	26.96%
San Jose Water	SJW	45.52%	42.87%	49.72%	46.04%
CT Water	SJW	40.35%	43.98%	45.81%	43.38%
Maine Water Co.	SJW	35.59%	41.40%	37.26%	38.08%
Canyon Lake Water Service Company	SJW	40.75%	46.10%	40.28%	42.38%
Southwest Gas Corporation	SWX	52.55%	53.97%	49.59%	52.04%
Spire Alabama Inc.	SR	41.62%	33.01%	42.04%	38.89%
Spire Gulf Inc.	SR	51.30%	38.77%	42.00%	44.02%
Spire Mississippi Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Missouri Inc.	SR	42.96%	42.91%	39.42%	41.76%

Notes:

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

[2] Natural Gas, Electric and Water operating subsidiaries where data was unable to be obtained for 2023, 2022 and 2021 were removed from the analysis.

CAPITAL STRUCTURE ANALYSIS

PREFERRED EQUITY RATIO [1]					
Proxy Group Company	Ticker	2023	2022	2021	3-yr Avg.
American States Water Company	AWR	0.00%	0.00%	0.00%	0.00%
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%
California Water Service Group	CWT	0.00%	0.00%	0.00%	0.00%
Essential Utilities, Inc.	WTRG	0.00%	0.00%	0.00%	0.00%
Middlesex Water Company	MSEX	0.28%	0.30%	0.32%	0.30%
NiSource Inc.	NI	0.00%	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%	0.00%
ONE Gas, Inc.	OGS	0.00%	0.00%	0.00%	0.00%
SJW Group	SJW	0.00%	0.00%	0.00%	0.00%
Southwest Gas Corporation	SWX	0.00%	0.00%	0.00%	0.00%
Spire, Inc.	SR	0.00%	0.00%	0.00%	0.00%
Proxy Group					
MEAN		0.03%	0.03%	0.03%	0.03%
LOW		0.00%	0.00%	0.00%	0.00%
HIGH		0.28%	0.30%	0.32%	0.30%

PREFERRED EQUITY RATIO - UTILITY OPERATING COMPANIES					
Company Name	Ticker	2023	2022	2021	3-yr Avg.
Golden State Water / Bear Valley	AWR	0.00%	0.00%	0.00%	0.00%
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%
California Water Service	CWT	0.00%	0.00%	0.00%	0.00%
New Mexico Water Service Water Division	CWT	0.00%	0.00%	0.00%	0.00%
New Mexico Water Service Sewer Division	CWT	0.00%	0.00%	0.00%	0.00%
Washington Water Service	CWT	0.00%	0.00%	0.00%	0.00%
Hawaii Water Service Kaanapali Division	CWT	0.00%	0.00%	0.00%	0.00%
Hawaii Water Service Pukalani Division	CWT	0.00%	0.00%	0.00%	0.00%
Aqua Pennsylvania Water	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Pennsylvania Wastewater	WTRG	0.00%	0.00%	0.00%	0.00%
Peoples Natural Gas Company	WTRG	0.00%	0.00%	0.00%	0.00%
Peoples Gas Company	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Ohio Water	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Ohio Wastewater	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Illinois	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Texas	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Water	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Wastewater	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua North Carolina	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Virginia	WTRG	0.00%	0.00%	0.00%	0.00%
Delta Natural Gas Company	WTRG	0.00%	0.00%	0.00%	0.00%
Peoples Gas of WV	WTRG	0.00%	0.00%	0.00%	0.00%
Middlesex Water Company	MSEX	0.28%	0.30%	0.33%	0.30%
Pinelands Water	MSEX	0.00%	0.00%	0.00%	0.00%
Pinelands WW	MSEX	0.00%	0.00%	0.00%	0.00%
Northern Indiana Public Service Company LLC	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Kentucky, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Maryland, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Ohio, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Pennsylvania, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Virginia, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%	0.00%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%	0.00%
San Jose Water	SJW	0.00%	0.00%	0.00%	0.00%
CT Water	SJW	0.00%	0.00%	0.00%	0.00%
Maine Water Co.	SJW	0.00%	0.00%	0.00%	0.00%
Canyon Lake Water Service Company	SJW	0.00%	0.00%	0.00%	0.00%
Southwest Gas Corporation	SWX	0.00%	0.00%	0.00%	0.00%
Spire Alabama Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Gulf Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Mississippi Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Missouri Inc.	SR	0.00%	0.00%	0.00%	0.00%

Notes:

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

[2] Natural Gas, Electric and Water operating subsidiaries where data was unable to be obtained for 2023, 2022 and 2021 were removed from the analysis.

