

**BEFORE**

**THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for an	)	Case No. 22-507-GA-AIR
Increase in Natural Gas Rates.	)	
In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for Approval	)	Case No. 22-508-GA-ALT
of an Alternative Form of Regulation.	)	
In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for Tariff	)	Case No. 22-509-GA-ATA
Approval.	)	
In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for Approval	)	Case No. 22-510-GA-AAM
to Change Accounting Methods.	)	

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**DIRECT TESTIMONY OF**

**JAMES M. COYNE**

**ON BEHALF OF**

**DUKE ENERGY OHIO, INC.**

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July 14, 2022

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## ATTACHMENTS

Attachment JMC-1	Resume of James M. Coyne
Attachment JMC-2	Comprehensive Summary of ROE Results
Attachment JMC-3	Proxy Group Screening Analysis
Attachment JMC-4	Constant Growth DCF Analysis
Attachment JMC-5.1	Market Risk Premium
Attachment JMC-5.2	CAPM Analysis
Attachment JMC-6	Risk Premium Analysis
Attachment JMC-7	Expected Earnings Analysis
Attachment JMC-8	Regulatory Risk Assessment
Attachment JMC-9	Flotation Cost Adjustment
Attachment JMC-10	Capital Structure Analysis

## **I. INTRODUCTION AND SUMMARY**

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

2 A. My name is James M. Coyne, and I am employed by Concentric Energy Advisors, Inc.  
3 (Concentric) as a Senior Vice President. Concentric is a management consulting and  
4 economic advisory firm, focused on the North American energy and water industries.  
5 Based in Marlborough, Massachusetts and Washington, D.C., Concentric specializes in  
6 regulatory and litigation support, financial advisory services, energy market strategies,  
7 market assessments, energy commodity contracting and procurement, economic feasibility  
8 studies, and capital market analyses. My business address is 293 Boston Post Road West,  
9 Suite 500, Marlborough, Massachusetts 01752.

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

11 A. I am submitting this testimony to the Public Utilities Commission of Ohio (the  
12 Commission) on behalf Duke Energy Ohio, Inc. (Duke Energy Ohio or the Company), a  
13 wholly-owned subsidiary of Duke Energy Corporation (Duke Energy).

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

17 A. I am among Concentric's professionals who provide expert testimony before federal, state,  
18 and Canadian provincial agencies on matters pertaining to economics, finance, and public  
19 policy in the energy industry. I regularly advise regulatory agencies, utilities, generating  
20 companies, and private equity investors on business issues pertaining to the utility industry.  
21 This work includes calculating the cost of capital for the purpose of ratemaking and

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1 providing expert testimony and studies on matters pertaining to rate policy, valuation,  
2 capital costs, and performance-based regulation. I have authored numerous articles on the  
3 energy industry, lectured on utility regulation for regulatory commission staff, and  
4 provided testimony before the Federal Energy Regulatory Commission (FERC) as well as  
5 state and provincial jurisdictions in the U.S. and Canada. I hold a B.S. in Business  
6 Administration from Georgetown University and an M.S. in Resource Economics from the  
7 University of New Hampshire. My educational and professional background is  
8 summarized more fully in Attachment JMC-1.

9 **Q. ARE YOU SPONSORING ANY EXHIBITS IN THIS CASE?**

10 A. Yes. My analyses and recommendations are supported by the data presented in  
11 Attachments JMC-2 through JMC-10, which have been prepared by me or under my  
12 direction. I am sponsoring the following exhibits:

- 13 • JMC-2 – Comprehensive Summary of ROE Results;
- 14 • JMC-3 – Proxy Group Screening Analysis;
- 15 • JMC-4 – Constant Growth DCF Analysis;
- 16 • JMC-5.1 – Market Risk Premium;
- 17 • JMC-5.2 – CAPM Analysis;
- 18 • JMC-6 – Risk Premium Analysis;
- 19 • JMC-7 – Expected Earnings Analysis;
- 20 • JMC-8 – Regulatory Risk Assessment;
- 21 • JMC-9 – Flotation Cost Adjustment; and
- 22 • JMC-10 – Capital Structure Analysis

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

2   A.     The purpose of my direct testimony is to present evidence and provide a recommendation  
3           for the return on equity (ROE) for Duke Energy Ohio. My direct testimony also discusses  
4           the Company's capital structure in comparison to the proxy group companies supporting  
5           my analysis.

## **II.     OVERVIEW AND SUMMARY**

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

8   A.     I have estimated Duke Energy Ohio's ROE based on the results from alternative models:  
9           the Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model (CAPM), the  
10          Bond Yield Plus Risk Premium model, and the Expected Earnings model. As shown in  
11          Exhibit JMC-2, these models produce an analytical range of estimates of the Company's  
12          cost of equity, of 9.21 percent to 11.12 percent with a four-model average of 10.05 percent  
13          using current interest rates and 10.24 percent using projected interest rates. Based on these  
14          analyses, and considering the Company's specific risk profile and flotation costs, I  
15          recommend an ROE of 10.30 percent.

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

18  A.     As mentioned, my ROE recommendation is based on the range of results produced from  
19          four modeling methodologies. Analysts and academics understand that ROE models are  
20          tools to be used in the ROE estimation process, and that strict adherence to any single  
21          approach, or the specific results of any single approach, can lead to flawed conclusions.

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1 No model can exactly pinpoint the correct cost of equity, but each is designed to provide a  
2 unique estimate of the return required to attract equity investment. Therefore, my analysis  
3 appropriately considers the range of results produced by these four different models. From  
4 within that range, regulators use informed judgment to select an authorized ROE that takes  
5 into consideration the relevant risk factors, as well as capital market conditions to send  
6 appropriate market signals. The DCF analysis estimates the cost of equity based on market  
7 data on dividend yields and analysts' projected earnings per share growth rates from  
8 reputable third-party sources. The CAPM analysis is based on both current and forecasted  
9 interest rates and a forward-looking market risk premium. The Risk Premium approach  
10 calculates the risk premium as the spread between authorized ROEs for natural gas utilities  
11 and Treasury bond yields. The Expected Earnings approach is based on projected returns  
12 on book equity that investors expect to receive over the next three to five years. My ROE  
13 recommendation is ultimately based on the range of results produced by these four  
14 methodologies.

15 My recommendation also considers the general economic and capital market  
16 environment that impact the results of the DCF, CAPM and Risk Premium models. In  
17 addition, I consider the Company's business and regulatory risks in relation to a set of  
18 proxy companies to assist in the determination of the appropriate ROE and capital structure  
19 from within the range of my analytical results. I also considered the effect of flotation  
20 costs on the cost of equity.

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

22 A. The remainder of my Direct Testimony is organized as follows. Section III provides  
23 background on the regulatory principles that guide the determination of ROE. Section IV

1 presents a review of current and prospective economic and capital market conditions and  
2 the implications for utility cost of capital. Section V describes the criteria and approach  
3 for the selection of a proxy group of comparable companies. Section VI provides a  
4 description of the data and methodologies used to estimate the cost of equity, as well as the  
5 results of the various ROE estimation models. Section VII provides an assessment of the  
6 business and regulatory risk factors I have considered in arriving at the recommended ROE  
7 for Duke Energy Ohio. Section VIII reviews Duke Energy Ohio's capital structure in the  
8 context of the proxy group. Finally, Section IX summarizes my results, conclusions, and  
9 recommendation.

### III. REGULATORY PRINCIPLES

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

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

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

24 The return should be reasonably sufficient to assure investor confidence in  
25 the financial soundness of the utility and should be adequate, under efficient

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1 and economical management, to maintain and support its credit and enable  
2 it to raise the money necessary for the proper discharge of its public duties.

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

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

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

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

20 The DCF, CAPM, Risk Premium and Expected Earnings approaches, while  
21 fundamental to the ROE determination, are still only models. The results of these models  
22 cannot be mechanistically applied without also using informed judgment to consider  
23 economic and capital market conditions and the relative risk of Duke Energy Ohio as  
24 compared to the proxy group companies.

1           Based on these widely recognized standards, the Commission's order in this case  
2 should provide Duke Energy Ohio with the opportunity to earn a ROE that is:

- 3           • Commensurate with returns on investments in enterprises having comparable risks;
- 4           • Adequate to attract capital on reasonable terms, thereby enabling Duke Energy  
5 Ohio to provide safe, reliable service; and
- 6           • Sufficient to ensure the financial soundness of Duke Energy Ohio's natural gas  
7 utility operations.

8           Importantly, a fair return must satisfy all three of these standards. The allowed ROE should  
9 enable Duke Energy Ohio to finance capital expenditures on reasonable terms and provide  
10 the Company with the ability to raise capital under a full range of capital market  
11 circumstances to serve its customers.

12 **Q.   WHAT ARE YOUR CONCLUSIONS REGARDING REGULATORY**  
13 **PRINCIPLES?**

14 A.   The ratemaking process is premised on the principle that, for investors and companies to  
15 commit the capital needed to provide safe and reliable utility services, the utility must have  
16 the opportunity to recover invested capital and the market-required return on that capital.  
17 Because utility operations are capital-intensive, regulatory decisions should enable the  
18 utility to attract capital on favorable terms. The financial community carefully monitors  
19 the current and expected financial condition of utility companies as well as the regulatory  
20 environment in which they operate. In that respect, the regulatory environment is one of  
21 the most important factors considered by both debt and equity investors in their  
22 assessments of risk. It is therefore essential that the ROE authorized in this proceeding

1 take into consideration the current and expected capital market conditions that Duke  
2 Energy Ohio faces, as well as investors' expectations and requirements regarding both risks  
3 and returns. A reasonable ROE is required both for continued capital investment by Duke  
4 Energy Ohio to serve its customers and to maintain confidence in Ohio's regulatory  
5 environment among credit rating agencies and investors.

#### IV. ECONOMIC AND CAPITAL MARKET CONDITIONS

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

9 A. It is important to consider current and expected conditions in the general economy and  
10 financial markets because the authorized ROE for a public utility should allow the utility  
11 to attract investor capital at a reasonable cost under a variety of economic and financial  
12 market conditions, as underscored by the *Hope* and *Bluefield* decisions and the  
13 Commission's standards previously discussed. The standard ROE estimation tools, such  
14 as the DCF, CAPM, Risk Premium, and Expected Earnings models, each reflect the state  
15 of the general economy and financial markets by incorporating specific economic and  
16 financial data. These inputs are, however, only samples of the various economic and  
17 market forces that determine a utility's required return. Consideration must be given to  
18 whether the assumptions relied on in the current or projected market data are appropriate.  
19 If investors do not expect current market conditions to be sustained in the future, it is  
20 possible that the ROE estimation models will not provide an accurate estimate of investors'  
21 forward-looking required return. Therefore, an assessment of current and projected market  
22 conditions is integral to any ROE recommendation.

1 **Q. WHAT ARE THE KEY FACTORS AFFECTING THE COST OF EQUITY FOR**  
2 **REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL**  
3 **MARKETS?**

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

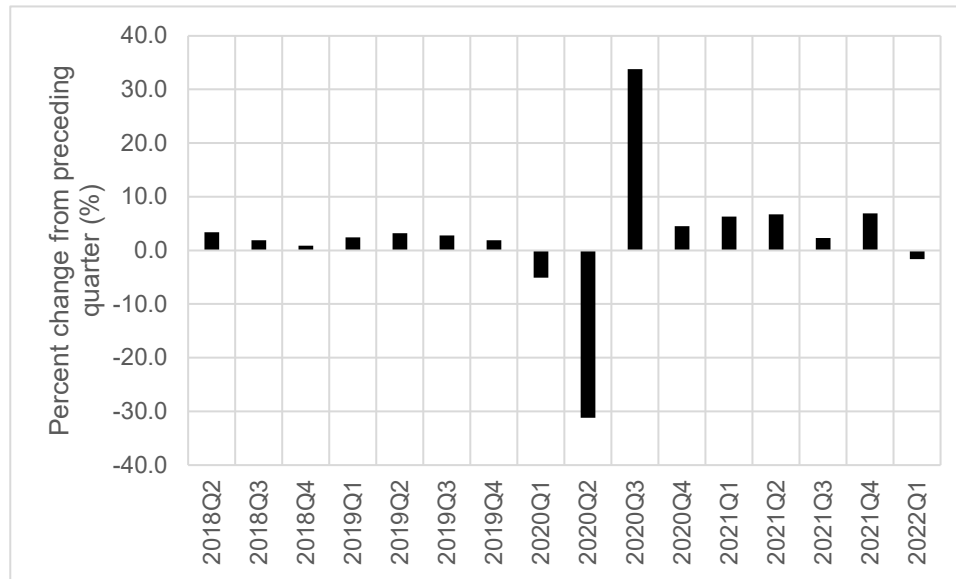
**A. Ongoing Uncertainty and Volatility in Capital Markets**

9 **Q. PLEASE DESCRIBE THE CIRCUMSTANCES THAT HAVE AFFECTED**  
10 **CAPITAL MARKET CONDITIONS.**

11 A. Capital market conditions have been significantly impacted by the economic impacts of  
12 the COVID-19 pandemic. Federal measures taken to contain the economic fallout from  
13 COVID-19 were extraordinary by any measure. As shown in Figure 1, real gross domestic

product (GDP) has been on a roller-coaster cycle of unprecedented lows and highs over the past two years.<sup>1</sup>

**Figure 1: U.S. Real GDP Growth – 2018Q2-2022Q1<sup>2</sup>**



To spare consumers and businesses from the full economic consequences of the pandemic, the federal government took a series of unprecedented steps to stabilize financial markets. While utilities have traditionally been a “safe-haven” for investors, that has not been true during the COVID-19 pandemic. Capital market conditions changed dramatically in 2020

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

<sup>2</sup> Source: U.S. Bureau of Economic Analysis (BEA), <https://www.bea.gov/news/2021/gross-domestic-product-third-estimate-gdp-industry-and-corporate-profits-revised-3rd>.

1 and 2021, resulting in greater risk for investors in both the broader equity market and utility  
2 stocks.

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

6 A. In response to the economic effects of COVID-19, the Federal Reserve decreased the  
7 federal funds rate twice in March 2020, resulting in a target range of 0.00 percent to 0.25  
8 percent (which remained in effect until March 2022), and also announced plans to increase  
9 its holdings of both Treasury and mortgage-backed securities. From December 2020  
10 through November 2021 the Federal Reserve purchased at least \$80 billion per month of  
11 Treasury securities and at least \$40 billion per month of mortgage-backed securities to  
12 support the flow of credit to households and businesses during the pandemic.<sup>3</sup> In addition,  
13 on March 23, 2020, the Federal Reserve began expansive programs to support credit to  
14 large employers, including the Primary Market Corporate Credit Facility (PMCCF) to  
15 provide liquidity for new issuances of corporate bonds, and the Secondary Market  
16 Corporate Credit Facility (SMCCF) to provide liquidity for outstanding corporate debt  
17 issuances. Further, the Federal Reserve supported the flow of credit to consumers and  
18 businesses through the Term Asset-Backed Securities Loan Facility (TALF).<sup>4</sup>

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<sup>3</sup> CNBC, Fed will aggressively dial back its bond buying, sees three rate hikes next year (December 15, 2020), available at <https://www.cnbc.com/2021/12/15/fed-will-aggressively-dial-back-its-monthly-bond-buying-sees-three-rate-hikes-next-year.html>.

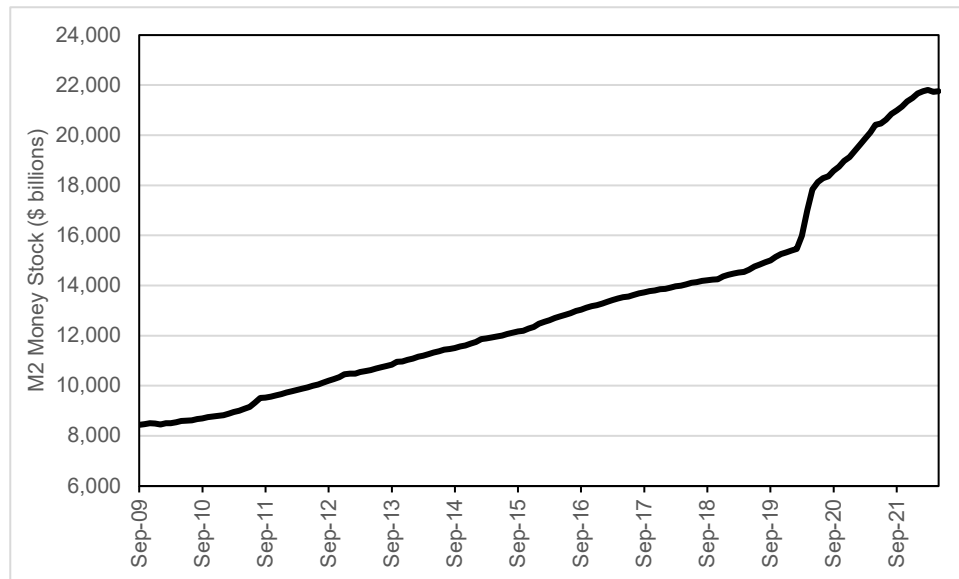
<sup>4</sup> Federal Reserve Board Press Release, "Federal Reserve announces extensive new measures to support the economy," March 23, 2020.

1           These “quantitative easing” programs allowed the Federal Reserve to purchase  
2           government bonds and corporate bonds from banks. The banks then received cash from  
3           the Federal Reserve, which resulted in an expansion of the money supply. This increase in  
4           the money supply kept short-term interest rates low and increased the ability of banks to  
5           lend to consumers and businesses. Investors in longer term bonds also responded, which  
6           affected the entire duration of the bond yield curve, from very near-term rates to 30-year  
7           yields. As shown in Figure 2, the programs enacted by the Federal Reserve resulted in an  
8           unprecedented expansion of the money supply as measured by M2.<sup>5</sup> That expansion was  
9           far greater than the increase following the Federal Reserve’s response to the Great  
10          Recession of 2008/2009. This demonstrates the level of intervention necessary to provide  
11          some stability to capital markets amidst the extraordinary circumstances associated with  
12          COVID-19.

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<sup>5</sup> M2 is defined by the Federal Reserve as follows: M2 includes a broader set of financial assets held principally by households. M2 consists of M1 plus: (1) savings deposits (which include money market deposit accounts, or MMDAs); (2) small-denomination time deposits (time deposits in amounts of less than \$100,000); and (3) balances in retail money market mutual funds (MMMFs).

**Figure 2: M2 Money Stock – September 2009 – May 2022<sup>6</sup>**



1 **Q. PLEASE SUMMARIZE THE FISCAL POLICY RESPONSE FROM THE U.S.**  
2 **CONGRESS.**

3 A. In addition to the Federal Reserve’s response, the U.S. Congress passed approximately  
4 \$4.5 trillion in fiscal stimulus programs. On March 27, 2020, the Coronavirus Aid, Relief,  
5 and Economic Security Act was signed into law, providing a large fiscal stimulus package  
6 aimed at mitigating the economic effects of the coronavirus. Further, in March 2021, the  
7 U.S. Congress approved additional fiscal stimulus of \$1.9 trillion in response to the  
8 ongoing economic effects of COVID-19. The extraordinary measures taken by the Federal  
9 Reserve and U.S. Congress to support the economy and stabilize financial markets  
10 impacted bond markets (deliberately driving government and corporate yields lower) and  
11 equity markets (creating upward pressure on valuations and downward pressure on yields  
12 for dividend paying companies such as utilities). In March 2020, for the first time on

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<sup>6</sup> Board of Governors of the Federal Reserve System (US), M2 Money Stock [M2], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/M2SL>, June 30, 2022.



1 record, the yield on a 10-year treasury bond dropped below 1.0 percent,<sup>7</sup> and remained  
2 below 1.0 percent for the remainder of 2020.<sup>8</sup> The 10-year treasury bond yield remained  
3 low throughout 2021, beginning the year below 1.0 percent, ending the year at 1.52 percent  
4 with an average of 1.45 percent.<sup>9</sup> Before the onset of COVID-19, the 10-year Treasury  
5 yield had had reached levels as low as 1.45 percent on only two occasions: July 24-25,  
6 2012, and July 5-11, 2016. Moreover, these fiscal stimulus programs have increased  
7 inflationary pressures, as evidenced in the sharp run-up in inflation and corresponding  
8 upward spike in bond yields since late November 2021.

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

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

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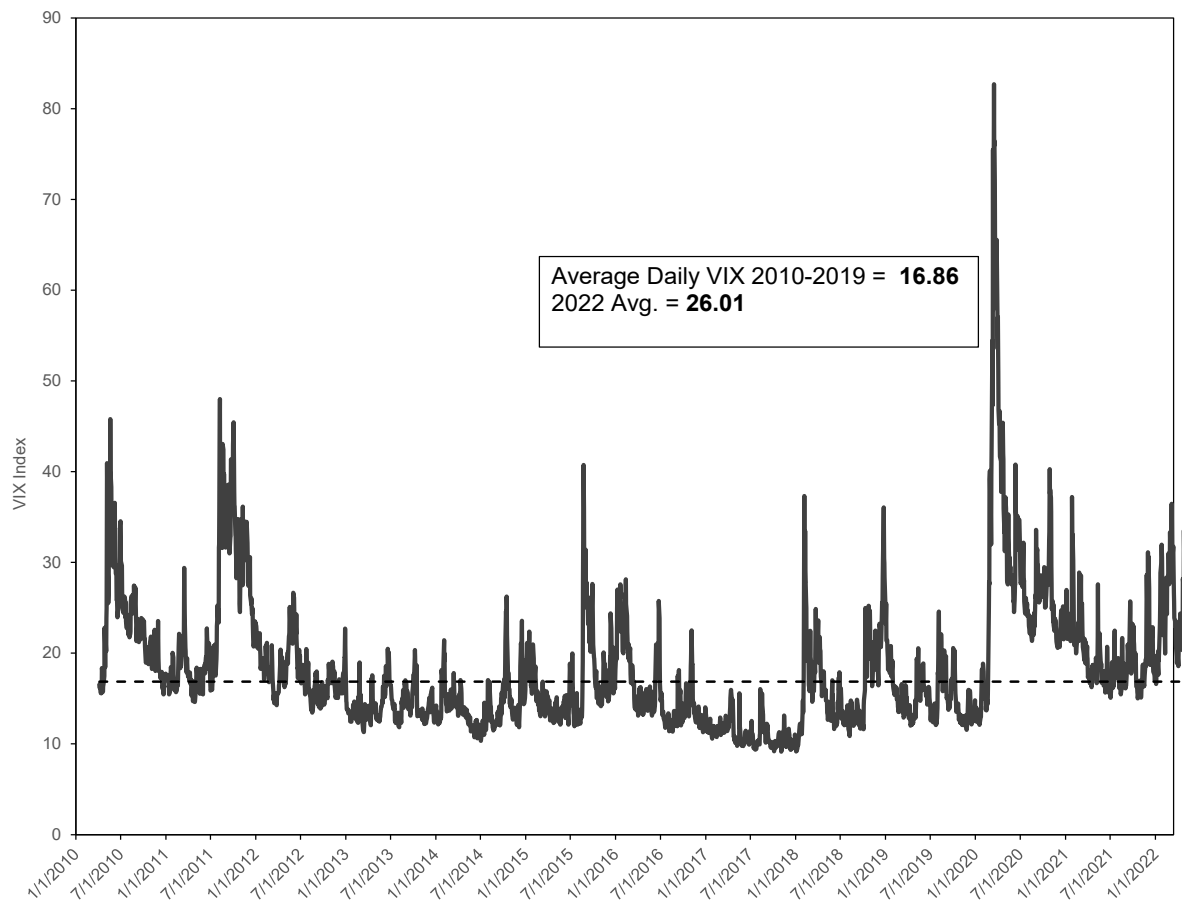
<sup>7</sup> FRED, Economic Data, available at <https://fred.stlouisfed.org/series/DGS10>.

<sup>8</sup> U.S. Department of the Treasury, available at <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/TextView.aspx?data=yieldYear&year=2020>.

<sup>9</sup> U.S. Department of the Treasury, available at <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/TextView.aspx?data=yieldYear&year=2021>.

1 has continued to reach levels as above 35.00 in 2021 and 2022. The average level in 2022  
2 has been 26.0 through May 31, 2022, compared to the average of 16.9 from 2010-2019.<sup>10</sup>  
3 This indicates that equity market volatility levels have partially settled but continue to  
4 remain above the historical mean.

**Figure 3: CBOE VIX – January 1, 2010 – May 31, 2022<sup>11</sup>**



<sup>10</sup> Source: Bloomberg Professional.

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

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

3   A.   Yes. The cost of equity for regulated utility companies has been affected by the market  
4       conditions during this period. In fact, utility company stocks have traded more in-line with  
5       the broader market since February 2020 when the COVID-19 pandemic became a concern  
6       in financial markets. This higher correlation is reflected in the Beta coefficients, which are  
7       the measure of risk in the CAPM, where 1.0 is the market average and where higher betas  
8       translate to greater risk and higher required equity returns. Beta coefficients increased  
9       substantially between January 2020 and May 2022 for the utility companies used in my  
10      cost of capital analysis. Figure 4 presents the average Value Line and Bloomberg Beta  
11      coefficients for my proxy group companies and Duke Energy over this period. Higher Beta  
12      coefficients for utilities signal an increase in relative risk, and therefore a higher required  
13      return to justify taking on those risks. Investors have not viewed the utilities sector as a  
14      safe-haven during the capital market conditions associated with COVID-19, and even  
15      though bond yields initially declined, the cost of equity increased.

**Figure 4: Beta Coefficients for Proxy Group and Duke Energy**

	<b>January 2020</b>	<b>May 2022</b>
<i>Proxy Group Average</i>		
Value Line Beta	0.63	0.83
Bloomberg Beta	0.601	0.798
<i>Duke Energy</i>		
Value Line Beta	0.50	0.85
Bloomberg Beta	0.474	0.782

1    **Q.    HOW HAVE UTILITIES PERFORMED RELATIVE TO THE BROADER**  
2    **EQUITY MARKET SINCE THE ONSET OF COVID-19?**

3    A.    The past two years have reflected a challenging period for utility equities. While the overall  
4    market surpassed its pre-pandemic levels by mid-2020, the same was not true with the  
5    utility sector. Figure 5 compares the daily performance of the S&P 500 stock market index  
6    and the S&P Utilities Index as of May 31, 2022. Performance is shown as the percentage  
7    gain from January 1, 2020. As Figure 5 shows, the S&P 500 has lagged the S&P 500 Index  
8    since January 2020.

**Figure 5: Relative Performance of Utilities and the S&P 500,  
January 2020 – May 2022<sup>12</sup>**



Although utilities initially performed well in early 2022, the sector’s performance has since fallen with the overall market. Just as an increase in Beta signals an increase in the cost of equity in the CAPM model, weakening stock prices indicate an increase in the cost of equity in the DCF model, as signaled by the market data.

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

A. According to a recent report by S&P Global, credit ratings for North American utilities “weakened sharply in 2020.” According to S&P, “[t]he percentage of North American regulated utilities with a negative outlook or on CreditWatch with negative implications

<sup>12</sup> Source: S&P Capital IQ Pro.

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

12 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECTS OF THE**  
13 **CURRENT MARKET ENVIRONMENT ON THE COST OF EQUITY FOR DUKE**  
14 **ENERGY OHIO?**

15 A. Given the uncertainty and volatility that have characterized capital markets since February  
16 2020, and the increase in relative risk of the utility industry (as measured by Beta)  
17 compared to the broader market, and the pressures cited by S&P on utility credit quality, it  
18 is reasonable that equity investors would require a higher ROE to compensate them for the  
19 additional risk associated with owning common stock. This is not to say that the pandemic  
20 is the cause; this period has also been characterized by an increased focus on changes in  
21 the business driven by the need to accelerate capital investment to lower carbon emissions.

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

**B. Economic Recovery and Inflation Risk**

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

A. Yes. After its March 16, 2022 meeting, the Federal Open Market Committee (FOMC) acknowledged that the invasion of Ukraine by Russia is creating highly uncertain implications for the U.S. economy and announced its decision to raise the target range for the federal funds rate to 0.25 percent to 0.50 percent with an expectation of ongoing increases.<sup>14</sup> The FOMC then raised the federal funds target rate 50 basis points at its May meeting<sup>15</sup> and an additional 75 basis points at its June meeting.<sup>16</sup> This is the largest single increase since 1994, and signals the Federal Reserve’s serious intent to fight inflation, recognizing that higher interest rates will slow the economy. The FOMC’s Summary of Economic Projections project a median federal funds rate of 3.4 percent by the end of 2022 and 3.8 percent by the end of 2023.<sup>17</sup>

While the Federal Reserve has increased interest rates, it has simultaneously pulled back on its bond purchasing actions. Taken together, these actions are a reminder that the Fed’s job is to “take away the punch bowl just as the party gets going.”<sup>18</sup> Beginning in January, the Federal Reserve began to reduce purchases of Treasury securities by \$20 billion and mortgage-backed securities by \$10 billion on a monthly basis.<sup>19</sup> This change

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<sup>14</sup> Federal Reserve, Press Release, (Mar. 16, 2022).

<sup>15</sup> Federal Reserve, Press Release, (May 4, 2022).

<sup>16</sup> Federal Reserve Presse Release (June 15, 2022).

<sup>17</sup> Federal Reserve Board and FOMC Summary of Economic Projections, Figure 2, at 4 (June 15, 2022).

<sup>18</sup> In monetary policy jargon “taking away the punch bowl” refers to a central bank action to reduce the stimulus that it has been giving the economy. William Martin, who chaired the Federal Reserve from 1951-1970, used this metaphor in a widely quoted speech given in October, 1955.

<https://conversableeconomist.blogspot.com/2013/06/the-punch-bowl-speech-william-mcchesney.html>

<sup>19</sup> Federal Reserve, Press Release, (Dec. 15, 2021).

1 is double the initial plan previously outlined at the November 2, 2021 meeting.<sup>20</sup> After the  
2 May 4 meeting, the FOMC issued its broader plans for reducing the size of the Federal  
3 Reserve's balance sheet, by reducing its holdings of Treasury securities, agency debt, and  
4 mortgage back securities on June 1. The Federal Reserve intends to reduce Treasury  
5 securities at a pace capped at \$30 billion per month for three months and increase the cap  
6 to \$60 billion per month thereafter.<sup>21</sup> Similarly, agency debt and mortgage-backed  
7 securities will be reduced at a pace capped at \$17.5 billion per month for the first three  
8 months and increase to \$35 billion per month thereafter.<sup>22</sup>

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

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

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

17 \*\*\*

18 The rise in inflation has been much greater and more persistent than  
19 forecasters generally expected. For example, at the time of our June 2021  
20 meeting, every Federal Open Market Committee (FOMC) participant and  
21 all but one of 35 submissions in the Survey of Professional Forecasters  
22 predicted that 2021 inflation would be below 4 percent. Inflation came in  
23 at 5.5 percent.

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<sup>20</sup> Federal Reserve, Press Release, (Nov. 3, 2021).

<sup>21</sup> Federal Reserve, Plans for Reducing the Size of the Federal Reserve's Balance Sheet (May 4, 2022).

<sup>22</sup> *Ibid.*



1 For a time, moderate inflation forecasts looked plausible—the one-month  
2 headline and core inflation rates declined steadily from April through  
3 September. But inflation moved up sharply in the fall, and, just since our  
4 December meeting, the median FOMC projection for year-end 2022 jumped  
5 from 2.6 percent to 4.3 percent.<sup>23</sup>

6 **Q. PLEASE DESCRIBE THE SIGNIFICANCE OF CURRENT INFLATIONARY**  
7 **PRESSURE AND EXPECTATIONS OVER THE NEAR-TERM.**

8 A. Inflation is currently at its highest level in approximately 40 years and interest rates have  
9 recently increased from historic low levels observed at the onset of the pandemic. The  
10 year-over-year (YOY) change in the Consumer Price Index (CPI) published by the Bureau  
11 of Labor Statistics has increased steadily in 2021 rising from 1.37 percent in January 2021  
12 to 7.0 percent in December 2021. This trend has continued with the YOY change in CPI  
13 rising to 7.5 percent in January 2022, 7.9 percent in February 2022, 8.6 percent in March,  
14 and 8.2 percent in April. These changes in CPI are the largest 12-month increases  
15 experienced since the early 1980s. Goldman Sachs opined: “A very high inflation path in  
16 2022 should make an easy case for steady rate hikes at all seven remaining FOMC  
17 meetings.”<sup>24</sup> Further, as noted, the Federal Reserve decided to reduce the pace of its net  
18 asset purchases of Treasury and mortgage-backed securities.<sup>25</sup> This means that the historic  
19 low interest rate environment has come to an abrupt end in 2022.

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<sup>23</sup> Jerome H. Powell’s speech at the 38<sup>th</sup> Annual Economic Policy Conference, National Association for Business Economists (March 21, 2022).  
<https://www.federalreserve.gov/newsevents/speech/powell20220321a.htm>.

<sup>24</sup> Curran, Edna. “Goldman Sachs Sees Fed Hiking More Times in 2023 Amid Inflation.” Bloomberg.com, Bloomberg, 28 Feb. 2022, <https://www.bloomberg.com/news/articles/2022-02-28/goldman-raises-u-s-inflation-forecasts-sees-more-hikes-in-2023>.

<sup>25</sup> Federal Reserve, Press Release, December 15, 2021, <https://www.federalreserve.gov/monetarypolicy/files/monetary20211215a1.pdf>

1 **Q. WHAT EFFECT WILL INFLATION HAVE ON LONG-TERM INTEREST**  
2 **RATES?**

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

**C. Conclusions**

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

11 A. Investors are increasingly faced with inflationary pressures, and the Federal Reserve is  
12 unwinding its pandemic response measures. Long-term interest rates have increased  
13 substantially since the historic lows of 2020 and are expected to continue to increase.  
14 Importantly, this requires the use of both current and forecast bond yields in the CAPM  
15 and Risk Premium models.

16 Fluctuations in utility valuations impact the results of the DCF model. The  
17 dividend yield is calculated using historical average stock prices which may not fully  
18 reflect forward market expectations.

19 These circumstances collectively reinforce the importance of using forward-  
20 looking model inputs and multiple models, as I have with the CAPM, DCF, Risk Premium,  
21 and Expected Earnings approaches.

## **V. PROXY GROUP SELECTION**

**Q. WHY IS IT NECESSARY TO SELECT A PROXY GROUP TO ESTIMATE THE COST OF EQUITY FOR DUKE ENERGY OHIO?**

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

**Q. PLEASE PROVIDE A SUMMARY PROFILE OF DUKE ENERGY OHIO.**

A. Duke Energy Ohio is a wholly owned subsidiary of Duke Energy Corporation, providing natural gas transmission and distribution service to approximately 450,000 customers.<sup>26</sup> Duke Energy Ohio has long-term issuer ratings from Moody's Investors Service (Moody's) of Baa1 (Outlook: Stable), and S&P Global (S&P) of BBB+ (Outlook: Stable).<sup>27</sup>

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<sup>26</sup> Duke Energy, 2021 SEC Form 10-K, at 24.

<sup>27</sup> Source: S&P Global Capital IQ Pro.

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

3 A. I began with the ten investor-owned domestic natural gas distribution companies covered  
4 by Value Line and then screened companies according to the following criteria:

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

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

19 A. Based on the screening criteria discussed above, I arrived at a proxy group consisting of  
20 the companies shown in Figure 6. The results of my screening process are shown in Exhibit  
21 JMC-3.

**Figure 6: Proxy Group**

<b>Company</b>	<b>Ticker</b>
Atmos Energy Corporation	ATO
New Jersey Resources Corporation	NJR
NiSource Inc.	NI
Northwest Natural Gas Company	NWN
ONE Gas, Inc.	OGS
Spire, Inc.	SR

1    **Q.    DO YOUR SCREENING CRITERIA RESULT IN A GROUP OF COMPANIES**  
2        **THAT INVESTORS WOULD VIEW AS COMPARABLE TO DUKE ENERGY**  
3        **OHIO?**

4    **A.**    Yes, these natural gas utilities best align with the financial and operational characteristics  
5        of Duke Energy Ohio. The proxy group screening criterion requiring an investment grade  
6        credit rating ensures that the proxy group companies, like Duke Energy Ohio, are in sound  
7        financial condition. Additionally, I have screened on the percent of revenue and net  
8        operating income from regulated operations to differentiate between utilities that are  
9        protected by regulation and those with substantial unregulated operations or market-related  
10       risks. The proxy group also reflects Duke Energy Ohio's natural gas operations. These  
11       screens collectively reflect key risk factors that investors consider in making investments  
12       in natural gas utilities.

1 **Q. WHAT IS YOUR CONCLUSION REGARDING THE PROXY GROUP FOR**  
2 **DUKE ENERGY OHIO?**

3 A. My conclusion is that my group of six natural gas utilities adequately reflects the broad set  
4 of risks that investors consider when investing in a U.S. regulated natural gas utility such  
5 as Duke Energy Ohio. Later in my testimony, I will evaluate whether any adjustment  
6 should be made to the results of my ROE analyses to account for differences in Duke  
7 Energy Ohio's company-specific risks relative to the proxy group companies.

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

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

9 A. I have utilized four ROE estimation models: the Constant Growth DCF, the CAPM, the  
10 Bond Yield Plus Risk Premium, and Expected Earnings. The following describes each of  
11 the models and inputs I have utilized to estimate Duke Energy Ohio's cost of equity.

**A. Constant Growth DCF Model**

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

13 A. The DCF approach is based on the theory that a stock's current price represents the present  
14 value of all expected future cash flows. In its simplest form, the DCF model expresses the  
15 ROE as the sum of the expected dividend yield and long-term growth rate:

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

16 Where "k" equals the required return, "D" is the current dividend, "g" is the expected  
17 growth rate, and "P" represents the subject company's stock price.

18 Assuming a constant growth rate in dividends, the model may be rearranged to compute  
19 the ROE accordingly, as shown in Formula [2]:

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$$r = \frac{D}{P} + g \quad [2]$$

Stated in this manner, the cost of common equity is equal to the dividend yield plus the dividend growth rate.

**Q. What are the assumptions underlying the Constant Growth DCF model?**

A. The Constant Growth DCF model is based on the following assumptions: (1) a constant average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate.

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

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

1. Average stock prices for the historical period, over 30-, 90-, and 180-trading days through May 31, 2022;
2. Annualized dividend per share as of May 31, 2022; and
3. Company-specific earnings growth forecasts for the term g.

My application of the Constant Growth DCF model is provided in Exhibit JMC-4.

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

A. It is important to use an average of recent trading days to calculate the term P in the DCF model to ensure that the calculated ROE is not skewed by anomalous events that may affect stock prices on any given trading day. At the same time, it is important to reflect the

1 conditions that have defined the financial markets over the recent past. In my view,  
2 consideration of those three averaging periods reasonably balances these interests.

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

5 A. Yes, I did. Utility companies tend to increase their quarterly dividends at different times  
6 throughout the year, so it is reasonable to assume that such increases will be evenly  
7 distributed over calendar quarters. Given that assumption, it is reasonable to apply one-  
8 half of the expected annual dividend growth rate for the purposes of calculating this  
9 component of the DCF model. This adjustment ensures that the expected dividend yield is  
10 representative of the coming 12-month period. Accordingly, the DCF estimates reflect  
11 one-half of the expected growth in the dividend yield.<sup>28</sup>

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

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

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

17 A. The Constant Growth DCF model assumes that dividends grow at a constant rate in  
18 perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure,  
19 one must assume a constant payout ratio, and that earnings per share, dividends per share,  
20 and book value per share all grow at the same constant rate. Over the long term, however,

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<sup>28</sup> The expected dividend yield is calculated as  $d_1 = d_0 (1 + \frac{1}{2} g)$ .



1 dividend growth can only be sustained by earnings growth. As noted by Brigham and  
2 Houston in their text, *Fundamentals of Financial Management*: “Growth in dividends  
3 occurs primarily as a result of growth in *earnings per share* (EPS).”<sup>29</sup> It is therefore  
4 important to focus on measures of long-term earnings growth from credible sources as an  
5 appropriate measure of long-term growth in the DCF model.

6 **Q. ARE OTHER SOURCES OF DIVIDEND GROWTH AVAILABLE TO**  
7 **INVESTORS?**

8 A. Yes, although that does not mean that investors incorporate such estimates into their  
9 investment decisions. Academic studies suggest that investors base their investment  
10 decisions on analysts’ expectations of growth in earnings.<sup>30</sup> I am not aware of any similar  
11 findings regarding non-earnings-based growth estimates. In addition, the only forward-  
12 looking growth rates that are available on a consensus basis are analysts’ EPS growth rates.  
13 The fact that earnings growth projections are the only widely-accepted estimates of growth  
14 provides further support that earnings growth is the most meaningful measure of growth  
15 among the investment community.

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

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<sup>29</sup> Eugene F. Brigham and Joel F. Houston, *Fundamentals of Financial Management* (Concise Fourth Edition, Thomson South-Western), at 317 (emphasis added).

<sup>30</sup> See, e.g., Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts*, *Financial Management*, Summer 1992, at 65; and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, *The Journal of Portfolio Management*, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of that updated study are consistent with Vander Weide and Carleton’s original conclusions.

1 A. The results of my Constant Growth DCF analysis are provided in Exhibit JMC-4 and  
2 summarized in Figure 7.

**Figure 7: Constant Growth DCF Results**

	<b>Mean Low</b>	<b>Mean</b>	<b>Mean High</b>
30-day average	8.83%	9.72%	10.97%
90-day average	8.92%	9.81%	11.06%
180-day average	9.14%	10.03%	11.28%

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

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

**B. CAPM Analysis**

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

13 A. The CAPM is a risk premium approach that estimates the cost of equity for a given security  
14 as a function of a risk-free return plus a risk premium (to compensate investors for the non-

diversifiable or “systematic” risk of that security).<sup>31</sup> As shown in Equation [3], 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 ROE for a given security;

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

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

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

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

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

where:

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

The variance of the market return, noted in Equation [4], is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the

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<sup>31</sup> Systematic risks are fundamental market risks that reflect aggregate economic measures and therefore cannot be mitigated through diversification. Unsystematic risks reflect company-specific risks that can be mitigated and ultimately eliminated through investments in a portfolio of companies and/or market sectors.

1 market reflects the extent to which the return on that security will respond to a given change  
2 in the market return. Thus, Beta represents the risk that the selected security will not be  
3 effective in diversifying systematic market risks.

4 **Q. HAVE ECONOMIC AND FINANCIAL MARKET CONDITIONS ALSO**  
5 **AFFECTED THE CAPM?**

6 A. Yes. As the Federal Reserve is taking steps to normalize monetary policy, it is important  
7 to consider both current and projected bond yields. Using the 5-year forecast of bond yields  
8 helps alleviate short-term market factors affecting the risk-free rate, or “ $r_f$ ” in the CAPM  
9 formula. As discussed in Section IV, interest rates have increased in recent months and  
10 are expected to continue to increase as the economy recovers from the effects of the  
11 COVID-19 pandemic. Further, due to the fiscal and monetary stimulus provided to the  
12 U.S. economy in recent months, inflation risk is elevated. Duke Energy Ohio is financing  
13 long-lived assets, and the cost of capital should be forward looking to reflect that  
14 perspective.

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

2    A.     Since both the CAPM and Risk Premium models assume long-term investment horizons, I  
3           used the Blue Chip forecast of the yield on 30-year Treasury bonds for 2024-2028 of 3.80  
4           percent as my estimate of the risk-free rate.<sup>32</sup> That time period reflects a forward-looking  
5           view, which is the objective of the ROE analysis. I also considered CAPM results applying  
6           the 30-day average yield (as of May 31, 2022) on 30-year Treasury bonds of 3.02 percent.  
7           This is the approach recommended by Dr. Roger Morin in his text on regulatory finance:

8                     There are two possibilities for proxying investors' expectations of the risk-  
9                     free rate expected to prevail in one year: actual and forecast interest rates.  
10                    Each offers distinct advantages and limitations. At the conceptual level,  
11                    given that ratemaking is a forward-looking process, interest rate forecasts  
12                    are preferable. Moreover, the conceptual models used in the determination  
13                    of the cost of equity, such as the CAPM, are prospective in nature and  
14                    require expectational inputs.

15                    ...

16                    One reasonable option for the regulator is to accord equal weight to both  
17                    current interest rate levels and the analysts' consensus forecast. Each proxy  
18                    for expected interest rates brings information to the judgement process from  
19                    a different light.<sup>33</sup>

20   **Q.     ARE THERE EXAMPLES OF REGULATORS USING A PROJECTED RISK-**  
21   **FREE RATE IN THE CAPM ANALYSIS?**

22   A.     Yes. In a 2017 decision, the Massachusetts Department of Public Utilities (MDPU) noted  
23           that accommodative Federal monetary policy had pushed Treasury yields to near historical  
24           lows. As a result, the MDPU found it appropriate to use prospective interest rate  
25           expectations in the CAPM, stating:

26                    Current federal monetary policy that is intended to stimulate the economy  
27                    has pushed treasury yields to near historic lows. Consequently, the

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<sup>32</sup> Blue Chip Financial Forecasts, Volume 41, No. 6, June 1, 2022, at 14.

<sup>33</sup> *New Regulatory Finance*, Roger A. Morin, PhD, Public Utilities Reports, 2006, pp. 172-173.

1 Department has found that a CAPM analysis based on current treasury  
2 yields may tend to underestimate the risk-free rate over the long term and,  
3 thereby, understate the required ROE. The CAPM is based on investor  
4 expectations and, therefore, it is appropriate to use a prospective measure  
5 for the risk-free rate component. The Department has found that Blue Chip  
6 Financial Forecasts is widely relied on by investors and provides a useful  
7 proxy for investor expectations for the risk-free rate.<sup>34</sup>

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

9 A. As shown in Exhibit JMC-5.2, I considered two measures of Beta for the proxy group  
10 companies: (1) the reported Beta coefficients from Bloomberg (which are calculated using  
11 five years of weekly data against the S&P 500 Index); and (2) the reported Beta coefficients  
12 from Value Line (which are calculated using five years of weekly data against the New  
13 York Stock Exchange Composite Index). As noted earlier, Beta coefficients for utilities  
14 have increased substantially since January 2020, as utilities have traded more like the  
15 broader market. However, it is important to emphasize that Beta coefficients are calculated  
16 over a five-year period, so this recent increase is not a short-term market phenomenon. The  
17 recent movement in betas captures a trend that began five years ago. The substantial  
18 increase in Beta coefficients for the proxy group companies represents a significant

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<sup>34</sup> D.P.U. 17-05 Petition of NSTAR Electric Company and Western Massachusetts Electric Company, each doing business as Eversource Energy, Pursuant to G.L. c. 164, § 94 and 220 CMR 5.00 et seq., for Approval of General Increases in Base Distribution Rates for Electric Service and a Performance Based Ratemaking Mechanism, November 30, 2017, at 693.

1 departure from how investors have typically viewed utilities relative to the broader market  
2 and is not just COVID-19 related.

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

5 A. Consistent with the approach adopted by FERC, I used the Constant Growth DCF model  
6 to estimate the total market return for the S&P 500 Index, using projected earnings growth  
7 rates and dividend yields from three sources: (1) S&P's Earnings and Estimates report; (2)  
8 Bloomberg Professional; and (3) Value Line. Using the DCF model for a broad-based total  
9 market return provides an up-to-date assessment of analyst expectations. As of May 31,  
10 2022, the average total market return from these three sources is 14.30 percent, as shown  
11 in Figure 8 (also see Exhibit JMC-5.1).