CAPITAL STRUCTURE ANALYSIS

SHORT-TERM DEBT RATIO [1]					
Proxy Group Company	Ticker	2023	2022	2021	3-yr Avg.
American States Water Company	AWR	10.77%	10.90%	4.64%	8.77%
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%
California Water Service Group	CWT	5.27%	1.72%	0.08%	2.35%
Essential Utilities, Inc.	WTRG	0.70%	3.61%	2.73%	2.35%
Middlesex Water Company	MSEX	5.26%	6.45%	2.75%	4.82%
NiSource Inc.	NI	0.00%	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.64%	6.82%	11.07%	6.18%
ONE Gas, Inc.	OGS	14.53%	0.00%	0.00%	4.84%
SJW Group	SJW	6.02%	6.22%	2.19%	4.81%
Southwest Gas Corporation	SWX	0.00%	3.71%	4.54%	2.75%
Spire, Inc.	SR	11.30%	13.32%	11.38%	12.00%
Proxy Group					
MEAN		4.95%	4.80%	3.58%	4.44%
LOW		0.00%	0.00%	0.00%	0.00%
HIGH		14.53%	13.32%	11.38%	12.00%

SHORT-TERM DEBT RATIO - UTILITY OPERATING COMPANIES					
Company Name	Ticker	2023	2022	2021	3-yr Avg.
Golden State Water / Bear Valley	AWR	10.77%	10.90%	4.64%	8.77%
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%
California Water Service	CWT	5.48%	1.64%	0.07%	2.40%
New Mexico Water Service Water Division	CWT	2.13%	2.52%	2.30%	2.32%
New Mexico Water Service Sewer Division	CWT	1.43%	1.69%	1.57%	1.56%
Washington Water Service	CWT	0.60%	4.13%	0.00%	1.58%
Hawaii Water Service Kaanapali Division	CWT	0.00%	0.00%	0.00%	0.00%
Hawaii Water Service Pukalani Division	CWT	0.00%	0.00%	0.00%	0.00%
Aqua Pennsylvania Water	WTRG	0.72%	0.68%	0.87%	0.76%
Aqua Pennsylvania Wastewater	WTRG	0.00%	0.00%	0.00%	0.00%
Peoples Natural Gas Company	WTRG	0.90%	9.24%	7.47%	5.87%
Peoples Gas Company	WTRG	2.05%	16.01%	2.05%	6.71%
Aqua Ohio Water	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Ohio Wastewater	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Illinois	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Texas	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Water	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua New Jersey, Inc. Wastewater	WTRG	0.00%	0.00%	20.94%	6.98%
Aqua North Carolina	WTRG	0.00%	0.00%	0.00%	0.00%
Aqua Virginia	WTRG	0.00%	0.00%	0.00%	0.00%
Delta Natural Gas Company	WTRG	5.01%	10.36%	8.80%	8.06%
Peoples Gas of WV	WTRG		46.66%	17.51%	32.09%
Middlesex Water Company	MSEX	5.35%	5.96%	2.20%	4.50%
Pinelands Water	MSEX	0.00%	47.29%	48.66%	31.98%
Pinelands WW	MSEX	0.00%	44.71%	48.52%	31.08%
Northern Indiana Public Service Company LLC					
Columbia Gas of Kentucky, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Maryland, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Ohio, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Pennsylvania, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Virginia, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.64%	6.82%	11.07%	6.18%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	39.65%	0.00%	0.00%	13.22%
San Jose Water	SJW	4.84%	8.40%	0.05%	4.43%
CT Water	SJW	5.67%	3.10%	3.24%	4.00%
Maine Water Co.	SJW	11.64%	9.70%	14.44%	11.93%
Canyon Lake Water Service Company	SJW	10.34%	0.16%	0.19%	3.56%
Southwest Gas Corporation	SWX	0.00%	3.71%	4.54%	2.75%
Spire Alabama Inc.	SR	6.88%	14.98%	3.05%	8.30%
Spire Gulf Inc.	SR	4.25%	19.88%	16.86%	13.67%
Spire Mississippi Inc.	SR	63.12%	61.98%	60.82%	61.97%
Spire Missouri Inc.	SR	12.93%	11.60%	14.38%	12.97%

Notes:

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

[2] Natural Gas, Electric and Water operating subsidiaries where data was unable to be obtained for 2023, 2022 and 2021 were removed from the analysis.