**Figure 8: Total Market Return**

Source	Market Return
S&P Earnings & Estimates	15.79%
Bloomberg Professional	12.30%
Value Line	14.81%
Average	14.30%

12 I then calculated the MRP by subtracting the risk-free rate (based on the current 30-year  
13 Treasury bond yield of 3.02 percent, or the 5-year forecast of the 30-year Treasury bond of  
14 3.80 percent) from the total market return. The average of the historical and forward-

1 looking MRPs is 9.26 percent (based on the current 30-year Treasury bond yield) and 8.87  
2 percent (based on the projected Treasury bond yield).

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

4 A. As shown in Exhibit JMC-5.2, the CAPM results are 11.20 percent (using Value Line  
5 Betas) and 10.89 percent (using Bloomberg Betas), or an average of 11.04 percent.  
6 Applying the 30-day average yield on 30-year Treasury bonds, the CAPM results are 10.74  
7 percent (using Value Line Betas) and 10.42 percent (using Bloomberg Betas), or an average  
8 of 10.58 percent.

**C. Risk Premium Analysis**

9 **Q. PLEASE DESCRIBE THE RISK PREMIUM APPROACH THAT YOU USED.**

10 A. Similar to the CAPM, this approach recognizes that equity is riskier than debt because  
11 equity investors bear the residual risk associated with ownership. Equity investors,  
12 therefore, require a greater return (*i.e.*, a premium) than would a bondholder. The Risk  
13 Premium approach estimates the cost of equity as the sum of the Equity Risk Premium and  
14 the yield on a particular class of bonds.

$$\text{ROE} = \text{RP} + \text{Y} \quad [5]$$

15 Where:

*RP* = Risk Premium (difference between allowed ROE and the 30-Year  
Treasury Yield); and

*Y* = Applicable bond yield.

16 Since the equity risk premium is not directly observable, it is typically estimated using a  
17 variety of approaches, some of which incorporate *ex-ante*, or forward-looking, estimates



1 of the cost of equity and others that consider historical, or *ex-post*, estimates. For my Risk  
2 Premium analysis, I have relied on authorized returns from a large sample of natural gas  
3 utility decisions which produces the revealed risk premium decided by regulators.

4 **Q. WHAT DID YOUR RISK PREMIUM ANALYSIS REVEAL?**

5 A. To estimate the relationship between risk premia and interest rates, I conducted a  
6 regression analysis using the following equation:

$$RP = a + (b \times Y) \quad [6]$$

7 where:

$RP$  = Risk Premium (difference between allowed ROEs and the 30-Year  
Treasury Yield);

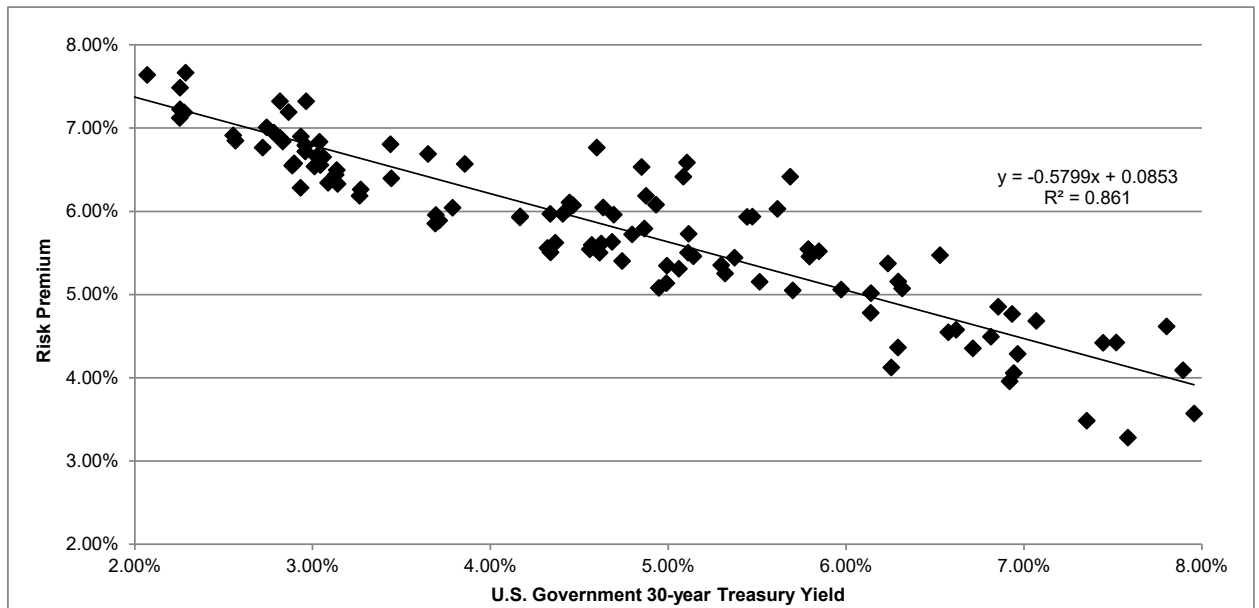
$a$  = Intercept term;

$b$  = Slope term; and

$Y$  = 30-Year Treasury Yield.

8 Data regarding allowed ROEs were derived from natural gas utility company rate cases  
9 over three decades from January 1, 1992 through May 31, 2022, as reported by Regulatory  
10 Research Associates.

**Figure 9: Risk Premium Results – Natural Gas Utilities**



As illustrated by Figure 9 (above), the risk premium moves inversely with the level of bond yield, and generally increases as the bond yields decrease, and vice versa. In order to apply this relationship to current and expected bond yields, I consider three estimates of the 30-year Treasury yield, including the current 30-day average, a near-term Blue Chip consensus forecast for Q3 2022 – Q3 2023, and a Blue Chip consensus forecast for 2024–2028. I find this 5-year result to be most applicable for the following reasons: (1) investors are expecting increases in government bond yields; (2) investors typically have a multi-year view of their required returns on equity; and (3) Duke Energy Ohio’s capital expenditure plan requires that the Company continue to be able to attract capital on reasonable terms through fluctuating economic conditions. Based on the regression coefficients in Exhibit JMC-6, which allow for the estimation of the risk premium at varying bond yields, the results of my Risk Premium analysis are shown in Figure 10.

**Figure 10: Risk Premium Results Using 30-Year Treasury Yield**

	<b>Using 30-Day Average Yield on 30-Year Treasury Bond</b>	<b>Using Q3 2022– Q3 2023 Forecast for Yield on 30- Year Treasury Bond<sup>35</sup></b>	<b>Using 2024- 2028 Forecast for Yield 30- Year Treasury Bond<sup>36</sup></b>
<i>Natural Gas Utilities</i>			
Yield	3.02%	3.48%	3.80%
Risk Premium	6.78%	6.51%	6.33%
Resulting ROE	9.80%	9.99%	10.13%

**D. Expected Earning Analysis**

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

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

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

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

<sup>35</sup> Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 2

<sup>36</sup> Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14.

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

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

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

12 A. I relied primarily on the projected ROE for the proxy companies as reported by Value Line  
13 for the period from 2025-2027. I then adjusted those projected ROEs to account for the  
14 fact that the ROEs reported by Value Line are calculated on the basis of common shares  
15 outstanding at the end of the period, as opposed to average shares outstanding over the  
16 entire period. As shown in Exhibit JMC-7, the Expected Earnings analysis results in a  
17 mean of 9.94 percent and a median of 9.58 percent.

**E. Evaluating Model Results**

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

21 A. As shown in Figure 11, I have considered the results of the DCF, CAPM, Bond Yield Plus  
22 Risk Premium, and Expected Earnings analyses. While I would typically rely on the results

of analyses using projected interest rates, especially given the current capital market environment and the prospect for inflationary pressures in the near future, I considered the range using both current and projected interest rates.

**Figure 11: Base ROE Results**

	<b>Model Results (Current Interest Rates)</b>	<b>Model Results (Projected Interest Rates)</b>
DCF	9.85%	9.85%
CAPM	10.58%	11.04%
Risk Premium	9.80%	10.13%
Expected Earnings	9.94%	9.94%
<b>Range</b>	<b>9.80% – 10.58%</b>	<b>9.85% – 11.04%</b>
<b>Average ROE</b>	<b>10.05%</b>	<b>10.24%</b>

As discussed in the next Section of my testimony, this estimate serves as a base prior to consideration of flotation costs and relative business and financial risks.

## **VII. BUSINESS AND FINANCIAL RISKS**

**Q. ARE THERE FACTORS SPECIFIC TO DUKE ENERGY OHIO’ S RISK PROFILE THAT YOU ALSO CONSIDERED IN DEVELOPING YOUR ROE RECOMMENDATION?**

A. Yes, there are several factors that have a direct bearing on Duke Energy Ohio’s risk profile in relation to the proxy group. Those risk factors include: (1) the Company’s capital expenditure program; (2) and regulatory risk relative to the proxy group companies. In addition, I considered the effect of flotation costs on the cost of equity.

**A. Capital Expenditure Program**

**Q. PLEASE DISCUSS DUKE ENERGY OHIO' S CAPITAL SPENDING PROGRAM.**

A. The Company plans a major capital investment program over the 2022-2026 period, totaling approximately \$1 billion. As with any utility facing substantial capital expenditure requirements, the Company's risk profile is 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. The absolute level of investment required will put significant pressure on the Company's ability to raise capital, and the terms will have lasting impacts for the Company's customers.

**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 higher levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. To that point, S&P explains 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

1 credit quality through the spending program. Even more favorable are those  
2 jurisdictions that present an opportunity for a higher return on capital  
3 projects as an incentive to investors.<sup>37</sup>

4 With regard to Duke Energy Ohio's credit profile, Moody's acknowledged the Company's  
5 elevated capital expenditure program as a credit challenge and observed that it has a  
6 "[s]izeable capital program that will maintain pressure on credit metrics."<sup>38</sup> To the extent  
7 that Duke Energy Ohio's rates do not permit the Company an opportunity to recover its  
8 full cost of doing business, Duke Energy Ohio will face increased recovery risk and thus  
9 increased pressure on its credit metrics. Maintaining access to capital markets on favorable  
10 terms is especially important for utilities and their customers, during periods of significant  
11 capital investment.

12 **Q. WHAT IS YOUR CONCLUSION REGARDING HOW DUKE ENERGY OHIO'**  
13 **S PROJECTED CAPITAL EXPENDITURE PROGRAM AFFECTS THE**  
14 **COMPANY' S RISK PROFILE AND COST OF EQUITY?**

15 A. My primary conclusion is that Duke Energy Ohio is projecting a substantial capital  
16 spending program through 2026 that will require the Company to maintain access to capital  
17 markets on favorable terms and conditions. The magnitude of Duke Energy Ohio's capital  
18 program places pressure on the Company's cash flows and credit metrics. For these  
19 reasons, it is important that the authorized ROE be set at a level that allows Duke Energy  
20 Ohio to continue to attract both debt and equity under favorable terms under a variety of  
21 economic and financial market conditions.

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<sup>37</sup> S&P Global Ratings, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

<sup>38</sup> Moody's Investor Service, "Duke Energy Ohio, Inc., Update to credit analysis," July 15, 2021, at 1.

**B. Regulatory Risk**

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

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

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

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



**Figure 12: Moody's Rating Factors**

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

Two of these factors (*i.e.*, regulatory framework and the ability to recover costs and earn returns) are based on the regulatory environment such that half of Moody's overall assessment of business and financial risk for regulated utilities is based upon the regulatory environment.<sup>39</sup> Moody's further subdivides the first two factors, Regulatory Framework and the Ability to Recover Costs and Earn Returns, into sub-factors to help "provide more granularity and transparency on the overall regulatory environment, which is the most important consideration for this sector."<sup>40</sup> Similarly, S&P has identified the regulatory environment as an important factor, stating, "we believe the fundamental regulatory environment in the jurisdictions in which a utility operates often influence credit quality the most."<sup>41</sup>

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

A. Given the Company's capital spending requirements, and the consequent need to raise capital, it is important that the Company be able to maintain access to the capital markets

<sup>39</sup> Moody's Investor Service, Rating Methodology, Regulated Electric and Gas Utilities, December 23, 2013, at 1,2.

<sup>40</sup> *Id.*, at 3.

<sup>41</sup> S&P, *Assessing U.S. Utility Regulatory Environments*, March 11, 2010, at 2.

at reasonable rates. Moody's and S&P consider Ohio to be a credit supportive jurisdiction in part due to constructive ratemaking and the allowance of reasonable returns.<sup>42</sup> It is essential this be maintained for the benefit of shareholders and customers.

In other states, the regulatory environment and political risks have been subject to increased scrutiny. For example, in New York, several of the state's operating utilities have experienced an erosion in credit metrics and received credit rating downgrades. Figure 13 below summarizes the recent credit ratings actions by Moody's on New York utilities.

**Figure 13: Moody's Rating Actions on New York Utilities<sup>43</sup>**

<b>Credit Action</b>	<b>Date</b>
Brooklyn Union Gas (KEDNY) and KeySpan Gas East (KEDLI) - put on review for downgrade	November 2019
KEDNY and KEDLI - ratings confirmed with negative outlooks	December 2019
Consolidated Edison, Inc. (ConEd), Consolidated Edison Company of New York, Inc. (CECONY) and Orange and Rockland Utilities (O&R)	December 2019
ConEd and CECONY downgraded	March 2020
Niagara Mohawk - negative outlook	June 2020
KEDNY - review for downgrade	August 2020
New York State Electric & Gas and Rochester Gas and Electric - negative outlooks	September 2020
Central Hudson Gas & Electric - negative outlook	October 2020
KEDNY - downgraded to Baa1	November 2020

Declining credit ratings will increase costs to customers by increasing the cost of debt as the New York utilities continue to raise capital to support their capital programs. As discussed above, the Company's capital expenditure program is designed to benefit and

<sup>42</sup> Moody's Investor Service, "Duke Energy Ohio, Inc., Update to credit analysis," July 15, 2021, at 3.

<sup>43</sup> Moody's Investors Service, "Latest political intervention into regulatory oversight is credit negative for New York utilities," November 13, 2020, at 1.

1 deliver value for customers. Given the level of planned capital expenditures, any increases  
2 in borrowing costs could have a significant effect on the costs to customers.

3 **Q. HAVE YOU PERFORMED AN ANALYSIS OF THE REGULATORY**  
4 **MECHANISMS FOR DUKE ENERGY OHIO AS COMPARED TO THOSE FOR**  
5 **THE PROXY GROUP COMPANIES?**

6 A. Yes. While Duke Energy Ohio has a number of regulatory mechanisms, it is instructive to  
7 look at the overall regulatory cost recovery mechanisms available to the proxy companies  
8 for comparison. I have conducted an analysis of the regulatory mechanisms in place for  
9 Duke Energy Ohio compared with those for the operating utility companies held by the  
10 proxy group. The results of my analysis are presented in Exhibit JMC-8. Specifically, I  
11 examined the following factors that affect the regulatory risk of Duke Energy Ohio and the  
12 proxy group companies: (1) test year convention; (2) rate base convention; (3) revenue  
13 decoupling; (4) and capital cost recovery.

14 Duke Energy Ohio uses a historical test year which exposes the Company to  
15 regulatory lag. As shown in Exhibit JMC-8, 43 percent of the operating companies in the  
16 proxy group provide service in jurisdictions that allow the use of a fully or partially  
17 forecasted test year. 52 percent of the operating companies in the proxy group, like Duke  
18 Energy Ohio, use year-end rate base, which provides more timely cost recovery of capital  
19 investments, while 48 percent use average rate base. Unlike approximately 86 percent of  
20 the operating companies held by the proxy group that have either full or partial revenue  
21 decoupling mechanisms that protect against volumetric risk, Duke Energy Ohio has no  
22 decoupling mechanism, but relies on a straight-fixed-variable rate design. Duke Energy  
23 Ohio also has capital cost tracking mechanisms, like approximately 76 percent of the

1 operating utilities held by the proxy group companies which have capital cost tracking  
2 mechanisms that allow them to recover certain capital investments between rate cases.  
3 Collectively, these mechanisms support the Company's earnings. Overall, from an  
4 investor perspective, the regulatory structures available to Duke Energy Ohio are not  
5 superior to the proxy companies, and there are aspects that are less supportive.

**C. Flotation Cost Adjustment**

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

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

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

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

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

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

5 The costs of issuing these securities are just as real as operating and  
6 maintenance expenses or costs incurred to build utility plants, and fair  
7 regulatory treatment must permit recovery of these costs.... The simple fact  
8 of the matter is that common equity capital is not free....[Flotation costs]  
9 must be recovered through a rate of return adjustment.<sup>44</sup>

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

11 Flotation costs occur when new issues of stock or debt are sold to the public.  
12 The firm usually incurs several kinds of flotation or transaction costs, which  
13 reduce the actual proceeds received by the firm. Some of these are direct  
14 out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and  
15 prospectus preparation costs. Because of this reduction in proceeds, the  
16 firm's required returns on these proceeds equate to a higher return to  
17 compensate for the additional costs. Flotation costs can be accounted for  
18 either by amortizing the cost, thus reducing the cash flow to discount, or by  
19 incorporating the cost into the cost of capital. Because flotation costs are  
20 not typically applied to operating cash flow, one must incorporate them into  
21 the cost of capital.<sup>45</sup>

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

24 A. Based on the proxy group issuance costs shown in Exhibit JMC-9, I conclude that flotation  
25 costs for the proxy companies have equaled roughly 2.45 percent of gross equity raised.  
26 To properly reflect these issuance costs in my cost of capital estimates, it would require a  
27 8 basis point addition to the ROE results produced by my ROE estimates for Duke Energy  
28 Ohio, as shown in Exhibit JMC-9, which I have considered in my recommendation.

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<sup>44</sup> Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 321.

<sup>45</sup> Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition, at 220-221.

## **VIII. CAPITAL STRUCTURE**

1 **Q. WHAT IS DUKE ENERGY OHIO' S PROPOSED CAPITAL STRUCTURE?**

2 A. Duke Energy Ohio is proposing a financial capital structure consisting of 52.4 percent  
3 common equity and 47.6 percent debt.

4 **Q. HOW HAVE YOU ASSESSED THE REASONABLENESS OF DUKE ENERGY**  
5 **OHIO' S PROPOSED CAPITAL STRUCTURE WITH RESPECT TO THE**  
6 **PROXY GROUP?**

7 A. The proxy group has been selected to reflect comparable companies in terms of business  
8 and financial risks. Therefore, it is appropriate to compare the financial capital structures  
9 of the proxy group companies to the financial capital structure proposed by Duke Energy  
10 Ohio in order to assess whether the Company's capital structure is reasonable and  
11 consistent with industry standards for companies with commensurate risk. I calculated the  
12 weighted average capital structures for each of the proxy group operating companies for  
13 the most recent year reported. Exhibit JMC-10 shows that the Company's proposed  
14 common equity ratio of 52.4 percent is within the range of actual common equity ratios of  
15 47.44 percent to 60.04 percent for the operating companies held by the proxy group over  
16 this period.

17 **Q. WHAT IS YOUR CONCLUSION REGARDING THE APPROPRIATENESS OF**  
18 **DUKE ENERGY OHIO'S PROPOSED CAPITAL STRUCTURE IN THIS**  
19 **PROCEEDING?**

20 A. Based on the analysis presented in Exhibit JMC-10, my conclusion is that Duke Energy  
21 Ohio's proposed financial capital structure is reasonable. Sufficient equity in the capital

1 structure is an important factor for maintaining Duke Energy Ohio's financial integrity and  
2 investment grade credit rating and it is an essential component of Duke Energy Ohio's  
3 financial policies enabling access to capital on favorable terms in a variety of market  
4 circumstances.

## **IX. CONCLUSIONS**

5 **Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR ROE FOR DUKE**  
6 **ENERGY OHIO?**

7 A. Based on the quantitative analyses provided in my Direct Testimony, I have established a  
8 range of ROE results shown previously in Figure 11 (also see Exhibit JMC-2 for summary  
9 table). The DCF, CAPM, Bond Yield Risk Premium and the Expected Earnings analysis  
10 produce a range of estimates of the Company's cost of equity of 9.21 percent to 11.12  
11 percent, with a four-model average of 10.05 percent or 10.24 percent. From within that  
12 range, and considering the Company's risk profile and flotation costs, I recommend an  
13 ROE of 10.30 percent.

14 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE CAPITAL**  
15 **STRUCTURE FOR DUKE ENERGY OHIO IN THIS PROCEEDING?**

16 A. I support Duke Energy Ohio's actual financial capital structure of 52.4 percent common  
17 equity and 47.6 percent debt as reasonable relative to the range of capital structures for  
18 the operating companies held by the proxy group companies.

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

20 A. Yes, it does.

## JAMES M. COYNE

Senior Vice President

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Mr. Coyne provides financial, regulatory, strategic, and litigation support services to clients in the natural gas, power, and utilities industries. Drawing upon his industry and regulatory expertise, he regularly advises utilities, public agencies and investors on business strategies, investment evaluations, and matters pertaining to rate and regulatory policy. Prior to Concentric, Mr. Coyne worked in senior consulting positions focused on North American utilities industries, in corporate planning for an integrated energy company, and in regulatory and policy positions in Maine and Massachusetts. He has authored numerous articles on the energy industry and provided testimony and expert reports before federal, state and provincial jurisdictions in the U.S. and Canada. Mr. Coyne holds a B.S. in Business from Georgetown University and an M.S. in Resource Economics from the University of New Hampshire.

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### AREAS OF EXPERTISE

#### Energy Regulation

- Rate policy
- Cost of capital
- Incentive regulation
- Fuels and power markets

#### Management and Business Strategy

- Fuels and power market assessments
- Investment feasibility
- Corporate and business unit planning
- Benchmarking and productivity analysis

#### Financial and Economic Advisory

- Valuation analysis
- Due diligence
- Buy and sell-side advisory

#### Litigation Support and Expert Testimony

- Rate and regulatory policy
- Fuels and power markets
- Contract litigation
- Valuation and damages





## PROFESSIONAL HISTORY

### **Concentric Energy Advisors, Inc. (2006 – Present)**

Senior Vice President

Vice President

### **FTI Consulting (Lexecon) (2002 – 2006)**

Senior Managing Director – Energy Practice

### **Arthur Andersen LLP (2000 – 2002)**

Managing Director, Andersen Corporate Finance – Energy and Utilities

### **Navigant Consulting, Inc. (1996 – 2000)**

Managing Director, Financial Services Practice

Senior Vice President, Strategy Practice

### **TotalFinaElf (1990 – 1996)**

Manager, Corporate Planning and Development

Manager, Investor Relations

Manager of Strategic Planning and Vice President, Natural Gas Division

### **Arthur D. Little, Inc. (1989 – 1990)**

Senior Consultant – International Energy Practice

### **DRI/McGraw-Hill (1984 – 1989)**

Director, North American Natural Gas Consulting

Senior Economist, U.S. Electricity Service

### **Massachusetts Energy Facilities Siting Council (1982 – 1984)**

Senior Economist – Gas and Electric Utilities

### **Maine Office of Energy Resources (1981 – 1982)**

State Energy Economist

## EDUCATION

### **University of New Hampshire**

M.S., Resource Economics, *with honors*, 1981

### **Georgetown University**

B.S., Business Administration and Economics, *cum laude*, 1975

## DESIGNATIONS AND AFFILIATIONS

Community Rowing Inc., Board of Directors, 2015 - 2019

Georgetown University, Alumni Admissions Interviewer, 1988 – current

NASD General Securities Representative and Managing Principal (Series 7, 63 and 24 Certifications), 2001



American Petroleum Institute, CEO's Liaison to Management and Policy Committees, 1994-1996

National Petroleum Council, Regulatory and Policy Task Forces, 1992

President, International Association for Energy Economics, Dallas Chapter, 1995

Gas Research Institute, Economics Advisory Committee, 1990-1993

NARUC, Advanced Regulatory Studies Program, Michigan State University, 1984

## **PUBLICATIONS AND RESEARCH**

"Advancing FERC's Methodology for Determining Allowed ROEs for Electric Transmission Companies," submitted to FERC on behalf of EEL, James Coyne, Joshua Nowak and Julie Lieberman, May, 2020.

"Regulator Rationale for Ratepayer-Funded Electricity and Natural Gas Innovation", James M. Coyne, Robert C. Yardley, Jr. and Jessalyn G. Pryciak, Energy Regulation Quarterly, Volume 6, Issue 3, 2018.

"Stimulating Innovation on Behalf of Canada's Electricity and Natural Gas Consumers" (with Robert Yardley), prepared for the Canadian Gas Association and Canadian Electricity Association, May 2015.

"Autopilot Error: Why Similar U.S. and Canadian Risk Profiles Yield Varied Rate-making Results" (with John Trogonoski), Public Utilities Fortnightly, May 2010

"A Comparative Analysis of Return on Equity of Natural Gas Utilities" (with Dan Dane and Julie Lieberman), prepared for the Ontario Energy Board, June 2007

"Do Utilities Mergers Deliver?" (with Prescott Hartshorne), Public Utilities Fortnightly, June 2006

"Winners and Losers: Utility Strategy and Shareholder Return" (with Prescott Hartshorne), Public Utilities Fortnightly, October 2004

"Winners and Losers in Restructuring: Assessing Electric and Gas Company Financial Performance" (with Prescott Hartshorne), white paper distributed to clients and press, August 2003

"The New Generation Business," commissioned by the Electric Power Research Institute (EPRI) and distributed to EPRI members to contribute to a series on the changes in the Power Industry, December 2001

Potential for Natural Gas in the United States, Volume V, Regulatory and Policy Issues (co-author), National Petroleum Council, December 1992

"Natural Gas Outlook," articles on U.S. natural gas markets, published quarterly in the Data Resources Energy Review and Natural Gas Review, 1984-1989

## **SELECTED SPEAKING ENGAGEMENTS**

"The Market Risk Premium: An In-Depth Review", Society of Utility and Regulatory Financial Analysts 53<sup>rd</sup> Financial Forum, Richmond, VA, April 28, 2022

"Energy Sector in Transition", Ontario Energy Association, Toronto, ON, September 24, 2018.



"Understanding Regulated Utilities in Today's Capital Markets", NARUC Annual Meeting, La Quinta, CA, November 14, 2016.

"Rate of Return: Where the Regulatory Rubber Meets the Road," CAMPUT Annual Conference, Montreal, Quebec, May 17, 2016.

"Innovations in Utility Business Models and Regulation", The Canadian Association of Members of Public Utility Tribunals (CAMPUT) 2015 Energy Regulation Course, Queens University, Kingston, Ontario, June 2015

"M&A and Valuations," Panelist at Infocast Utility Scale Solar Summit, September 2010

"The Use of Expert Evidence," The Canadian Association of Members of Public Utility Tribunals (CAMPUT) 2010 Energy Regulation Course, Queens University, Kingston, Ontario, June 2010

"A Comparative Analysis of Return on Equity for Utilities in Canada and the U.S.", The Canadian Association of Members of Public Utility Tribunals (CAMPUT) Annual Conference, Banff, Alberta, April 22, 2008

"Nuclear Power on the Verge of a New Era," moderator for a client event co-hosted by Sutherland Asbill & Brennan and Lexecon, Washington D.C., October 2005

"The Investment Implications of the Repeal of PUCHA," Skadden Arps Client Conference, New York, NY, October 2005

"Anatomy of the Deal," First Annual Energy Transactions Conference, Newport, RI, May 2005

"The Outlook for Wind Power," Skadden Arps Annual Energy and Project Finance Seminar, Naples, FL, March 2005

"Direction of U.S. M&A Activity for Utilities," Energy and Mineral Law Foundation Conference, Sanibel Island, FL, February 2002

"Outlook for U.S. Merger & Acquisition Activity," Utility Mergers & Acquisitions Conference, San Antonio, TX, October 2001

"Investor Perspectives on Emerging Energy Companies," Panel Moderator at Energy Venture Conference, Boston, MA, June 2001

"Electric Generation Asset Transactions: A Practical Guide," workshop conducted at the 1999 Thai Electricity and Gas Investment Briefing, Bangkok, Thailand, July 1999

"New Strategic Options for the Power Sector," Electric Utility Business Environment Conference, Denver, CO, May 1999

"Electric and Gas Industries: Moving Forward Together," New England Gas Association Annual Meeting, November 1998

"Opportunities and Challenges in the Electric Marketplace," Electric Power Research Institute, July 1998



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
<b>Alberta Beverage Container Management Board</b>				
Alberta Beverage Container Management Board	2016 2019	Expert for the Board	N/A	Return Margin on Bottle Depots
<b>Alberta Utilities Commission</b>				
ATCO Utilities Group	2008 2009	ATCO Gas; ATCO Pipelines Ltd.; ATCO Electric Ltd.	Application No. 1578571 / Proceeding ID. 85	2009 Generic Cost of Capital Proceeding (Gas & Electric)
Enmax Power Corporation	2017	Enmax	22570	Cost of Common Equity
Enmax Power Corporation	2020	Enmax	24110	2021 Generic Cost of Capital
<b>American Arbitration Association</b>				
TransCanada Corporation	2004	TransCanada Corporation	AAA Case No. 50T 1810018804	Valuation of Natural Gas Pipeline
<b>British Columbia Utilities Commission</b>				
FortisBC	2012	FortisBC Utilities	G-20-12	Cost of Capital Adjustment Mechanisms
FortisBC	2015 2016	FortisBC Utilities	Project 3698852	Cost of Capital (Gas and Electric Distribution)
FortisBC	2022	FortisBC Utilities		Cost of Capital (Gas and Electric Distribution)
<b>California Public Utilities Commission</b>				
San Diego Gas & Electric Company	2019	San Diego Gas & Electric Company	A-19-04-014	Cost of Capital (Electric & Gas Distribution)
San Diego Gas & Electric Company	2021	San Diego Gas & Electric Company	A-21-08-014	Cost of Capital (Electric & Gas Distribution)
Southern California Gas Company	2022	Southern California Gas Company	A-22-04-011	Cost of Capital (Gas Distribution)
San Diego Gas & Electric Company	2022	San Diego Gas & Electric Company	A-22-04-012	Cost of Capital (Electric & Gas Distribution)
<b>Canada Energy Regulator</b>				
Enbridge Pipelines Inc.	2021	Enbridge Pipelines Inc.	RH-001-2020	Cost of Capital (Oil Pipeline)
<b>Connecticut Department of Public Utility Control</b>				
Aquarion Water Company of CT/ Macquarie Securities	2007	Aquarion Water Company of CT	DPUC Docket No. 07-05-19	Return on Equity (Water)
<b>Federal Energy Regulatory Commission</b>				
Atlantic Power Corporation	2007	Atlantic Path 15, LLC	ER08-374-000	Return on Equity (Electric)



<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET</b>	<b>SUBJECT</b>
Atlantic Power Corporation	2010	Atlantic Path 15, LLC	Docket No. ER11-2909-000	Return on Equity (Electric)
Atlantic Power Corporation	2011	Atlantic Path 15, LLC	Docket Nos. ER11-2909 and EL11-29	Rate of Return (Electric Transmission)
Startrans IO, LLC	2012	Startrans IO, LLC	ER-13-272-000	Cost of Capital (Electric Transmission)
Startrans IO, LLC	2015	Startran IO, LLC	ER-16-194-000 and EL16-25-000	Cost of Capital (Electric Transmission)
Northern States Power Company	2019	Northern States Power Company	ER20-26-000	Cost of Capital (Electric Transmission)
PPL Electric Utilities Corp.	2020	PP&l Industrial Customer Alliance v. PPL Electric	EL20-48-000	Answering Testimony in Response to a Section 206 ROE Complaint
South First Energy Operating Companies	2020	South First Energy Operating Companies	ER21-253-000	Cost of Capital (Electric Transmission)
<b>Florida Public Service Commission</b>				
Florida Power & Light Company	2021	Florida Power & Light Company	Docket No. 20210015-EI	Cost of Capital (Electric)
<b>Hawaii Public Utility Commission</b>				
The Gas Company	2017	The Gas Company	Docket No. 2017-0105	Cost of Capital (Gas Distribution)
<b>Maine Public Utilities Commission</b>				
Bangor Hydro Electric Company	1998	Bangor Hydro Electric Company	MPUC Docket No. 98-820	Transaction-Related Financial Advisory Services, Valuation
Central Maine Power Company	2007	Central Maine Power Company	MPUC Docket No. 2007-215	Sales Forecast
Enmax Corporation	2019	Enmax Corporation	2019-00097	Regulatory Approval of Emera Maine Acquisition
Versant Power	2021	Versant Power	MPUC Docket No. 2020-00316	Cost of Capital (Electric)
<b>Maryland State Board of Contract Appeals</b>				
Green Planet Power Solutions	2018	Green Planet Power Solutions and Maryland Bio Energy LLC v. Maryland Department of General Services	MSBCA 3061	Contract Litigation, Power Purchase Agreement, Damages Analysis



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
<b>Massachusetts Superior Court</b>				
Burncoat Pond Watershed District	2010	Central Water District v. Burncoat Pond Watershed District	WDCV 2001-0105	Valuation/Eminent Domain
<b>Minnesota Public Utilities Commission</b>				
Northern States Power Company	2015 2016	Northern States Power Company	E-002-GR-15-826	Cost of Capital (Electric)
Northern States Power Company	2017	Northern States Power Company	E002/M-17-797 G002/M-17-787 E002/M-17-818	Cost of Capital (Electric and Gas Rate Riders for Transmission, Renewable Generation and Gas Distribution)
<b>New Brunswick Energy and Utilities Board</b>				
Liberty Utilities (Gas New Brunswick) LP	2021	Liberty Utilities (Gas New Brunswick) LP	491	Cost of Capital (Gas)
<b>Newfoundland and Labrador Board of Commissioners of Public Utilities</b>				
Newfoundland Power	2016	Newfoundland Power	2016 GRA	Cost of Capital (Electric)
Newfoundland Power	2018	Newfoundland Power	2018 GRA	Cost of Capital (Electric)
Newfoundland Power	2021	Newfoundland Power	2021 GRA	Cost of Capital (Electric)
<b>New Jersey Board of Public Utilities</b>				
Conectiv	2000- 2001	Atlantic City Electric Company	NJBPU Docket No. EM00020106	Transaction-Related Financial Advisory Services
<b>Nova Scotia Utility and Review Board</b>				
Nova Scotia Power Inc.	2012	Nova Scotia Power Inc.	2013 GRA	Return on Equity/Business Risk (Electric)
Nova Scotia Power Inc.	2022	Nova Scotia Power Inc.	2022 GRA	Return on Equity/Business Risk (Electric)
<b>Ontario Energy Board</b>				
Enbridge Gas Distribution and Hydro One Networks and the Coalition of Large Distributors	2009	Enbridge Gas Distribution and Hydro One Networks and the Coalition of Large Distributors	EB-2009-0084	Ontario Energy Board's 2009 Consultative Process on Cost of Capital Review (Gas & Electric)



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Enbridge Gas Distribution	2012	Enbridge Gas Distribution	EB-2011-0354	Industry Benchmarking Study and Cost of Capital (Gas Distribution)
Enbridge Gas Distribution	2014	Enbridge Gas Distribution	EB-2012-0459	Incentive Regulation Plan and Industry Productivity Study
Ontario Power Generation	2016	Ontario Power Generation	EB-2016-0152	Cost of Capital (Electric Generation)
Ontario Power Generation	2020	Ontario Power Generation	EB-2020-0290	Capital Structure (Electric Generation)
<b>Prince Edward Island Regulatory and Appeals Commission</b>				
Maritime Electric Company	2015	Maritime Electric Company	UE20942	Return on Capital (Electric)
Maritime Electric Company	2022	Maritime Electric Company		Return on Capital (Electric)
<b>Régie de l'énergie du Québec</b>				
Gaz Métro	2012	Gaz Métro	R-3809-2012	Return on Equity/Business Risk/ Capital Structure (Gas Distribution)
Hydro-Québec Distribution and Hydro- Québec TransÉnergie	2013	Hydro-Québec Distribution and Hydro- Québec TransÉnergie	R-3842-2013	Return on Equity/Business Risk (Electric)
Hydro-Québec Distribution	2014	Hydro-Québec Distribution	R-3905-2014	Remuneration of Deferral Accounts
Hydro-Québec Distribution and Hydro- Québec TransÉnergie	2015-2017	Hydro-Québec Distribution and Hydro- Québec TransÉnergie	R-3897-2014	Performance-Based Ratemaking
<b>South Carolina Public Service Commission</b>				
Piedmont Natural Gas Company	2022	Piedmont Natural Gas Company	2022-89-G	Return on Equity (Gas Distribution)
<b>South Dakota Public Service Commission</b>				
Northern States Power Company-MN	2012	Northern States Power Company-MN	EL 11-019	Return on Equity
<b>Texas Public Utility Commission</b>				
Texas New Mexico Power Company	2004	Texas New Mexico Power Company	PUC Docket No. 29206	Auction Process and Stranded Cost Recovery
<b>U.S. Department of Commerce</b>				



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Government of Québec	2017	Duty Investigation of Uncoated Groundwood Paper from Canada	PUC Docket No. 29206	Contracting for Renewable Resources, Market Analysis, Damages Analysis
<b>Vermont Public Service Board</b>				
Vermont Gas Systems, Inc.	2006	Vermont Gas Systems, Inc.	VPSB Docket No. 7109	Models of Incentive Regulation
Vermont Gas Systems, Inc.	2012	Vermont Gas Systems, Inc.	Docket No. 7803A	Cost of Capital (Gas Distribution)
Green Mountain Power Corporation	2013	Green Mountain Power Corporation	Docket No. 8191	Return on Equity (Electric)
Vermont Gas Systems, Inc.	2016	Vermont Gas Systems, Inc.	Docket No. 8698/8710	Return on Equity (Gas Distribution)
Green Mountain Power Corporation	2017	Green Mountain Power Corporation	Docket No. Tariff-8677	Return on Equity (Electric)
Green Mountain Power Corporation	2018	Green Mountain Power Corporation	18-0974	Return on Equity (Electric)
<b>State Corporation of Virginia</b>				
Dominion Energy Virginia	2021	Virginia Electric and Power Company	PUR-2021-00058	Cost of Capital (Electric)
<b>Wisconsin Public Service Commission</b>				
Wisconsin Power and Light Company	2007	Wisconsin Power and Light Company	PSCW Docket No. 6680-CE-170	Return on Equity (Electric)
Wisconsin Power and Light Company	2007	Wisconsin Power and Light Company	PSCW Docket No. 6680-CE-171	Return on Equity (Electric)
Northern States Power Company	2011	Northern States Power Company	PSCW Docket No. 4220-UR-117	Return on Equity (Electric)
Northern States Power Company	2013	Northern States Power Company	PSCW Docket No. 4220-UR-119	Return on Equity (Gas & Electric)
Northern States Power Company	2015	Northern States Power Company	PSCW Docket No. 4220-UR-121	Return on Equity (Gas & Electric)
Northern States Power Company	2017 2019	Northern States Power Company	PSCW Docket No. 4220-UR-123, 4220-UR-124	Return on Equity (Gas & Electric)
Northern States Power Company	2021	Northern States Power Company	4220-UR-125	Cost of Capital (Electric, Affidavit)
<b>Yukon Utilities Board</b>				
ATCO Electric Yukon	2016	ATCO Electric Yukon	2016-2017 GRA	Return on Equity (Electric)



## COMBINED DCF, CAPM, RISK PREMIUM AND EXPECTED EARNINGS RESULTS - CURRENT INTEREST RATES

Company		30-Day DCF	90-Day DCF	180-Day DCF	CAPM VL Beta	CAPM BB Beta	AVG DCF	AVG CAPM	Risk Premium	Expected Earnings	4-model Average
Atmos Energy Corporation	ATO	10.26%	10.30%	10.51%	10.43%	10.20%	10.36%	10.32%	9.80%	9.44%	9.98%
New Jersey Resources Corporation	NJR	8.99%	9.09%	9.31%	11.82%	10.75%	9.13%	11.29%	9.80%	12.42%	10.66%
NiSource Inc.	NI	11.18%	11.22%	11.48%	10.90%	10.64%	11.29%	10.77%	9.80%	11.83%	10.92%
Northwest Natural Gas Company	NWN	9.61%	9.62%	9.77%	10.43%	9.87%	9.67%	10.15%	9.80%	9.73%	9.84%
ONE Gas, Inc.	OGS	8.45%	8.54%	8.81%	10.43%	10.66%	8.60%	10.55%	9.80%	7.91%	9.21%
Spire, Inc.	SR	9.83%	10.10%	10.32%	10.43%	10.40%	10.08%	10.42%	9.80%	8.34%	9.66%
PROXY GROUP MEAN		9.72%	9.81%	10.03%	10.74%	10.42%	9.85%	10.58%	9.80%	9.94%	10.05%
PROXY GROUP MEDIAN		9.72%	9.86%	10.04%	10.43%	10.52%	9.87%	10.48%	9.80%	9.58%	9.91%
Range - Low		8.45%	8.54%	8.81%	10.43%	9.87%	8.60%	10.15%	9.80%	7.91%	9.21%
Range - High		11.18%	11.22%	11.48%	11.82%	10.75%	11.29%	11.29%	9.80%	12.42%	10.92%

## COMBINED DCF, CAPM, RISK PREMIUM AND EXPECTED EARNINGS RESULTS - PROJECTED INTEREST RATES

Company		30-Day DCF	90-Day DCF	180-Day DCF	CAPM VL Beta	CAPM BB Beta	AVG DCF	AVG CAPM	Risk Premium	Expected Earnings	4-model Average
Atmos Energy Corporation	ATO	10.26%	10.30%	10.51%	10.90%	10.67%	10.36%	10.79%	10.13%	9.44%	10.18%
New Jersey Resources Corporation	NJR	8.99%	9.09%	9.31%	12.23%	11.20%	9.13%	11.72%	10.13%	12.42%	10.85%
NiSource Inc.	NI	11.18%	11.22%	11.48%	11.34%	11.10%	11.29%	11.22%	10.13%	11.83%	11.12%
Northwest Natural Gas Company	NWN	9.61%	9.62%	9.77%	10.90%	10.36%	9.67%	10.63%	10.13%	9.73%	10.04%
ONE Gas, Inc.	OGS	8.45%	8.54%	8.81%	10.90%	11.11%	8.60%	11.01%	10.13%	7.91%	9.41%
Spire, Inc.	SR	9.83%	10.10%	10.32%	10.90%	10.87%	10.08%	10.88%	10.13%	8.34%	9.86%
PROXY GROUP MEAN		9.72%	9.81%	10.03%	11.20%	10.89%	9.85%	11.04%	10.13%	9.94%	10.24%
PROXY GROUP MEDIAN		9.72%	9.86%	10.04%	10.90%	10.98%	9.87%	10.95%	10.13%	9.58%	10.11%
Range - Low		8.45%	8.54%	8.81%	10.90%	10.36%	8.60%	10.63%	10.13%	7.91%	9.41%
Range - High		11.18%	11.22%	11.48%	12.23%	11.20%	11.29%	11.72%	10.13%	12.42%	11.12%

PROXY GROUP SELECTION

		[1]	[2]	[3]	[4]	[5]	[6]
		Pays Dividends (Yes/No)	S&P Rating	Positive Earnings Growth by more than one Analyst (Yes/No)	Regulated Income / Total Income (%)	Regulated Gas Income / Total Regulated Income (%)	Involved in Merger (Yes/No)
Company							
Atmos Energy Corporation	ATO	Yes	A-	Yes	100.00%	65.18%	No
New Jersey Resources Corporation	NJR	Yes	[7]	Yes	65.24%	96.08%	No
NiSource Inc.	NI	Yes	BBB+	Yes	99.50%	65.36%	No
Northwest Natural Gas Company	NWN	Yes	[8]	Yes	99.84%	91.68%	No
ONE Gas, Inc.	OGS	Yes	BBB+	Yes	100.00%	100.00%	No
Spire, Inc.	SR	Yes	A-	Yes	93.38%	100.00%	No

[1] Source: Bloomberg Professional

[2] Source: S&P Capital IQ Pro

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

[4] Source: Company 10-K reports, average of three most recent years

[5] Source: Company 10-K reports, average of three most recent years

[6] Source: Bloomberg Professional

[7] New Jersey Natural Gas Co is rated A1 by Moody's

[8] Northwest Natural Gas is rated A+ by S&P and Baa1 by Moody's

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Company												
Atmos Energy Corporation	ATO	\$2.72	\$115.21	2.36%	2.45%	7.50%	8.61%	7.30%	7.80%	9.75%	10.26%	11.07%
New Jersey Resources Corporation	NJR	\$1.45	\$44.85	3.23%	3.32%	5.00%	6.00%	6.00%	5.67%	8.31%	8.99%	9.33%
NiSource Inc.	NI	\$0.94	\$30.37	3.09%	3.22%	9.50%	7.18%	7.20%	7.96%	10.39%	11.18%	12.74%
Northwest Natural Gas Company	NWN	\$1.93	\$50.78	3.80%	3.91%	6.50%	5.90%	4.70%	5.70%	8.59%	9.61%	10.42%
ONE Gas, Inc.	OGS	\$2.48	\$86.52	2.87%	2.95%	6.50%	5.00%	5.00%	5.50%	7.94%	8.45%	9.46%
Spire, Inc.	SR	\$2.74	\$75.71	3.62%	3.73%	9.00%	4.30%	5.00%	6.10%	8.00%	9.83%	12.78%
PROXY GROUP MEAN				3.16%	3.26%	7.33%	6.17%	5.87%	6.46%	8.83%	9.72%	10.97%

Notes

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 30-day average as of May 31, 2022

[3] Equals [1] / [2]

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

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

[8] Equals Average ([5], [6], [7])

[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Atmos Energy Corporation	ATO	\$2.72	\$113.14	2.40%	2.50%	7.50%	8.61%	7.30%	7.80%	9.79%	10.30%	11.12%
New Jersey Resources Corporation	NJR	\$1.45	\$43.57	3.33%	3.42%	5.00%	6.00%	6.00%	5.67%	8.41%	9.09%	9.43%
NiSource Inc.	NI	\$0.94	\$30.00	3.13%	3.26%	9.50%	7.18%	7.20%	7.96%	10.43%	11.22%	12.78%
Northwest Natural Gas Company	NWN	\$1.93	\$50.64	3.81%	3.92%	6.50%	5.90%	4.70%	5.70%	8.60%	9.62%	10.44%
ONE Gas, Inc.	OGS	\$2.48	\$83.93	2.96%	3.04%	6.50%	5.00%	5.00%	5.50%	8.03%	8.54%	9.55%
Spire, Inc.	SR	\$2.74	\$70.53	3.89%	4.00%	9.00%	4.30%	5.00%	6.10%	8.27%	10.10%	13.06%
PROXY GROUP MEAN				3.25%	3.36%	7.33%	6.17%	5.87%	6.46%	8.92%	9.81%	11.06%

Notes

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 90-day average as of May 31, 2022

[3] Equals [1] / [2]

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

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

[8] Equals Average ([5], [6], [7])

[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Atmos Energy Corporation	ATO	\$2.72	\$104.30	2.61%	2.71%	7.50%	8.61%	7.30%	7.80%	10.00%	10.51%	11.33%
New Jersey Resources Corporation	NJR	\$1.45	\$40.92	3.54%	3.64%	5.00%	6.00%	6.00%	5.67%	8.63%	9.31%	9.65%
NiSource Inc.	NI	\$0.94	\$27.79	3.38%	3.52%	9.50%	7.18%	7.20%	7.96%	10.68%	11.48%	13.04%
Northwest Natural Gas Company	NWN	\$1.93	\$48.80	3.96%	4.07%	6.50%	5.90%	4.70%	5.70%	8.75%	9.77%	10.58%
ONE Gas, Inc.	OGS	\$2.48	\$77.06	3.22%	3.31%	6.50%	5.00%	5.00%	5.50%	8.30%	8.81%	9.82%
Spire, Inc.	SR	\$2.74	\$66.97	4.09%	4.22%	9.00%	4.30%	5.00%	6.10%	8.48%	10.32%	13.28%
PROXY GROUP MEAN				3.47%	3.58%	7.33%	6.17%	5.87%	6.46%	9.14%	10.03%	11.28%

Notes

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 180-day average as of May 31, 2022

[3] Equals [1] / [2]

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

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

[8] Equals Average ([5], [6], [7])

[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

MARKET RISK PREMIUM DERIVED FROM S&P EARNINGS AND ESTIMATE REPORT

[1] S&P's estimate of the S&P 500 Dividend Yield	1.71%
[2] S&P's estimate of the S&P 500 Growth Rate	13.96%
[3] S&P 500 Estimated Required Market Return	15.79%

Notes:

[1] Source: S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report, June 15, 2022

[2] Source: S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report, June 15, 2022

[3] Equals  $((1) \times (1 + (0.5 \times [2]))) + [2]$

## MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

[4] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.58%
[5] Cap. Weighted Estimate of the S&P 500 Growth Rate	10.63%
[6] Cap. Weighted S&P 500 Estimated Required Market Return	12.30%

## Notes:

[4] Source: Bloomberg Professional, as of May 31, 2022

[5] Source: Bloomberg Professional, as of May 31, 2022

[6] Equals  $([4] \times (1 + (0.5 \times [5]))) + [5]$ 

Name	Ticker	Shares Out/100	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	327.62	114.25	4.17	8.00	37,430.81	0.11%	0.44%	0.85%
Signature Bank/New York NY	SBNY	63.07	216.27	1.04	12.25	13,639.07	0.04%	0.04%	0.47%
American Express Co	AXP	753.06	168.82	1.23	21.18	127,131.59	0.36%	0.44%	7.63%
Verizon Communications Inc	VZ	4199.64	51.29	4.99	3.80	215,399.74	0.61%	3.05%	2.32%
Broadcom Inc	AVGO	403.82	580.13	2.83	14.57	234,266.94	0.66%	1.88%	9.67%
Boeing Co/The	BA	591.64	131.40	n/a	-31.61	77,740.97	0.22%		-6.96%
Caterpillar Inc	CAT	533.37	215.85	2.06	11.40	115,128.78	0.33%	0.67%	3.72%
JPMorgan Chase & Co	JPM	2937.05	132.23	3.03	-0.10	388,366.12	1.10%	3.33%	-0.11%
Chevron Corp	CVX	1964.81	174.66	3.25	5.30	343,174.24	0.97%	3.16%	5.15%
Coca-Cola Co/The	KO	4335.03	63.38	2.78	7.09	274,754.14	0.78%	2.16%	5.52%
AbbVie Inc	ABBV	1767.11	147.37	3.83	-2.35	260,419.00	0.74%	2.82%	-1.74%
Walt Disney Co/The	DIS	1821.48	110.44	n/a	31.47	201,164.69	0.57%		17.94%
FleetCor Technologies Inc	FLT	77.34	248.81	n/a	16.39	19,243.21	0.05%		0.89%
Extra Space Storage Inc	EXR	134.28	178.20	3.37	6.19	23,928.70	0.07%	0.23%	0.42%
Exxon Mobil Corp	XOM	4212.54	96.00	3.67	37.81	404,404.13	1.15%	4.20%	43.33%
Phillips 66	PSX	481.10	100.81	3.85	10.37	48,499.69	0.14%	0.53%	1.43%
General Electric Co	GE	1100.67	78.29	0.41	23.80	86,171.06	0.24%	0.10%	5.81%
HP Inc	HPQ	1053.37	38.84	2.57	1.70	40,912.74	0.12%	0.30%	0.20%
Home Depot Inc/The	HD	1027.76	302.75	2.51	6.74	311,152.83	0.88%	2.21%	5.94%
Monolithic Power Systems Inc	MPWR	46.64	450.39	0.67	25.50	21,007.54	0.06%	0.04%	1.52%
International Business Machines Corp	IBM	899.44	138.84	4.75	11.07	124,877.56	0.35%	1.68%	3.92%
Johnson & Johnson	JNJ	2631.40	179.53	2.52	3.94	472,415.60	1.34%	3.37%	5.28%
McDonald's Corp	MCD	739.55	252.21	2.19	5.58	186,521.15	0.53%	1.16%	2.95%
Merck & Co Inc	MRK	2528.81	92.03	3.00	12.23	232,725.92	0.66%	1.98%	8.07%
3M Co	MMM	569.06	149.29	3.99	7.57	84,954.82	0.24%	0.96%	1.82%
American Water Works Co Inc	AWK	181.75	151.25	1.73	7.55	27,490.14	0.08%	0.13%	0.59%
Bank of America Corp	BAC	8056.88	37.20	2.26	2.80	299,715.97	0.85%	1.92%	2.38%
Pfizer Inc	PFE	5610.90	53.04	3.02	-2.85	297,601.92	0.84%	2.54%	-2.41%
Procter & Gamble Co/The	PG	2399.30	147.88	2.47	5.03	354,808.04	1.01%	2.48%	5.05%
AT&T Inc	T	7159.00	21.29	5.21	1.90	152,415.11	0.43%	2.25%	0.82%
Travelers Cos Inc/The	TRV	239.96	179.04	2.08	4.83	42,962.62	0.12%	0.25%	0.59%
Raytheon Technologies Corp	RTX	1487.22	95.12	2.31	11.34	141,463.89	0.40%	0.93%	4.54%
Analog Devices Inc	ADI	519.81	168.40	1.81	10.00	87,535.33	0.25%	0.45%	2.48%
Walmart Inc	WMT	2752.78	128.63	1.74	7.50	354,090.35	1.00%	1.75%	7.53%
Cisco Systems Inc	CSCO	4140.96	45.05	3.37	7.07	186,550.43	0.53%	1.78%	3.74%
Intel Corp	INTC	4089.00	44.42	3.29	6.15	181,633.38	0.51%	1.69%	3.17%
General Motors Co	GM	1458.02	38.68	n/a	6.30	56,396.33	0.16%		1.01%
Microsoft Corp	MSFT	7479.03	271.87	0.91	12.91	2,033,324.70	5.76%	5.26%	74.36%
Dollar General Corp	DG	227.00	220.34	1.00	13.26	50,016.52	0.14%	0.14%	1.88%
Cigna Corp	CI	317.27	268.29	1.67	10.95	85,121.17	0.24%	0.40%	2.64%
Kinder Morgan Inc	KMI	2267.47	19.69	5.64	1.15	44,646.54	0.13%	0.71%	0.15%
Citigroup Inc	C	1941.92	53.41	3.82	-3.23	103,718.00	0.29%	1.12%	-0.95%
American International Group Inc	AIG	792.19	58.68	2.18	2.45	46,485.83	0.13%	0.29%	0.32%
Altria Group Inc	MO	1810.56	54.09	6.66	1.15	97,933.03	0.28%	1.85%	0.32%
HCA Healthcare Inc	HCA	295.48	210.40	1.06	8.20	62,169.83	0.18%	0.19%	1.44%
Under Armour Inc	UA	188.67	10.58	n/a	n/a	0.00	0.00%		
International Paper Co	IP	370.63	48.45	3.82	3.65	17,956.98	0.05%	0.19%	0.19%
Hewlett Packard Enterprise Co	HPE	1300.14	15.60	3.08	5.26	20,282.12	0.06%	0.18%	0.30%
Abbott Laboratories	ABT	1750.94	117.46	1.60	6.63	205,665.65	0.58%	0.93%	3.86%
Aflac Inc	AFL	644.17	60.57	2.64	n/a	0.00	0.00%	0.00%	
Air Products and Chemicals Inc	APD	221.77	246.16	2.63	13.59	54,591.64	0.15%	0.41%	2.10%
Royal Caribbean Cruises Ltd	RCL	254.96	58.07	n/a	n/a	0.00	0.00%		
Hess Corp	HES	311.26	123.07	1.22	43.50	38,307.14	0.11%	0.13%	4.72%
Archer-Daniels-Midland Co	ADM	562.71	90.82	1.76	2.65	51,105.14	0.14%	0.26%	0.38%
Automatic Data Processing Inc	ADP	417.75	222.94	1.87	13.55	93,132.52	0.26%	0.49%	3.58%
Verisk Analytics Inc	VRSK	157.90	174.92	0.71	9.49	27,620.22	0.08%	0.06%	0.74%
AutoZone Inc	AZO	19.85	2059.65	n/a	12.65	40,881.99	0.12%		1.47%
Avery Dennison Corp	AVY	81.71	172.56	1.74	5.80	14,100.57	0.04%	0.07%	0.23%
Enphase Energy Inc	ENPH	135.03	186.19	n/a	38.23	25,140.86	0.07%		2.72%
MSCI Inc	MSCI	81.27	442.35	0.94	12.90	35,948.90	0.10%	0.10%	1.31%
Ball Corp	BALL	319.79	70.89	1.13	6.35	22,669.84	0.06%	0.07%	0.41%
Ceridian HCM Holding Inc	CDAY	152.65	56.30	n/a	58.80	8,593.91	0.02%		1.43%
Carrier Global Corp	CARR	848.24	39.31	1.53	8.75	33,344.39	0.09%	0.14%	0.83%

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Bank of New York Mellon Corp/The	BK	807.80	46.61	2.92	9.45	37,651.46	0.11%	0.31%	1.01%
Otis Worldwide Corp	OTIS	422.79	74.40	1.56	8.50	31,455.87	0.09%	0.14%	0.76%
Baxter International Inc	BAX	503.53	76.05	1.53	12.96	38,293.38	0.11%	0.17%	1.41%
Becton Dickinson and Co	BDX	285.07	255.80	1.36	6.44	72,919.63	0.21%	0.28%	1.33%
Berkshire Hathaway Inc	BRK/B	1285.75	315.98	n/a	n/a	0.00	0.00%		
Best Buy Co Inc	BBY	224.97	82.06	4.29	11.34	18,460.87	0.05%	0.22%	0.59%
Boston Scientific Corp	BSX	1429.57	41.01	n/a	10.18	58,626.71	0.17%		1.69%
Bristol-Myers Squibb Co	BMJ	2129.06	75.45	2.86	7.32	160,637.88	0.46%	1.30%	3.33%
Fortune Brands Home & Security Inc	FBHS	130.81	69.35	1.61	8.14	9,071.47	0.03%	0.04%	0.21%
Brown-Forman Corp	BF/B	309.80	66.12	1.14	8.23	20,483.65	0.06%	0.07%	0.48%
Coterra Energy Inc	CTRA	805.81	34.33	1.75	27.57	27,663.29	0.08%	0.14%	2.16%
Campbell Soup Co	CPB	301.70	47.91	3.09	2.51	14,454.64	0.04%	0.13%	0.10%
Hilton Worldwide Holdings Inc	HLT	278.33	140.86	0.43	50.20	39,205.85	0.11%	0.05%	5.58%
Carnival Corp	CCL	989.70	13.88	n/a	n/a	0.00	0.00%		
Qorvo Inc	QRVO	106.03	111.75	n/a	7.43	11,848.52	0.03%		0.25%
Lumen Technologies Inc	LUMN	1033.06	12.24	8.17	-6.00	12,644.59	0.04%	0.29%	-0.22%
UDR Inc	UDR	318.40	47.80	3.18	8.98	15,219.57	0.04%	0.14%	0.39%
Clorox Co/The	CLX	123.08	145.36	3.19	-5.00	17,890.91	0.05%	0.16%	-0.25%
Paycom Software Inc	PAYC	60.25	284.34	n/a	25.95	17,132.62	0.05%		1.26%
CMS Energy Corp	CMS	290.13	71.04	2.59	8.17	20,610.76	0.06%	0.15%	0.48%
Newell Brands Inc	NWL	413.50	21.44	4.29	n/a	0.00	0.00%	0.00%	
Colgate-Palmolive Co	CL	837.94	78.81	2.39	4.90	66,038.21	0.19%	0.45%	0.92%
EPAM Systems Inc	EPAM	57.15	338.52	n/a	17.20	19,346.76	0.05%		0.94%
Comerica Inc	CMA	130.76	83.21	3.27	14.63	10,880.54	0.03%	0.10%	0.45%
IPG Photonics Corp	IPGP	51.87	105.49	n/a	4.27	5,472.08	0.02%		0.07%
Conagra Brands Inc	CAG	479.88	32.89	3.80	7.15	15,783.09	0.04%	0.17%	0.32%
Consolidated Edison Inc	ED	354.30	99.26	3.18	4.64	35,167.32	0.10%	0.32%	0.46%
Coming Inc	GLW	844.61	35.82	3.02	8.45	30,254.00	0.09%	0.26%	0.72%
Cummins Inc	CMJ	141.10	209.12	2.77	8.47	29,506.41	0.08%	0.23%	0.71%
Caesars Entertainment Inc	CZR	214.37	50.17	n/a	-39.81	10,754.74	0.03%		-1.21%
Danaher Corp	DHR	727.08	263.82	0.38	5.83	191,817.45	0.54%	0.21%	3.17%
Target Corp	TGT	463.70	161.88	2.22	15.24	75,063.11	0.21%	0.47%	3.24%
Deere & Co	DE	305.64	357.78	1.26	14.42	109,350.45	0.31%	0.39%	4.47%
Dominion Energy Inc	D	811.27	84.22	3.17	6.78	68,325.16	0.19%	0.61%	1.31%
Dover Corp	DOV	144.16	133.91	1.49	12.05	19,304.87	0.05%	0.08%	0.66%
Alliant Energy Corp	LNT	250.81	63.82	2.68	5.74	16,006.95	0.05%	0.12%	0.26%
Duke Energy Corp	DUK	770.00	112.52	3.50	5.47	86,640.40	0.25%	0.86%	1.34%
Regency Centers Corp	REG	172.36	68.21	3.67	6.23	11,756.81	0.03%	0.12%	0.21%
Eaton Corp PLC	ETN	399.00	138.60	2.34	10.10	55,301.40	0.16%	0.37%	1.58%
Ecolab Inc	ECL	285.66	163.91	1.24	8.90	46,821.71	0.13%	0.17%	1.18%
PerkinElmer Inc	PKI	126.15	149.67	0.19	25.28	18,880.57	0.05%	0.01%	1.35%
Emerson Electric Co	EMR	594.00	88.66	2.32	11.26	52,664.04	0.15%	0.35%	1.68%
EOG Resources Inc	EOG	585.71	136.96	2.19	11.73	80,219.25	0.23%	0.50%	2.67%
Aon PLC	AON	212.38	275.67	0.81	11.55	58,547.90	0.17%	0.13%	1.92%
Entergy Corp	ETR	203.37	120.32	3.36	5.92	24,469.96	0.07%	0.23%	0.41%
Equifax Inc	EFX	122.34	202.58	0.77	13.52	24,782.62	0.07%	0.05%	0.95%
IQVIA Holdings Inc	IQV	189.28	215.25	n/a	6.44	40,742.30	0.12%		0.74%
Gartner Inc	IT	80.54	262.40	n/a	15.00	21,133.43	0.06%		0.90%
FedEx Corp	FDX	259.18	224.58	1.34	12.28	58,206.20	0.16%	0.22%	2.02%
FMC Corp	FMC	125.94	122.58	1.73	9.17	15,437.60	0.04%	0.08%	0.40%
Brown & Brown Inc	BRO	282.27	59.37	0.69	9.00	16,758.55	0.05%	0.03%	0.43%
Ford Motor Co	F	3948.91	13.68	2.92	41.68	54,021.13	0.15%	0.45%	6.38%
NextEra Energy Inc	NEE	1964.50	75.69	2.25	11.25	148,693.01	0.42%	0.95%	4.74%
Franklin Resources Inc	BEN	499.92	27.08	4.28	n/a	0.00	0.00%	0.00%	
Garmin Ltd	GRMN	193.13	105.62	2.76	8.40	20,397.86	0.06%	0.16%	0.49%
Freeport-McMoRan Inc	FCX	1449.26	39.08	1.54	-14.38	56,637.16	0.16%	0.25%	-2.31%
Dexcom Inc	DXCM	98.13	297.94	n/a	38.69	29,235.66	0.08%		3.21%
General Dynamics Corp	GD	277.71	224.91	2.24	10.93	62,458.63	0.18%	0.40%	1.93%
General Mills Inc	GIS	602.21	69.85	2.92	6.75	42,064.51	0.12%	0.35%	0.80%
Genuine Parts Co	GPC	141.60	136.73	2.62	7.89	19,360.28	0.05%	0.14%	0.43%
Alamos Energy Corp	ATO	139.02	116.31	2.34	7.52	16,168.83	0.05%	0.11%	0.34%
WV Grainger Inc	GWV	51.10	487.07	1.41	10.20	24,890.25	0.07%	0.10%	0.72%
Halliburton Co	HAL	901.98	40.50	1.19	31.07	36,530.03	0.10%	0.12%	3.22%
L3Harris Technologies Inc	LHX	192.88	240.90	1.86	6.00	46,463.59	0.13%	0.24%	0.79%
Healthpeak Properties Inc	PEAK	539.56	29.69	4.04	11.56	16,019.45	0.05%	0.18%	0.52%
Catalent Inc	CTLT	179.21	103.06	n/a	16.23	18,469.69	0.05%		0.85%
Fortive Corp	FTV	358.45	61.77	0.45	10.63	22,141.33	0.06%	0.03%	0.67%
Hershey Co/The	HSY	145.99	211.71	1.70	10.00	30,907.75	0.09%	0.15%	0.88%
Synchrony Financial	SYF	501.49	37.04	2.38	26.50	18,575.15	0.05%	0.13%	1.39%
Hormel Foods Corp	HRL	545.00	48.67	2.14	7.29	26,525.05	0.08%	0.16%	0.55%
Arthur J Gallagher & Co	AJG	210.07	161.94	1.26	13.22	34,018.41	0.10%	0.12%	1.27%
Mondelez International Inc	MDLZ	1383.92	63.56	2.20	8.33	87,962.21	0.25%	0.55%	2.08%
CenterPoint Energy Inc	CNP	629.43	32.05	2.12	4.06	20,173.30	0.06%	0.12%	0.23%
Humana Inc	HUM	126.49	454.23	0.69	12.74	57,456.92	0.16%	0.11%	2.07%
Willis Towers Watson PLC	WTW	111.49	211.07	1.55	-100.00	23,531.77	0.07%	0.10%	-6.67%
Illinois Tool Works Inc	ITW	311.44	208.07	2.35	9.90	64,801.95	0.18%	0.43%	1.82%
CDW Corp/DE	CDW	135.12	169.86	1.18	13.10	22,950.80	0.07%	0.08%	0.85%
Trane Technologies PLC	TT	233.86	138.06	1.94	9.42	32,286.71	0.09%	0.18%	0.86%
Interpublic Group of Cos Inc/The	IPG	393.66	32.23	3.60	3.19	12,687.79	0.04%	0.13%	0.11%
International Flavors & Fragrances Inc	IFF	254.84	132.17	2.39	14.20	33,681.94	0.10%	0.23%	1.36%
Jacobs Engineering Group Inc	J	128.63	140.09	0.66	13.30	18,019.36	0.05%	0.03%	0.68%
Generac Holdings Inc	GNRC	63.83	247.08	n/a	10.67	15,771.12	0.04%		0.48%



Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
NXP Semiconductors NV	NXPI	262.57	189.76	1.78	22.00	49,824.33	0.14%	0.25%	3.11%
Kellogg Co	K	337.87	69.74	3.33	3.59	23,563.26	0.07%	0.22%	0.24%
Broadridge Financial Solutions Inc	BR	117.23	146.22	1.75	12.10	17,140.93	0.05%	0.09%	0.59%
Kimberly-Clark Corp	KMB	336.93	133.02	3.49	7.97	44,817.76	0.13%	0.44%	1.01%
Kimco Realty Corp	KIM	618.01	23.65	3.38	3.97	14,615.87	0.04%	0.14%	0.16%
Oracle Corp	ORCL	2668.16	71.92	1.78	11.45	191,893.85	0.54%	0.97%	6.23%
Kroger Co/The	KR	720.94	52.97	1.59	10.96	38,188.09	0.11%	0.17%	1.19%
Lennar Corp	LEN	258.62	80.25	1.87	12.71	20,754.34	0.06%	0.11%	0.75%
Eli Lilly & Co	LLY	950.16	313.44	1.25	23.34	297,818.15	0.84%	1.06%	19.70%
Bath & Body Works Inc	BBWI	238.49	41.02	1.95	8.64	9,782.86	0.03%	0.05%	0.24%
Charter Communications Inc	CHTR	160.73	506.93	n/a	30.59	81,476.83	0.23%		7.06%
Lincoln National Corp	LNC	171.95	57.93	3.11	15.98	9,960.89	0.03%	0.09%	0.45%
Loews Corp	L	246.11	65.49	0.38	n/a	0.00	0.00%	0.00%	
Lowe's Cos Inc	LOW	639.13	195.30	2.15	11.49	124,821.89	0.35%	0.76%	4.06%
IDEX Corp	IEX	76.01	191.55	1.25	13.70	14,558.95	0.04%	0.05%	0.57%
Marsh & McLennan Cos Inc	MMC	502.71	159.95	1.34	8.48	80,407.82	0.23%	0.30%	1.93%
Masco Corp	MAS	235.94	56.69	1.98	12.46	13,375.44	0.04%	0.07%	0.47%
S&P Global Inc	SPGI	339.90	349.48	0.97	8.30	118,788.25	0.34%	0.33%	2.79%
Medtronic PLC	MDT	1330.74	100.15	2.72	6.82	133,273.91	0.38%	1.03%	2.58%
Viatis Inc	VTRS	1212.33	12.27	3.91	-0.99	14,875.25	0.04%	0.16%	-0.04%
CVS Health Corp	CVS	1311.31	96.75	2.27	7.20	126,869.15	0.36%	0.82%	2.59%
DuPont de Nemours Inc	DD	508.53	67.85	1.95	8.92	34,503.56	0.10%	0.19%	0.87%
Micron Technology Inc	MU	1116.67	73.84	0.54	20.45	82,454.69	0.23%	0.13%	4.78%
Motorola Solutions Inc	MSI	167.30	219.74	1.44	11.10	36,761.84	0.10%	0.15%	1.16%
Cboe Global Markets Inc	CBOE	106.19	112.31	1.71	4.00	11,926.09	0.03%	0.06%	0.14%
Laboratory Corp of America Holdings	LH	93.18	246.72	1.17	-9.98	22,988.38	0.07%	0.08%	-0.65%
Newmont Corp	NEM	793.65	67.85	3.24	-3.00	53,849.22	0.15%	0.49%	-0.46%
NIKE Inc	NKE	1268.76	118.85	1.03	13.40	150,792.13	0.43%	0.44%	5.72%
NiSource Inc	NI	405.80	31.45	2.99	7.33	12,762.35	0.04%	0.11%	0.26%
Norfolk Southern Corp	NSC	238.33	239.66	2.07	9.59	57,118.89	0.16%	0.34%	1.55%
Principal Financial Group Inc	PFJ	252.68	72.93	3.51	8.09	18,428.24	0.05%	0.18%	0.42%
Eversource Energy	ES	344.88	92.32	2.76	6.27	31,839.14	0.09%	0.25%	0.57%
Northrop Grumman Corp	NOC	155.45	467.97	1.48	16.50	72,743.60	0.21%	0.30%	3.40%
Wells Fargo & Co	WFC	3790.35	45.77	2.18	7.11	173,484.41	0.49%	1.07%	3.49%
Nucor Corp	NUE	266.00	132.46	1.51	n/a	0.00	0.00%	0.00%	
PVH Corp	PVH	67.52	70.87	0.21	9.26	4,785.28	0.01%	0.00%	0.13%
Occidental Petroleum Corp	OXY	937.19	69.31	0.75	-9.10	64,956.71	0.18%	0.14%	-1.68%
Omnicom Group Inc	OMC	205.73	74.61	3.75	3.84	15,349.74	0.04%	0.16%	0.17%
ONEOK Inc	OKE	446.62	65.85	5.68	11.11	29,409.66	0.08%	0.47%	0.93%
Raymond James Financial Inc	RJF	208.25	98.49	1.38	10.90	20,510.44	0.06%	0.08%	0.63%
Parker-Hannifin Corp	PH	128.37	272.17	1.95	12.95	34,939.01	0.10%	0.19%	1.28%
Rollins Inc	ROL	492.46	35.46	1.13	10.40	17,462.67	0.05%	0.06%	0.51%
PPL Corp	PPL	735.90	30.18	2.65	8.08	22,209.55	0.06%	0.17%	0.51%
ConocoPhillips	COP	1293.45	112.36	1.64	10.00	145,332.04	0.41%	0.67%	4.12%
PulteGroup Inc	PHM	237.63	45.26	1.33	20.03	10,755.00	0.03%	0.04%	0.61%
Pinnacle West Capital Corp	PNW	113.00	77.65	4.38	-3.03	8,774.53	0.02%	0.11%	-0.08%
PNC Financial Services Group Inc/The	PNC	413.58	175.41	3.42	13.56	72,546.24	0.21%	0.70%	2.79%
PPG Industries Inc	PPG	236.15	126.49	1.87	10.96	29,870.36	0.08%	0.16%	0.93%
Progressive Corp/The	PCR	584.88	119.38	0.34	28.54	69,822.62	0.20%	0.07%	5.65%
Public Service Enterprise Group Inc	PEG	499.26	68.54	3.15	4.93	34,219.21	0.10%	0.31%	0.48%
Robert Half International Inc	RHI	110.51	90.15	1.91	1.26	9,962.84	0.03%	0.05%	0.04%
Edison International	EIX	381.20	69.91	4.01	3.38	26,649.69	0.08%	0.30%	0.25%
Schlumberger NV	SLB	1413.46	45.96	1.52	28.25	64,962.67	0.18%	0.28%	5.20%
Charles Schwab Corp/The	SCHW	1817.06	70.10	1.14	21.94	127,375.70	0.36%	0.41%	7.92%
Sherwin-Williams Co/The	SHW	260.13	268.04	0.90	13.10	69,725.51	0.20%	0.18%	2.59%
West Pharmaceutical Services Inc	WST	74.08	310.38	0.23	11.07	22,991.71	0.07%	0.02%	0.72%
J M Smucker Co/The	SJM	108.46	125.37	3.16	1.39	13,597.38	0.04%	0.12%	0.05%
Snap-on Inc	SNA	53.37	221.88	2.56	6.86	11,842.62	0.03%	0.09%	0.23%
AMETEK Inc	AME	230.91	121.47	0.72	11.80	28,048.64	0.08%	0.06%	0.94%
Southern Co/The	SO	1062.53	75.66	3.60	4.05	80,390.64	0.23%	0.82%	0.92%
Truist Financial Corp	TFC	1331.41	49.74	3.86	8.55	66,224.53	0.19%	0.72%	1.60%
Southwest Airlines Co	LUV	592.96	45.86	n/a	63.20	27,192.96	0.08%		4.87%
WR Berkley Corp	WRB	265.19	71.13	0.49	8.90	18,863.18	0.05%	0.03%	0.48%
Stanley Black & Decker Inc	SWK	150.97	118.69	2.66	n/a	0.00	0.00%	0.00%	
Public Storage	PSA	175.53	330.64	2.42	11.31	58,036.91	0.16%	0.40%	1.86%
Arista Networks Inc	ANET	308.26	102.28	n/a	16.31	31,529.24	0.09%		1.46%
Sysco Corp	SY	509.48	84.18	2.33	14.95	42,887.69	0.12%	0.28%	1.82%
Corteva Inc	CTVA	725.32	62.62	0.89	11.33	45,419.54	0.13%	0.12%	1.46%
Texas Instruments Inc	TXN	922.13	176.76	2.60	7.90	162,996.41	0.46%	1.20%	3.65%
Textron Inc	TXT	215.08	65.29	0.12	14.85	14,042.77	0.04%	0.00%	0.59%
Thermo Fisher Scientific Inc	TMO	391.46	567.57	0.21	9.10	222,182.09	0.63%	0.13%	5.73%
TJX Cos Inc/The	TJX	1171.64	63.57	1.86	11.20	74,480.90	0.21%	0.39%	2.36%
Globe Life Inc	GL	98.60	97.57	0.85	n/a	0.00	0.00%	0.00%	
Johnson Controls International plc	JCI	695.67	54.51	2.57	17.08	37,920.92	0.11%	0.28%	1.84%
Ulta Beauty Inc	ULTA	51.82	423.10	n/a	28.36	21,924.20	0.06%		1.76%
Union Pacific Corp	UNP	628.03	219.78	2.37	10.40	138,027.33	0.39%	0.93%	4.07%
Keysight Technologies Inc	KEYS	179.90	145.60	n/a	10.37	26,193.44	0.07%		0.77%
UnitedHealth Group Inc	UNH	938.17	496.78	1.17	12.39	466,065.09	1.32%	1.54%	16.37%
Marathon Oil Corp	MRO	707.69	31.43	1.02	-6.90	22,242.73	0.06%	0.06%	-0.43%
Bio-Rad Laboratories Inc	BIO	24.88	537.79	n/a	9.10	13,378.60	0.04%		0.35%
Ventras Inc	VTR	399.70	56.74	3.17	13.70	22,678.75	0.06%	0.20%	0.88%
VF Corp	VFC	388.32	50.46	3.96	19.29	19,594.78	0.06%	0.22%	1.07%

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Vornado Realty Trust	VNO	191.74	34.96	6.06	-22.88	6,703.34	0.02%	0.12%	-0.43%
Vulcan Materials Co	VMC	132.90	164.87	0.97	19.35	21,910.56	0.06%	0.06%	1.20%
Weyerhaeuser Co	WY	744.50	39.52	1.82	n/a	0.00	0.00%	0.00%	
Whirlpool Corp	WHR	56.20	184.24	3.80	5.38	10,354.66	0.03%	0.11%	0.16%
Williams Cos Inc/The	WMB	1218.01	37.06	4.59	6.40	45,139.52	0.13%	0.59%	0.82%
Constellation Energy Corp	CEG	326.66	62.08	0.91	34.00	20,279.30	0.06%	0.05%	1.95%
WEC Energy Group Inc	WEC	315.44	105.07	2.77	6.65	33,142.76	0.09%	0.26%	0.62%
Adobe Inc	ADBE	472.50	416.48	n/a	17.77	196,786.80	0.56%		9.91%
AES Corp/The	AES	667.86	22.04	2.87	7.01	14,719.63	0.04%	0.12%	0.29%
Amgen Inc	AMGN	534.20	256.74	3.02	5.21	137,150.51	0.39%	1.17%	2.03%
Apple Inc	AAPL	16185.18	148.84	0.62	9.70	2,409,002.34	6.83%	4.22%	66.22%
Autodesk Inc	ADSK	217.53	207.75	n/a	17.30	45,191.23	0.13%		2.22%
Cintas Corp	CTAS	102.33	398.33	0.95	9.23	40,759.12	0.12%	0.11%	1.07%
Comcast Corp	CMCSA	4470.57	44.28	2.44	9.48	197,956.84	0.56%	1.37%	5.32%
Molson Coors Beverage Co	TAP	200.53	55.84	2.72	3.90	11,197.43	0.03%	0.09%	0.12%
KLA Corp	KLAC	149.24	364.85	1.15	14.40	54,448.39	0.15%	0.18%	2.22%
Marriott International Inc/MD	MAR	327.30	171.58	0.70	38.56	56,157.79	0.16%	0.11%	6.14%
McCormick & Co Inc/MD	MKC	250.23	92.72	1.60	5.05	23,200.95	0.07%	0.10%	0.33%
PACCAR Inc	PCAR	347.68	86.84	1.57	10.95	30,192.79	0.09%	0.13%	0.94%
Costco Wholesale Corp	COST	443.03	466.22	0.77	11.74	206,548.98	0.59%	0.45%	6.87%
First Republic Bank/CA	FRC	179.68	155.03	0.70	10.79	27,856.41	0.08%	0.05%	0.85%
Stryker Corp	SYK	378.15	234.50	1.19	9.70	88,677.11	0.25%	0.30%	2.44%
Tyson Foods Inc	TSN	291.54	89.61	2.05	1.17	26,124.81	0.07%	0.15%	0.09%
Lamb Weston Holdings Inc	LW	144.45	67.58	1.45	14.95	9,761.73	0.03%	0.04%	0.41%
Applied Materials Inc	AMAT	869.95	117.29	0.89	8.43	102,036.08	0.29%	0.26%	2.44%
American Airlines Group Inc	AAL	649.52	17.87	n/a	n/a	0.00	0.00%		
Cardinal Health Inc	CAH	272.43	56.32	3.52	11.65	15,343.09	0.04%	0.15%	0.51%
Cerner Corp	CERN	294.10	94.85	1.14	4.70	27,895.20	0.08%	0.09%	0.37%
Cincinnati Financial Corp	CINF	160.36	127.86	2.16	n/a	0.00	0.00%	0.00%	
Paramount Global	PARA	608.40	34.33	2.80	-5.84	20,886.20	0.06%	0.17%	-0.35%
DR Horton Inc	DHI	352.03	75.15	1.20	17.01	26,455.05	0.07%	0.09%	1.28%
Electronic Arts Inc	EA	279.89	138.65	0.55	15.95	38,807.30	0.11%	0.06%	1.75%
Expeditors International of Washington Inc	EXPD	167.75	108.84	1.23	4.30	18,258.35	0.05%	0.06%	0.22%
Fastenal Co	FAST	575.55	53.56	2.32	10.05	30,826.67	0.09%	0.20%	0.88%
M&T Bank Corp	MTB	179.42	179.97	2.67	8.45	32,289.68	0.09%	0.24%	0.77%
Xcel Energy Inc	XEL	544.65	75.34	2.59	6.63	41,034.16	0.12%	0.30%	0.77%
Fiserv Inc	FISV	646.39	100.18	n/a	13.64	64,755.75	0.18%		2.50%
Fifth Third Bancorp	FITB	686.09	39.43	3.04	13.85	27,052.41	0.08%	0.23%	1.06%
Gilead Sciences Inc	GILD	1254.31	64.85	4.50	-2.86	81,342.20	0.23%	1.04%	-0.66%
Hasbro Inc	HAS	139.44	89.75	3.12	6.80	12,514.92	0.04%	0.11%	0.24%
Huntington Bancshares Inc/OH	HBAN	1439.18	13.88	4.47	6.62	19,975.75	0.06%	0.25%	0.37%
Welltower Inc	WELL	453.97	89.09	2.74	28.88	40,444.01	0.11%	0.31%	3.31%
Biogen Inc	BIIB	146.45	200.00	n/a	-4.68	29,290.40	0.08%		-0.39%
Northern Trust Corp	NTRS	208.38	111.75	2.51	10.90	23,286.47	0.07%	0.17%	0.72%
Packaging Corp of America	PKG	93.70	157.28	3.18	3.00	14,737.29	0.04%	0.13%	0.13%
Paychex Inc	PAYX	361.02	123.83	2.55	9.25	44,704.74	0.13%	0.32%	1.17%
QUALCOMM Inc	QCOM	1120.00	143.22	2.09	16.49	160,406.40	0.45%	0.95%	7.50%
Roper Technologies Inc	ROP	105.91	442.44	0.56	12.10	46,860.15	0.13%	0.07%	1.61%
Ross Stores Inc	ROST	351.39	85.02	1.46	10.55	29,875.35	0.08%	0.12%	0.89%
IDEXX Laboratories Inc	IDXX	84.01	391.62	n/a	9.49	32,898.82	0.09%		0.88%
Starbucks Corp	SBUX	1146.90	78.50	2.50	11.82	90,031.65	0.26%	0.64%	3.02%
KeyCorp	KEY	932.47	19.96	3.91	5.71	18,612.12	0.05%	0.21%	0.30%
Fox Corp	FOXA	311.68	35.51	1.35	8.92	11,067.90	0.03%	0.04%	0.28%
Fox Corp	FOX	245.07	32.71	1.47	8.92	8,016.08	0.02%	0.03%	0.20%
State Street Corp	STT	367.12	72.49	3.15	9.30	26,612.17	0.08%	0.24%	0.70%
Norwegian Cruise Line Holdings Ltd	NCLH	419.10	16.01	n/a	153.32	6,709.81	0.02%		2.92%
US Bancorp	USB	1485.74	53.07	3.47	3.33	78,848.22	0.22%	0.77%	0.74%
A O Smith Corp	AOS	130.04	60.12	1.86	10.00	7,817.76	0.02%	0.04%	0.22%
NortonLifeLock Inc	NLOK	577.06	24.34	2.05	5.90	14,045.57	0.04%	0.08%	0.23%
T Rowe Price Group Inc	TROW	227.30	127.09	3.78	-1.68	28,887.18	0.08%	0.31%	-0.14%
Waste Management Inc	WM	415.16	158.51	1.64	11.14	65,807.01	0.19%	0.31%	2.08%
Constellation Brands Inc	STZ	162.76	245.47	1.30	9.45	39,953.43	0.11%	0.15%	1.07%
DENTSPLY SIRONA Inc	XRAY	215.45	39.56	1.26	6.27	8,523.28	0.02%	0.03%	0.15%
Zions Bancorp NA	ZION	151.36	57.04	2.66	0.74	8,633.52	0.02%	0.07%	0.02%
Alaska Air Group Inc	ALK	126.09	48.26	n/a	84.81	6,085.20	0.02%		1.46%
Invesco Ltd	IVZ	455.03	19.34	3.88	0.38	8,800.18	0.02%	0.10%	0.01%
Linde PLC	LIN	501.93	324.68	1.44	10.83	162,965.33	0.46%	0.67%	5.00%
Intuit Inc	INTU	282.08	414.46	0.66	20.72	116,909.63	0.33%	0.22%	6.86%
Morgan Stanley	MS	1749.28	86.14	3.25	1.88	150,683.32	0.43%	1.39%	0.80%
Microchip Technology Inc	MCHP	554.50	72.65	1.52	16.63	40,284.50	0.11%	0.17%	1.90%
Chubb Ltd	CB	423.71	211.29	1.57	9.27	89,525.90	0.25%	0.40%	2.35%
Hologic Inc	HOLX	249.38	75.27	n/a	-0.25	18,770.91	0.05%		-0.01%
Citizens Financial Group Inc	CFG	495.45	41.38	3.77	-0.86	20,501.56	0.06%	0.22%	-0.05%
O'Reilly Automotive Inc	ORLY	65.73	637.17	n/a	10.47	41,878.00	0.12%		1.24%
Allstate Corp/The	ALL	274.98	136.69	2.49	3.25	37,587.43	0.11%	0.26%	0.35%
Equity Residential	EQR	376.04	76.83	3.25	17.04	28,891.31	0.08%	0.27%	1.40%
BorgWarner Inc	BWA	239.58	40.32	1.69	19.16	9,659.66	0.03%	0.05%	0.52%
Organon & Co	OGN	253.64	37.96	2.95	-3.30	9,628.06	0.03%	0.08%	-0.09%
Host Hotels & Resorts Inc	HST	714.78	19.99	1.20	n/a	0.00	0.00%	0.00%	
Incyte Corp	INCY	221.51	75.89	n/a	23.76	16,810.01	0.05%		1.13%
Simon Property Group Inc	SPG	328.64	114.65	5.93	6.17	37,678.46	0.11%	0.63%	0.66%
Eastman Chemical Co	EMN	128.95	110.16	2.76	11.37	14,205.13	0.04%	0.11%	0.46%

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Twitter Inc	TWTR	764.18	39.60	n/a	n/a	0.00	0.00%		
AvalonBay Communities Inc	AVB	139.82	207.96	3.06	14.32	29,076.55	0.08%	0.25%	1.18%
Prudential Financial Inc	PRU	375.00	106.25	4.52	-0.63	39,843.75	0.11%	0.51%	-0.07%
United Parcel Service Inc	UPS	734.44	182.25	3.34	6.39	133,851.33	0.38%	1.27%	2.42%
Walgreens Boots Alliance Inc	WBA	863.77	43.83	4.36	-0.12	37,859.17	0.11%	0.47%	-0.01%
STERIS PLC	STE	100.08	228.20	0.75	5.10	22,838.26	0.06%	0.05%	0.33%
McKesson Corp	MCK	145.37	328.69	0.57	6.84	47,780.02	0.14%	0.08%	0.93%
Lockheed Martin Corp	LMT	266.11	440.11	2.54	6.15	117,116.35	0.33%	0.84%	2.04%
AmerisourceBergen Corp	ABC	209.46	154.79	1.19	8.69	32,422.93	0.09%	0.11%	0.80%
Capital One Financial Corp	COF	393.05	127.86	1.88	-6.74	50,255.50	0.14%	0.27%	-0.96%
Waters Corp	WAT	60.24	327.95	n/a	10.76	19,754.07	0.06%		0.60%
Nordson Corp	NDSN	57.51	217.88	0.94	11.90	12,530.71	0.04%	0.03%	0.42%
Dollar Tree Inc	DLTR	224.56	160.33	n/a	17.19	36,003.06	0.10%		1.75%
Darden Restaurants Inc	DRI	124.73	125.00	3.52	12.80	15,591.75	0.04%	0.16%	0.57%
Match Group Inc	MTCH	285.59	78.78	n/a	56.55	22,499.02	0.06%		3.61%
Domino's Pizza Inc	DPZ	36.05	363.17	1.21	11.66	13,090.46	0.04%	0.04%	0.43%
NVR Inc	NVR	3.29	4450.62	n/a	26.00	14,642.54	0.04%		1.08%
NetApp Inc	NTAP	222.54	71.95	2.78	n/a	0.00	0.00%	0.00%	
Citrix Systems Inc	CTXS	126.58	100.69	n/a	10.20	12,745.34	0.04%		0.37%
DXC Technology Co	DXC	230.68	35.22	n/a	20.37	8,124.69	0.02%		0.47%
Old Dominion Freight Line Inc	ODFL	113.35	258.24	0.46	14.84	29,272.54	0.08%	0.04%	1.23%
DaVita Inc	DVA	94.60	97.49	n/a	10.73	9,222.55	0.03%		0.28%
Hartford Financial Services Group Inc/The	HIG	328.87	72.51	2.12	7.00	23,846.00	0.07%	0.14%	0.47%
Iron Mountain Inc	IRM	290.56	53.90	4.59	n/a	0.00	0.00%	0.00%	
Estee Lauder Cos Inc/The	EL	231.81	254.65	0.94	11.78	59,029.14	0.17%	0.16%	1.97%
Cadence Design Systems Inc	CDNS	275.76	153.73	n/a	16.10	42,392.43	0.12%		1.93%
Tyler Technologies Inc	TYL	41.47	355.82	n/a	16.00	14,757.28	0.04%		0.67%
Universal Health Services Inc	UHS	67.13	124.61	0.64	6.11	8,364.82	0.02%	0.02%	0.14%
Skyworks Solutions Inc	SWKS	160.93	108.87	2.06	9.95	17,520.01	0.05%	0.10%	0.49%
Quest Diagnostics Inc	DGX	117.37	141.02	1.87	-8.84	16,550.81	0.05%	0.09%	-0.41%
Activision Blizzard Inc	ATVI	781.88	77.88	0.60	8.57	60,892.89	0.17%	0.10%	1.48%
Rockwell Automation Inc	ROK	116.26	213.20	2.10	8.99	24,787.06	0.07%	0.15%	0.63%
Kraft Heinz Co/The	KHC	1223.95	37.83	4.23	3.74	46,302.10	0.13%	0.55%	0.49%
American Tower Corp	AMT	456.28	256.13	2.23	10.51	116,867.76	0.33%	0.74%	3.48%
Regeneron Pharmaceuticals Inc	REGN	108.03	664.74	n/a	-2.74	71,810.53	0.20%		-0.56%
Amazon.com Inc	AMZN	508.72	2404.19	n/a	11.62	1,223,059.54	3.47%		40.28%
Jack Henry & Associates Inc	JKHY	72.86	188.12	1.04	11.15	13,706.80	0.04%	0.04%	0.43%
Ralph Lauren Corp	RL	45.19	101.09	2.97	7.63	4,568.66	0.01%	0.04%	0.10%
Boston Properties Inc	BXP	156.71	111.18	3.53	-1.40	17,423.24	0.05%	0.17%	-0.07%
Amphenol Corp	APH	597.14	70.86	1.13	9.55	42,313.27	0.12%	0.14%	1.15%
Howmet Aerospace Inc	HWM	417.91	35.77	0.22	32.00	14,948.78	0.04%	0.01%	1.36%
Pioneer Natural Resources Co	PXD	241.96	277.94	10.62	9.93	67,250.08	0.19%	2.02%	1.89%
Valero Energy Corp	VLO	408.10	129.60	3.02	11.64	52,889.24	0.15%	0.45%	1.74%
Synopsys Inc	SNPS	152.97	319.20	n/a	18.62	48,828.02	0.14%		2.58%
Etsy Inc	ETSY	127.12	81.12	n/a	23.75	10,311.89	0.03%		0.69%
CH Robinson Worldwide Inc	CHRW	127.27	108.51	2.03	6.95	13,809.63	0.04%	0.08%	0.27%
Accenture PLC	ACN	662.43	298.46	1.30	11.13	197,710.05	0.56%	0.73%	6.24%
TransDigm Group Inc	TDG	54.59	605.37	n/a	24.78	33,044.12	0.09%		2.32%
Yum! Brands Inc	YUM	285.16	121.47	1.88	10.02	34,638.87	0.10%	0.18%	0.98%
Prologis Inc	PLD	739.75	127.48	2.48	10.45	94,302.69	0.27%	0.66%	2.79%
FirstEnergy Corp	FE	570.93	42.96	3.63	1.19	24,527.24	0.07%	0.25%	0.08%
VeriSign Inc	VRSN	109.55	174.55	n/a	8.80	19,121.08	0.05%		0.48%
Quanta Services Inc	PWR	143.71	119.00	0.24	14.00	17,101.37	0.05%	0.01%	0.68%
Henry Schein Inc	HSIC	138.05	85.64	n/a	7.17	11,822.69	0.03%		0.24%
Ameren Corp	AEE	258.09	95.19	2.48	7.70	24,567.78	0.07%	0.17%	0.54%
ANSYS Inc	ANSS	86.99	260.36	n/a	11.51	22,648.72	0.06%		0.74%
FactSet Research Systems Inc	FDS	37.90	381.78	0.93	11.30	14,468.32	0.04%	0.04%	0.46%
NVIDIA Corp	NVDA	2500.00	186.72	0.09	24.08	466,800.00	1.32%	0.11%	31.85%
Sealed Air Corp	SEE	146.08	62.18	1.29	8.79	9,083.50	0.03%	0.03%	0.23%
Cognizant Technology Solutions Corp	CTSH	521.17	74.70	1.45	12.17	38,931.70	0.11%	0.16%	1.34%
SVB Financial Group	SIVB	58.85	488.57	n/a	7.00	28,752.83	0.08%		0.57%
Intuitive Surgical Inc	ISRG	358.96	227.64	n/a	14.32	81,712.97	0.23%		3.32%
Take-Two Interactive Software Inc	TTWO	161.98	124.53	n/a	21.63	20,171.62	0.06%		1.24%
Republic Services Inc	RSG	315.89	133.84	1.37	8.59	42,278.85	0.12%	0.16%	1.03%
eBay Inc	EBAY	559.84	48.67	1.81	-0.60	27,247.51	0.08%	0.14%	-0.05%
Goldman Sachs Group Inc/The	GS	343.45	326.85	2.45	-4.14	112,255.65	0.32%	0.78%	-1.32%
SBA Communications Corp	SBAC	107.83	336.61	0.84	8.00	36,296.32	0.10%	0.09%	0.82%
Sempra Energy	SRE	314.31	163.86	2.80	6.23	51,502.02	0.15%	0.41%	0.91%
Moody's Corp	MCO	184.50	301.57	0.93	8.90	55,639.67	0.16%	0.15%	1.40%
Booking Holdings Inc	BKNG	40.62	2243.56	n/a	28.35	91,140.14	0.26%		7.32%
F5 Inc	FFIV	60.47	163.04	n/a	9.34	9,859.35	0.03%		0.26%
Akamai Technologies Inc	AKAM	160.31	101.04	n/a	24.50	16,197.22	0.05%		1.12%
Charles River Laboratories International Inc	CRL	50.81	234.08	n/a	14.95	11,892.43	0.03%		0.50%
MarketAxess Holdings Inc	MKTX	37.74	281.68	0.99	14.00	10,631.17	0.03%	0.03%	0.42%
Devon Energy Corp	DVN	660.00	74.90	6.78	27.22	49,434.00	0.14%	0.95%	3.81%
Alphabet Inc	GOOGL	300.76	2275.24	n/a	26.31	684,310.28	1.94%		51.02%
Bio-Techne Corp	TECH	39.23	369.73	0.35	21.73	14,505.99	0.04%	0.01%	0.89%
Teleflex Inc	TEF	46.90	287.74	0.47	10.75	13,495.01	0.04%	0.02%	0.41%
Netflix Inc	NFLX	444.27	197.44	n/a	14.77	87,717.46	0.25%		3.67%
Allegion plc	ALLE	87.81	111.65	1.47	10.76	9,803.43	0.03%	0.04%	0.30%
Agilent Technologies Inc	A	298.71	127.56	0.66	11.65	38,103.19	0.11%	0.07%	1.26%
Warner Bros Discovery Inc	WBD	2426.84	18.45	n/a	n/a	0.00	0.00%		

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Anthem Inc	ANTM	241.09	509.61	1.00	10.47	122,859.33	0.35%	0.35%	3.65%
Trimble Inc	TRMB	250.14	68.05	n/a	n/a	0.00	0.00%		
CME Group Inc	CME	359.42	198.83	2.01	5.37	71,463.08	0.20%	0.41%	1.09%
Juniper Networks Inc	JNPR	323.10	30.68	2.74	8.85	9,912.55	0.03%	0.08%	0.25%
BlackRock Inc	BLK	151.50	669.08	2.92	6.99	101,367.63	0.29%	0.84%	2.01%
DTE Energy Co	DTE	193.74	132.71	2.67	5.20	25,711.50	0.07%	0.19%	0.38%
Nasdaq Inc	NDAQ	164.68	155.26	1.55	8.71	25,567.91	0.07%	0.11%	0.63%
Celanese Corp	CE	108.31	156.52	1.74	10.16	16,952.52	0.05%	0.08%	0.49%
Philip Morris International Inc	PM	1550.11	106.25	4.71	5.13	164,699.19	0.47%	2.20%	2.39%
Salesforce Inc	CRM	993.92	160.24	n/a	17.80	159,265.26	0.45%		8.03%
Ingersoll Rand Inc	IR	405.93	47.15	0.17	14.85	19,139.60	0.05%	0.01%	0.81%
Huntington Ingalls Industries Inc	HII	40.05	210.46	2.24	25.25	8,428.29	0.02%	0.05%	0.60%
MetLife Inc	MET	813.21	67.39	2.97	2.14	54,801.95	0.16%	0.46%	0.33%
Under Armour Inc	UA	253.22	9.70	n/a	n/a	0.00	0.00%		
Tapestry Inc	TPR	251.80	34.50	2.90	11.83	8,687.17	0.02%	0.07%	0.29%
CSX Corp	CSX	2174.26	31.79	1.26	9.75	69,119.73	0.20%	0.25%	1.91%
Edwards Lifesciences Corp	EW	621.75	100.85	n/a	13.91	62,703.69	0.18%		2.47%
Ameriprise Financial Inc	AMP	109.90	276.27	1.81	8.40	30,363.18	0.09%	0.16%	0.72%
Zebra Technologies Corp	ZBRA	52.51	338.19	n/a	11.40	17,759.71	0.05%		0.57%
Zimmer Biomet Holdings Inc	ZBH	209.58	120.21	0.80	4.57	25,193.25	0.07%	0.06%	0.33%
CBRE Group Inc	CBRE	326.86	82.84	n/a	7.40	27,077.17	0.08%		0.57%
Camden Property Trust	CPT	106.52	143.49	2.62	8.94	15,284.70	0.04%	0.11%	0.39%
Mastercard Inc	MA	964.92	357.87	0.55	22.07	345,316.28	0.98%	0.54%	21.60%
CarMax Inc	KMX	160.54	99.27	n/a	13.30	15,936.61	0.05%		0.60%
Intercontinental Exchange Inc	ICE	558.27	102.39	1.48	3.54	57,160.86	0.16%	0.24%	0.57%
Fidelity National Information Services Inc	FIS	610.77	104.50	1.80	15.98	63,825.57	0.18%	0.33%	2.89%
Chipotle Mexican Grill Inc	CMG	27.96	1402.55	n/a	28.42	39,218.10	0.11%		3.16%
Wynn Resorts Ltd	WYNN	115.97	66.10	n/a	n/a	0.00	0.00%		
Live Nation Entertainment Inc	LYV	228.06	95.05	n/a	n/a	0.00	0.00%		
Assurant Inc	AIZ	54.09	176.69	1.54	17.19	9,556.28	0.03%	0.04%	0.47%
NRG Energy Inc	NRG	237.28	46.04	3.04	1.21	10,924.56	0.03%	0.09%	0.04%
Regions Financial Corp	RF	934.50	22.09	3.08	0.63	20,643.11	0.06%	0.18%	0.04%
Monster Beverage Corp	MNST	529.67	89.12	n/a	11.13	47,204.28	0.13%		1.49%
Mosaic Co/The	MOS	361.99	62.65	0.96	-16.13	22,678.86	0.06%	0.06%	-1.04%
Baker Hughes Co	BKR	984.58	35.98	2.00	32.08	35,425.04	0.10%	0.20%	3.22%
Expedia Group Inc	EXPE	151.57	129.33	n/a	32.25	19,603.07	0.06%		1.79%
Eversys Inc	EVRG	229.48	69.94	3.27	5.25	16,049.69	0.05%	0.15%	0.24%
CF Industries Holdings Inc	CF	208.60	98.77	1.62	8.80	20,603.62	0.06%	0.09%	0.51%
Leidos Holdings Inc	LDOS	136.66	104.50	1.38	6.46	14,281.18	0.04%	0.06%	0.26%
APA Corp	APA	338.23	47.01	1.06	19.93	15,900.29	0.05%	0.05%	0.90%
Alphabet Inc	GOOG	313.38	2280.78	n/a	26.31	714,741.71	2.03%		53.29%
TE Connectivity Ltd	TEL	322.17	129.39	1.73	8.87	41,686.09	0.12%	0.20%	1.05%
Cooper Cos Inc/The	COO	49.30	350.74	0.02	10.23	17,292.18	0.05%	0.00%	0.50%
Discover Financial Services	DFS	280.97	113.49	2.11	34.59	31,886.72	0.09%	0.19%	3.13%
Visa Inc	V	1645.72	212.17	0.71	17.55	349,172.20	0.99%	0.70%	17.37%
Mid-America Apartment Communities Inc	MAA	115.43	181.00	2.76	n/a	0.00	0.00%	0.00%	
Xylem Inc/NY	XYL	180.09	84.25	1.42	15.40	15,172.84	0.04%	0.06%	0.66%
Marathon Petroleum Corp	MPC	541.00	101.79	2.28	25.53	55,067.88	0.16%	0.36%	3.98%
Tractor Supply Co	TSCO	111.88	187.36	1.96	9.90	20,962.21	0.06%	0.12%	0.59%
Advanced Micro Devices Inc	AMD	1620.51	101.86	n/a	39.15	165,064.94	0.47%		18.31%
ResMed Inc	RMD	146.29	203.46	0.83	16.22	29,763.15	0.08%	0.07%	1.37%
Mettler-Toledo International Inc	MTD	22.68	1286.12	n/a	16.25	29,169.20	0.08%		1.34%
Copart Inc	CPRT	237.67	114.53	n/a	n/a	0.00	0.00%		
Albemarle Corp	ALB	117.11	260.42	0.61	35.60	30,498.57	0.09%	0.05%	3.08%
Fortinet Inc	FTNT	160.53	294.14	n/a	21.18	47,217.41	0.13%		2.83%
Moderna Inc	MRNA	397.76	145.33	n/a	-97.88	57,808.46	0.16%		-16.03%
Essex Property Trust Inc	ESS	65.33	283.85	3.10	8.50	18,544.77	0.05%	0.16%	0.45%
Realty Income Corp	O	601.60	68.22	4.34	4.07	41,041.02	0.12%	0.51%	0.47%
Westrock Co	WRK	254.85	48.49	2.06	13.48	12,357.77	0.04%	0.07%	0.47%
Westinghouse Air Brake Technologies Corp	WAB	182.65	94.46	0.64	10.81	17,252.93	0.05%	0.03%	0.53%
Pool Corp	POOL	40.07	398.62	1.00	n/a	0.00	0.00%	0.00%	
Western Digital Corp	WDC	313.17	60.69	n/a	2.96	19,006.17	0.05%		0.16%
PepsiCo Inc	PEP	1382.68	167.75	2.74	7.48	231,945.24	0.66%	1.80%	4.91%
Diamondback Energy Inc	FANG	177.55	152.02	8.03	3.00	26,991.30	0.08%	0.61%	0.23%
ServiceNow Inc	NOW	200.46	467.47	n/a	34.06	93,709.04	0.27%		9.05%
Church & Dwight Co Inc	CHD	242.77	90.06	1.17	6.25	21,863.96	0.06%	0.07%	0.39%
Duke Realty Corp	DRE	384.46	52.83	2.12	-2.22	20,310.76	0.06%	0.12%	-0.13%
Federal Realty Investment Trust	FRT	79.42	114.97	3.72	9.26	9,130.92	0.03%	0.10%	0.24%
MGM Resorts International	MGM	426.05	34.97	0.03	-16.10	14,899.04	0.04%	0.00%	-0.68%
American Electric Power Co Inc	AEP	513.54	102.03	3.06	6.15	52,396.89	0.15%	0.45%	0.91%
SolarEdge Technologies Inc	SEDG	55.39	272.79	n/a	32.55	15,109.02	0.04%		1.39%
PTC Inc	PTC	116.98	116.53	n/a	11.82	13,631.21	0.04%		0.46%
JB Hunt Transport Services Inc	JBHT	104.78	172.58	0.93	12.55	18,083.45	0.05%	0.05%	0.64%
Lam Research Corp	LRCX	138.72	520.03	1.15	12.16	72,135.96	0.20%	0.24%	2.49%
Mohawk Industries Inc	MHK	63.54	141.46	n/a	13.58	8,988.23	0.03%		0.35%
Pentair PLC	PNR	165.40	50.17	1.67	9.25	8,298.12	0.02%	0.04%	0.22%
Vertex Pharmaceuticals Inc	VRTX	255.76	268.65	n/a	9.14	68,708.85	0.19%		1.78%
Amcor PLC	AMCR	1502.77	13.10	3.66	8.56	19,686.25	0.06%	0.20%	0.48%
Meta Platforms Inc	FB	2293.52	193.64	n/a	7.28	444,117.02	1.26%		9.16%
T-Mobile US Inc	TMUS	1253.59	133.29	n/a	23.30	167,090.34	0.47%		11.03%
United Rentals Inc	URI	71.61	298.18	n/a	14.06	21,353.27	0.06%		0.85%
ABIOMED Inc	ABMD	45.66	263.70	n/a	n/a	0.00	0.00%		

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long- Term Growth
Honeywell International Inc	HON	680.73	193.62	2.02	10.09	131,803.52	0.37%	0.76%	3.77%
Alexandria Real Estate Equities Inc	ARE	163.22	165.95	2.84	-2.21	27,086.03	0.08%	0.22%	-0.17%
Delta Air Lines Inc	DAL	641.06	41.69	n/a	129.88	26,725.71	0.08%		9.84%
Seagate Technology Holdings PLC	STX	214.84	84.67	3.31	7.85	18,190.84	0.05%	0.17%	0.40%
United Airlines Holdings Inc	UAL	326.73	47.63	n/a	-3,860.90	15,562.10	0.04%		#####
News Corp	NWS	197.27	17.58	1.14	10.65	3,468.06	0.01%	0.01%	0.10%
Centene Corp	CNC	584.89	81.44	n/a	11.91	47,633.20	0.13%		1.61%
Martin Marietta Materials Inc	MLM	62.28	339.38	0.72	16.59	21,137.94	0.06%	0.04%	0.99%
Teradyne Inc	TER	160.20	109.26	0.40	10.05	17,503.78	0.05%	0.02%	0.50%
PayPal Holdings Inc	PYPL	1158.04	85.21	n/a	16.20	98,676.59	0.28%		4.53%
Tesla Inc	TSLA	1036.01	758.26	n/a	42.50	785,564.94	2.23%		94.61%
DISH Network Corp	DISH	291.56	22.83	n/a	-8.52	6,656.31	0.02%		-0.16%
Dow Inc	DOW	728.10	67.98	4.12	11.07	49,496.37	0.14%	0.58%	1.55%
Penn National Gaming Inc	PENN	166.80	31.96	n/a	n/a	0.00	0.00%		
Everest Re Group Ltd	RE	39.44	282.50	2.34	9.94	11,141.24	0.03%	0.07%	0.31%
Teledyne Technologies Inc	TDY	46.84	405.15	n/a	12.61	18,978.44	0.05%		0.68%
News Corp	NWSA	388.47	17.40	1.15	10.65	6,759.36	0.02%	0.02%	0.20%
Exelon Corp	EXC	980.14	49.15	2.75	4.31	48,173.73	0.14%	0.37%	0.59%
Global Payments Inc	GPV	281.54	131.04	0.76	16.75	36,893.00	0.10%	0.08%	1.75%
Crown Castle International Corp	CCI	433.03	189.65	3.10	13.20	82,124.52	0.23%	0.72%	3.07%
Aptiv PLC	APT	270.93	106.24	n/a	24.19	28,783.71	0.08%		1.97%
Advance Auto Parts Inc	AAP	60.64	189.86	3.16	15.34	11,513.11	0.03%	0.10%	0.50%
Align Technology Inc	ALGN	78.81	277.64	n/a	11.17	21,879.70	0.06%		0.69%
Illumina Inc	ILMN	157.10	239.48	n/a	30.99	37,622.31	0.11%		3.30%
LKQ Corp	LKQ	282.83	51.39	1.95	3.80	14,534.79	0.04%	0.08%	0.16%
Nielsen Holdings PLC	NLSN	359.69	25.56	0.94	n/a	0.00	0.00%	0.00%	
Zoetis Inc	ZTS	470.63	170.93	0.76	11.96	80,444.61	0.23%	0.17%	2.73%
Equinix Inc	EQIX	91.02	687.09	1.80	15.27	62,540.31	0.18%	0.32%	2.71%
Digital Realty Trust Inc	DLR	284.67	139.59	3.50	14.60	39,737.36	0.11%	0.39%	1.64%
Las Vegas Sands Corp	LVS	764.11	35.46	n/a	n/a	0.00	0.00%		
Molina Healthcare Inc	MOH	58.70	290.22	n/a	16.41	17,035.91	0.05%		0.79%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

[7] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.51%
[8] Cap. Weighted Estimate of the S&P 500 Growth Rate	13.20%
[9] Cap. Weighted S&P 500 Estimated Required Market Ret	14.81%

Notes:

[7] Source: Bloomberg Professional, as of May 31, 2022

[8] Source: Bloomberg Professional, as of May 31, 2022 and Value Line, as of May 31, 2022

[9] Equals ([7] x (1 + (0.5 x [8]))) + [8]

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	327.62	114.25	4.17	3.50	37,430.81	0.11%	0.45%	0.38%
Signature Bank/New York NY	SBNY	63.07	216.27	1.04	24.50	13,639.07	0.04%	0.04%	0.97%
American Express Co	AXP	753.06	168.82	1.23	10.00	127,131.59	0.37%	0.46%	3.71%
Verizon Communications Inc	VZ	4199.64	51.29	4.99	2.50	215,399.74	0.63%	3.14%	1.57%
Broadcom Inc	AVGO	403.82	580.13	2.83	23.00	234,266.94	0.68%	1.93%	15.72%
Boeing Co/The	BA	591.64	131.40	n/a		0.00	0.00%		
Caterpillar Inc	CAT	533.37	215.85	2.06	8.00	115,128.78	0.34%	0.69%	2.69%
JPMorgan Chase & Co	JPM	2937.05	132.23	3.03	5.00	388,366.12	1.13%	3.43%	5.66%
Chevron Corp	CVX	1964.81	174.66	3.25	26.00	343,174.24	1.00%	3.26%	26.03%
Coca-Cola Co/The	KO	4335.03	63.38	2.78	7.00	274,754.14	0.80%	2.23%	5.61%
AbbVie Inc	ABBV	1767.11	147.37	3.83	4.50	260,419.00	0.76%	2.91%	3.42%
Walt Disney Co/The	DIS	1821.48	110.44	n/a	30.50	201,164.69	0.59%		17.90%
FleetCor Technologies Inc	FLT	77.34	248.81	n/a	10.50	19,243.21	0.06%		0.59%
Extra Space Storage Inc	EXR	134.28	178.20	3.37	6.00	23,928.70	0.07%	0.24%	0.42%
Exxon Mobil Corp	XOM	4212.54	96.00	3.67		0.00	0.00%	0.00%	
Phillips 66	PSX	481.10	100.81	3.85	85.00	48,499.69	0.14%	0.54%	12.02%
General Electric Co	GE	1100.67	78.29	0.41	15.00	86,171.06	0.25%	0.10%	3.77%
HP Inc	HPQ	1053.37	38.84	2.57	15.50	40,912.74	0.12%	0.31%	1.85%
Home Depot Inc/The	HD	1027.76	302.75	2.51	10.00	311,152.83	0.91%	2.28%	9.08%
Monolithic Power Systems Inc	MPWR	46.64	450.39	0.67	18.00	21,007.54	0.06%	0.04%	1.10%
International Business Machines Corp	IBM	899.44	138.84	4.75	0.50	124,877.56	0.36%	1.73%	0.18%
Johnson & Johnson	JNJ	2631.40	179.53	2.52	8.00	472,415.60	1.38%	3.47%	11.02%
McDonald's Corp	MCD	739.55	252.21	2.19	10.50	186,521.15	0.54%	1.19%	5.71%
Merck & Co Inc	MRK	2528.81	92.03	3.00	8.00	232,725.92	0.68%	2.04%	5.43%
3M Co	MMM	569.06	149.29	3.99	5.50	84,954.82	0.25%	0.99%	1.36%
American Water Works Co Inc	AWK	181.75	151.25	1.73	8.50	27,490.14	0.08%	0.14%	0.68%
Bank of America Corp	BAC	8056.88	37.20	2.26	9.00	299,715.97	0.87%	1.97%	7.87%
Pfizer Inc	PFE	5610.90	53.04	3.02	6.50	297,601.92	0.87%	2.62%	5.64%
Procter & Gamble Co/The	PG	2399.30	147.88	2.47	6.50	354,808.04	1.03%	2.56%	6.73%
AT&T Inc	T	7159.00	21.29	5.21	3.00	152,415.11	0.44%	2.32%	1.33%
Travelers Cos Inc/The	TRV	239.96	179.04	2.08	8.00	42,962.62	0.13%	0.26%	1.00%
Raytheon Technologies Corp	RTX	1487.22	95.12	2.31	7.50	141,463.89	0.41%	0.95%	3.09%
Analog Devices Inc	ADI	519.81	168.40	1.81	11.00	87,535.33	0.26%	0.46%	2.81%
Walmart Inc	WMT	2752.78	128.63	1.74	7.50	354,090.35	1.03%	1.80%	7.75%
Cisco Systems Inc	CSCO	4140.96	45.05	3.37	8.00	186,550.43	0.54%	1.84%	4.35%
Intel Corp	INTC	4089.00	44.42	3.29	6.00	181,633.38	0.53%	1.74%	3.18%
General Motors Co	GM	1458.02	38.68	n/a	11.00	56,396.33	0.16%		1.81%
Microsoft Corp	MSFT	7479.03	271.87	0.91	17.50	2,033,324.70	5.93%	5.41%	103.79%
Dollar General Corp	DG	227.00	220.34	1.00	10.00	50,016.52	0.15%	0.15%	1.46%
Cigna Corp	CI	317.27	268.29	1.67	10.00	85,121.17	0.25%	0.41%	2.48%

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Kinder Morgan Inc	KMI	2267.47	19.69	5.64	19.00	44,646.54	0.13%	0.73%	2.47%
Citigroup Inc	C	1941.92	53.41	3.82	4.50	103,718.00	0.30%	1.16%	1.36%
American International Group Inc	AIG	792.19	58.68	2.18	31.50	46,485.83	0.14%	0.30%	4.27%
Altria Group Inc	MO	1810.56	54.09	6.66	5.50	97,933.03	0.29%	1.90%	1.57%
HCA Healthcare Inc	HCA	295.48	210.40	1.06	12.50	62,169.83	0.18%	0.19%	2.27%
Under Armour Inc	UA	188.67	10.58	n/a	33.00	1,996.12	0.01%		0.19%
International Paper Co	IP	370.63	48.45	3.82	12.50	17,956.98	0.05%	0.20%	0.65%
Hewlett Packard Enterprise Co	HPE	1300.14	15.60	3.08	6.50	20,282.12	0.06%	0.18%	0.38%
Abbott Laboratories	ABT	1750.94	117.46	1.60	8.00	205,665.65	0.60%	0.96%	4.80%
Aflac Inc	AFL	644.17	60.57	2.64	9.00	39,017.07	0.11%	0.30%	1.02%
Air Products and Chemicals Inc	APD	221.77	246.16	2.63	12.00	54,591.64	0.16%	0.42%	1.91%
Royal Caribbean Cruises Ltd	RCL	254.96	58.07	n/a		0.00	0.00%		
Hess Corp	HES	311.26	123.07	1.22		0.00	0.00%	0.00%	
Archer-Daniels-Midland Co	ADM	562.71	90.82	1.76	13.00	51,105.14	0.15%	0.26%	1.94%
Automatic Data Processing Inc	ADP	417.75	222.94	1.87	9.00	93,132.52	0.27%	0.51%	2.44%
Verisk Analytics Inc	VRSK	157.90	174.92	0.71	10.50	27,620.22	0.08%	0.06%	0.85%
AutoZone Inc	AZO	19.85	2059.65	n/a	14.00	40,881.99	0.12%		1.67%
Avery Dennison Corp	AVY	81.71	172.56	1.74	12.00	14,100.57	0.04%	0.07%	0.49%
Enphase Energy Inc	ENPH	135.03	186.19	n/a	30.00	25,140.86	0.07%		2.20%
MSCI Inc	MSCI	81.27	442.35	0.94	14.50	35,948.90	0.10%	0.10%	1.52%
Ball Corp	BALL	319.79	70.89	1.13		0.00	0.00%	0.00%	
Ceridian HCM Holding Inc	CDAY	152.65	56.30	n/a		0.00	0.00%		
Carrier Global Corp	CARR	848.24	39.31	1.53		0.00	0.00%	0.00%	
Bank of New York Mellon Corp/The	BK	807.80	46.61	2.92	6.50	37,651.46	0.11%	0.32%	0.71%
Otis Worldwide Corp	OTIS	422.79	74.40	1.56		0.00	0.00%	0.00%	
Baxter International Inc	BAX	503.53	76.05	1.53	10.00	38,293.38	0.11%	0.17%	1.12%
Becton Dickinson and Co	BDX	285.07	255.80	1.36	5.50	72,919.63	0.21%	0.29%	1.17%
Berkshire Hathaway Inc	BRK/B	1285.75	315.98	n/a	10.00	406,271.60	1.19%		11.85%
Best Buy Co Inc	BBY	224.97	82.06	4.29	9.50	18,460.87	0.05%	0.23%	0.51%
Boston Scientific Corp	BSX	1429.57	41.01	n/a	16.00	58,626.71	0.17%		2.74%
Bristol-Myers Squibb Co	BMJ	2129.06	75.45	2.86		0.00	0.00%	0.00%	
Fortune Brands Home & Security Inc	FBHS	130.81	69.35	1.61	11.00	9,071.47	0.03%	0.04%	0.29%
Brown-Forman Corp	BF/B	309.80	66.12	1.14	12.00	20,483.65	0.06%	0.07%	0.72%
Coterra Energy Inc	CTRA	805.81	34.33	1.75		0.00	0.00%	0.00%	
Campbell Soup Co	CPB	301.70	47.91	3.09	5.00	14,454.64	0.04%	0.13%	0.21%
Hilton Worldwide Holdings Inc	HLT	278.33	140.86	0.43		0.00	0.00%	0.00%	
Carnival Corp	CCL	989.70	13.88	n/a		0.00	0.00%		
Qorvo Inc	QRVO	106.03	111.75	n/a	14.50	11,848.52	0.03%		0.50%
Lumen Technologies Inc	LUMN	1033.06	12.24	8.17	3.50	12,644.59	0.04%	0.30%	0.13%
UDR Inc	UDR	318.40	47.80	3.18	10.50	15,219.57	0.04%	0.14%	0.47%
Clorox Co/The	CLX	123.08	145.36	3.19	5.00	17,890.91	0.05%	0.17%	0.26%
Paycom Software Inc	PAYC	60.25	284.34	n/a	20.00	17,132.62	0.05%		1.00%
CMS Energy Corp	CMS	290.13	71.04	2.59	6.50	20,610.76	0.06%	0.16%	0.39%
Newell Brands Inc	NWL	413.50	21.44	4.29		0.00	0.00%	0.00%	
Colgate-Palmolive Co	CL	837.94	78.81	2.39	5.00	66,038.21	0.19%	0.46%	0.96%
EPAM Systems Inc	EPAM	57.15	338.52	n/a	20.50	19,346.76	0.06%		1.16%
Comerica Inc	CMA	130.76	83.21	3.27	6.00	10,880.54	0.03%	0.10%	0.19%
IPG Photonics Corp	IPGP	51.87	105.49	n/a	17.00	5,472.08	0.02%		0.27%
Conagra Brands Inc	CAG	479.88	32.89	3.80	4.00	15,783.09	0.05%	0.17%	0.18%
Consolidated Edison Inc	ED	354.30	99.26	3.18	4.50	35,167.32	0.10%	0.33%	0.46%
Corning Inc	GLW	844.61	35.82	3.02	20.00	30,254.00	0.09%	0.27%	1.76%
Cummins Inc	CMI	141.10	209.12	2.77	8.00	29,506.41	0.09%	0.24%	0.69%
Caesars Entertainment Inc	CZR	214.37	50.17	n/a		0.00	0.00%		
Danaher Corp	DHR	727.08	263.82	0.38	17.00	191,817.45	0.56%	0.21%	9.51%
Target Corp	TGT	463.70	161.88	2.22	13.00	75,063.11	0.22%	0.49%	2.85%
Deere & Co	DE	305.64	357.78	1.26	15.00	109,350.45	0.32%	0.40%	4.78%
Dominion Energy Inc	D	811.27	84.22	3.17	14.00	68,325.16	0.20%	0.63%	2.79%
Dover Corp	DOV	144.16	133.91	1.49	9.00	19,304.87	0.06%	0.08%	0.51%
Alliant Energy Corp	LNT	250.81	63.82	2.68	4.50	16,006.95	0.05%	0.13%	0.21%



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Duke Energy Corp	DUK	770.00	112.52	3.50	6.00	86,640.40	0.25%	0.88%	1.52%
Regency Centers Corp	REG	172.36	68.21	3.67	12.50	11,756.81	0.03%	0.13%	0.43%
Eaton Corp PLC	ETN	399.00	138.60	2.34	11.50	55,301.40	0.16%	0.38%	1.86%
Ecolab Inc	ECL	285.66	163.91	1.24	10.50	46,821.71	0.14%	0.17%	1.43%
PerkinElmer Inc	PKI	126.15	149.67	0.19	5.00	18,880.57	0.06%	0.01%	0.28%
Emerson Electric Co	EMR	594.00	88.66	2.32	11.50	52,664.04	0.15%	0.36%	1.77%
EOG Resources Inc	EOG	585.71	136.96	2.19	18.00	80,219.25	0.23%	0.51%	4.21%
Aon PLC	AON	212.38	275.67	0.81	7.50	58,547.90	0.17%	0.14%	1.28%
Entergy Corp	ETR	203.37	120.32	3.36	3.00	24,469.96	0.07%	0.24%	0.21%
Equifax Inc	EFX	122.34	202.58	0.77	10.00	24,782.62	0.07%	0.06%	0.72%
IQVIA Holdings Inc	IQV	189.28	215.25	n/a	14.50	40,742.30	0.12%		1.72%
Gartner Inc	IT	80.54	262.40	n/a	15.50	21,133.43	0.06%		0.96%
FedEx Corp	FDX	259.18	224.58	1.34	13.00	58,206.20	0.17%	0.23%	2.21%
FMC Corp	FMC	125.94	122.58	1.73	10.50	15,437.60	0.05%	0.08%	0.47%
Brown & Brown Inc	BRO	282.27	59.37	0.69	10.50	16,758.55	0.05%	0.03%	0.51%
Ford Motor Co	F	3948.91	13.68	2.92	33.50	54,021.13	0.16%	0.46%	5.28%
NextEra Energy Inc	NEE	1964.50	75.69	2.25	12.50	148,693.01	0.43%	0.97%	5.42%
Franklin Resources Inc	BEN	499.92	27.08	4.28	9.00	13,537.94	0.04%	0.17%	0.36%
Garmin Ltd	GRMN	193.13	105.62	2.76	10.00	20,397.86	0.06%	0.16%	0.59%
Freeport-McMoRan Inc	FCX	1449.26	39.08	1.54	27.00	56,637.16	0.17%	0.25%	4.46%
Dexcom Inc	DXCM	98.13	297.94	n/a		0.00	0.00%		
General Dynamics Corp	GD	277.71	224.91	2.24	8.00	62,458.63	0.18%	0.41%	1.46%
General Mills Inc	GIS	602.21	69.85	2.92	4.00	42,064.51	0.12%	0.36%	0.49%
Genuine Parts Co	GPC	141.60	136.73	2.62	8.50	19,360.28	0.06%	0.15%	0.48%
Atmos Energy Corp	ATO	139.02	116.31	2.34	7.50	16,168.83	0.05%	0.11%	0.35%
WW Grainger Inc	GWV	51.10	487.07	1.41	7.00	24,890.25	0.07%	0.10%	0.51%
Halliburton Co	HAL	901.98	40.50	1.19	26.00	36,530.03	0.11%	0.13%	2.77%
L3Harris Technologies Inc	LHX	192.88	240.90	1.86	18.50	46,463.59	0.14%	0.25%	2.51%
Healthpeak Properties Inc	PEAK	539.56	29.69	4.04	-7.50	16,019.45	0.05%	0.19%	-0.35%
Catalent Inc	CTLT	179.21	103.06	n/a	21.00	18,469.69	0.05%		1.13%
Fortive Corp	FTV	358.45	61.77	0.45	12.00	22,141.33	0.06%	0.03%	0.77%
Hershey Co/The	HSY	145.99	211.71	1.70	6.50	30,907.75	0.09%	0.15%	0.59%
Synchrony Financial	SYF	501.49	37.04	2.38	9.50	18,575.15	0.05%	0.13%	0.51%
Hormel Foods Corp	HRL	545.00	48.67	2.14	6.50	26,525.05	0.08%	0.17%	0.50%
Arthur J Gallagher & Co	AJG	210.07	161.94	1.26	16.50	34,018.41	0.10%	0.12%	1.64%
Mondelez International Inc	MDLZ	1383.92	63.56	2.20	9.50	87,962.21	0.26%	0.57%	2.44%
CenterPoint Energy Inc	CNP	629.43	32.05	2.12	5.00	20,173.30	0.06%	0.12%	0.29%
Humana Inc	HUM	126.49	454.23	0.69	11.00	57,456.92	0.17%	0.12%	1.84%
Willis Towers Watson PLC	WTW	111.49	211.07	1.55	8.00	23,531.77	0.07%	0.11%	0.55%
Illinois Tool Works Inc	ITW	311.44	208.07	2.35	11.00	64,801.95	0.19%	0.44%	2.08%
CDW Corp/DE	CDW	135.12	169.86	1.18	11.00	22,950.80	0.07%	0.08%	0.74%
Trane Technologies PLC	TT	233.86	138.06	1.94		0.00	0.00%	0.00%	
Interpublic Group of Cos Inc/The	IPG	393.66	32.23	3.60	12.00	12,687.79	0.04%	0.13%	0.44%
International Flavors & Fragrances Inc	IFF	254.84	132.17	2.39	7.50	33,681.94	0.10%	0.23%	0.74%
Jacobs Engineering Group Inc	J	128.63	140.09	0.66	15.00	18,019.36	0.05%	0.03%	0.79%
Generac Holdings Inc	GNRC	63.83	247.08	n/a	23.50	15,771.12	0.05%		1.08%
NXP Semiconductors NV	NXPI	262.57	189.76	1.78	12.00	49,824.33	0.15%	0.26%	1.74%
Kellogg Co	K	337.87	69.74	3.33	3.50	23,563.26	0.07%	0.23%	0.24%
Broadridge Financial Solutions Inc	BR	117.23	146.22	1.75	9.00	17,140.93	0.05%	0.09%	0.45%
Kimberly-Clark Corp	KMB	336.93	133.02	3.49	5.50	44,817.76	0.13%	0.46%	0.72%
Kimco Realty Corp	KIM	618.01	23.65	3.38	8.50	14,615.87	0.04%	0.14%	0.36%
Oracle Corp	ORCL	2668.16	71.92	1.78	9.00	191,893.85	0.56%	1.00%	5.04%
Kroger Co/The	KR	720.94	52.97	1.59	6.50	38,188.09	0.11%	0.18%	0.72%
Lennar Corp	LEN	258.62	80.25	1.87	8.50	20,754.34	0.06%	0.11%	0.51%
Eli Lilly & Co	LLY	950.16	313.44	1.25	11.50	297,818.15	0.87%	1.09%	9.99%
Bath & Body Works Inc	BBWI	238.49	41.02	1.95	26.50	9,782.86	0.03%	0.06%	0.76%
Charter Communications Inc	CHTR	160.73	506.93	n/a	21.50	81,476.83	0.24%		5.11%
Lincoln National Corp	LNC	171.95	57.93	3.11	11.50	9,960.89	0.03%	0.09%	0.33%
Loews Corp	L	246.11	65.49	0.38	16.00	16,117.61	0.05%	0.02%	0.75%



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Lowe's Cos Inc	LOW	639.13	195.30	2.15	15.50	124,821.89	0.36%	0.78%	5.64%
IDEX Corp	IEX	76.01	191.55	1.25	10.00	14,558.95	0.04%	0.05%	0.42%
Marsh & McLennan Cos Inc	MMC	502.71	159.95	1.34	11.50	80,407.82	0.23%	0.31%	2.70%
Masco Corp	MAS	235.94	56.69	1.98	9.00	13,375.44	0.04%	0.08%	0.35%
S&P Global Inc	SPGI	339.90	349.48	0.97	9.50	118,788.25	0.35%	0.34%	3.29%
Medtronic PLC	MDT	1330.74	100.15	2.72	8.50	133,273.91	0.39%	1.06%	3.30%
Viatis Inc	VTRS	1212.33	12.27	3.91		0.00	0.00%	0.00%	
CVS Health Corp	CVS	1311.31	96.75	2.27	6.00	126,869.15	0.37%	0.84%	2.22%
DuPont de Nemours Inc	DD	508.53	67.85	1.95		0.00	0.00%	0.00%	
Micron Technology Inc	MU	1116.67	73.84	0.54	24.00	82,454.69	0.24%	0.13%	5.77%
Motorola Solutions Inc	MSI	167.30	219.74	1.44	8.00	36,761.84	0.11%	0.15%	0.86%
Cboe Global Markets Inc	CBOE	106.19	112.31	1.71	10.00	11,926.09	0.03%	0.06%	0.35%
Laboratory Corp of America Holdings	LH	93.18	246.72	1.17	6.00	22,988.38	0.07%	0.08%	0.40%
Newmont Corp	NEM	793.65	67.85	3.24	9.50	53,849.22	0.16%	0.51%	1.49%
NIKE Inc	NKE	1268.76	118.85	1.03	24.00	150,792.13	0.44%	0.45%	10.56%
NISource Inc	NI	405.80	31.45	2.99	9.50	12,762.35	0.04%	0.11%	0.35%
Norfolk Southern Corp	NSC	238.33	239.66	2.07	10.00	57,118.89	0.17%	0.34%	1.67%
Principal Financial Group Inc	PFJ	252.68	72.93	3.51	6.00	18,428.24	0.05%	0.19%	0.32%
Eversource Energy	ES	344.88	92.32	2.76	6.00	31,839.14	0.09%	0.26%	0.56%
Northrop Grumman Corp	NOC	155.45	467.97	1.48	7.50	72,743.60	0.21%	0.31%	1.59%
Wells Fargo & Co	WFC	3790.35	45.77	2.18	7.50	173,484.41	0.51%	1.11%	3.80%
Nucor Corp	NUE	266.00	132.46	1.51	10.00	35,234.36	0.10%	0.16%	1.03%
PVH Corp	PVH	67.52	70.87	0.21	13.50	4,785.28	0.01%	0.00%	0.19%
Occidental Petroleum Corp	OXY	937.19	69.31	0.75		0.00	0.00%	0.00%	
Omnicom Group Inc	OMC	205.73	74.61	3.75	6.00	15,349.74	0.04%	0.17%	0.27%
ONEOK Inc	OKE	446.62	65.85	5.68	11.00	29,409.66	0.09%	0.49%	0.94%
Raymond James Financial Inc	RJF	208.25	98.49	1.38	10.50	20,510.44	0.06%	0.08%	0.63%
Parker-Hannifin Corp	PH	128.37	272.17	1.95	12.50	34,939.01	0.10%	0.20%	1.27%
Rollins Inc	ROL	492.46	35.46	1.13	10.50	17,462.67	0.05%	0.06%	0.53%
PPL Corp	PPL	735.90	30.18	2.65		0.00	0.00%	0.00%	
ConocoPhillips	COP	1293.45	112.36	1.64	20.00	145,332.04	0.42%	0.69%	8.48%
PulteGroup Inc	PHM	237.63	45.26	1.33	9.50	10,755.00	0.03%	0.04%	0.30%
Pinnacle West Capital Corp	PNW	113.00	77.65	4.38	1.50	8,774.53	0.03%	0.11%	0.04%
PNC Financial Services Group Inc/The	PNC	413.58	175.41	3.42	11.50	72,546.24	0.21%	0.72%	2.43%
PPG Industries Inc	PPG	236.15	126.49	1.87	4.00	29,870.36	0.09%	0.16%	0.35%
Progressive Corp/The	PGR	584.88	119.38	0.34	4.50	69,822.62	0.20%	0.07%	0.92%
Public Service Enterprise Group Inc	PEG	499.26	68.54	3.15	4.00	34,219.21	0.10%	0.31%	0.40%
Robert Half International Inc	RHI	110.51	90.15	1.91	7.50	9,962.84	0.03%	0.06%	0.22%
Edison International	EIX	381.20	69.91	4.01		0.00	0.00%	0.00%	
Schlumberger NV	SLB	1413.46	45.96	1.52	23.00	64,962.67	0.19%	0.29%	4.36%
Charles Schwab Corp/The	SCHW	1817.06	70.10	1.14	9.00	127,375.70	0.37%	0.42%	3.34%
Sherwin-Williams Co/The	SHW	260.13	268.04	0.90	11.50	69,725.51	0.20%	0.18%	2.34%
West Pharmaceutical Services Inc	WST	74.08	310.38	0.23	17.00	22,991.71	0.07%	0.02%	1.14%
J M Smucker Co/The	SJM	108.46	125.37	3.16	4.00	13,597.38	0.04%	0.13%	0.16%
Snap-on Inc	SNA	53.37	221.88	2.56	4.50	11,842.62	0.03%	0.09%	0.16%
AMETEK Inc	AME	230.91	121.47	0.72	10.00	28,048.64	0.08%	0.06%	0.82%
Southern Co/The	SO	1062.53	75.66	3.60	6.50	80,390.64	0.23%	0.84%	1.52%
Truist Financial Corp	TFC	1331.41	49.74	3.86	7.00	66,224.53	0.19%	0.75%	1.35%
Southwest Airlines Co	LUV	592.96	45.86	n/a	29.50	27,192.96	0.08%		2.34%
W R Berkley Corp	WRB	265.19	71.13	0.49	15.50	18,863.18	0.06%	0.03%	0.85%
Stanley Black & Decker Inc	SWK	150.97	118.69	2.66	6.00	17,918.04	0.05%	0.14%	0.31%
Public Storage	PSA	175.53	330.64	2.42	8.00	58,036.91	0.17%	0.41%	1.35%
Arista Networks Inc	ANET	308.26	102.28	n/a	4.50	31,529.24	0.09%		0.41%
Sysco Corp	SY	509.48	84.18	2.33	17.50	42,887.69	0.13%	0.29%	2.19%
Corteva Inc	CTVA	725.32	62.62	0.89		0.00	0.00%	0.00%	
Texas Instruments Inc	TXN	922.13	176.76	2.60	8.50	162,996.41	0.48%	1.24%	4.04%
Textron Inc	TXT	215.08	65.29	0.12	8.50	14,042.77	0.04%	0.01%	0.35%
Thermo Fisher Scientific Inc	TMO	391.46	567.57	0.21	15.50	222,182.09	0.65%	0.14%	10.05%
TJX Cos Inc/The	TJX	1171.64	63.57	1.86	20.00	74,480.90	0.22%	0.40%	4.34%

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Globe Life Inc	GL	98.60	97.57	0.85	8.00	9,620.40	0.03%	0.02%	0.22%
Johnson Controls International plc	JCI	695.67	54.51	2.57	14.00	37,920.92	0.11%	0.28%	1.55%
Ulta Beauty Inc	ULTA	51.82	423.10	n/a	15.00	21,924.20	0.06%		0.96%
Union Pacific Corp	UNP	628.03	219.78	2.37	9.50	138,027.33	0.40%	0.95%	3.82%
Keysight Technologies Inc	KEYS	179.90	145.60	n/a	13.00	26,193.44	0.08%		0.99%
UnitedHealth Group Inc	UNH	938.17	496.78	1.17	12.00	466,065.09	1.36%	1.59%	16.31%
Marathon Oil Corp	MRO	707.69	31.43	1.02		0.00	0.00%	0.00%	
Bio-Rad Laboratories Inc	BIO	24.88	537.79	n/a	11.50	13,378.60	0.04%		0.45%
Ventas Inc	VTR	399.70	56.74	3.17	10.50	22,678.75	0.07%	0.21%	0.69%
VF Corp	VFC	388.32	50.46	3.96	9.50	19,594.78	0.06%	0.23%	0.54%
Vornado Realty Trust	VNO	191.74	34.96	6.06	-19.00	6,703.34	0.02%	0.12%	-0.37%
Vulcan Materials Co	VMC	132.90	164.87	0.97	8.50	21,910.56	0.06%	0.06%	0.54%
Weyerhaeuser Co	WY	744.50	39.52	1.82	22.00	29,422.56	0.09%	0.16%	1.89%
Whirlpool Corp	WHR	56.20	184.24	3.80	9.50	10,354.66	0.03%	0.11%	0.29%
Williams Cos Inc/The	WMB	1218.01	37.06	4.59	8.50	45,139.52	0.13%	0.60%	1.12%
Constellation Energy Corp	CEG	326.66	62.08	0.91		0.00	0.00%	0.00%	
WEC Energy Group Inc	WEC	315.44	105.07	2.77	6.00	33,142.76	0.10%	0.27%	0.58%
Adobe Inc	ADBE	472.50	416.48	n/a	14.50	196,786.80	0.57%		8.32%
AES Corp/The	AES	667.86	22.04	2.87	14.00	14,719.63	0.04%	0.12%	0.60%
Amgen Inc	AMGN	534.20	256.74	3.02	5.50	137,150.51	0.40%	1.21%	2.20%
Apple Inc	AAPL	16185.18	148.84	0.62	14.00	2,409,002.34	7.03%	4.34%	98.37%
Autodesk Inc	ADSK	217.53	207.75	n/a	14.00	45,191.23	0.13%		1.85%
Cintas Corp	CTAS	102.33	398.33	0.95	13.50	40,759.12	0.12%	0.11%	1.60%
Comcast Corp	CMCSA	4470.57	44.28	2.44	10.50	197,956.84	0.58%	1.41%	6.06%
Molson Coors Beverage Co	TAP	200.53	55.84	2.72	49.50	11,197.43	0.03%	0.09%	1.62%
KLA Corp	KLAC	149.24	364.85	1.15	21.00	54,448.39	0.16%	0.18%	3.34%
Marriott International Inc/MD	MAR	327.30	171.58	0.70	17.50	56,157.79	0.16%	0.11%	2.87%
McCormick & Co Inc/MD	MKC	250.23	92.72	1.60	6.00	23,200.95	0.07%	0.11%	0.41%
PACCAR Inc	PCAR	347.68	86.84	1.57	5.00	30,192.79	0.09%	0.14%	0.44%
Costco Wholesale Corp	COST	443.03	466.22	0.77	10.50	206,548.98	0.60%	0.47%	6.33%
First Republic Bank/CA	FRC	179.68	155.03	0.70	11.00	27,856.41	0.08%	0.06%	0.89%
Stryker Corp	SYK	378.15	234.50	1.19	8.50	88,677.11	0.26%	0.31%	2.20%
Tyson Foods Inc	TSN	291.54	89.61	2.05	6.00	26,124.81	0.08%	0.16%	0.46%
Lamb Weston Holdings Inc	LW	144.45	67.58	1.45	5.00	9,761.73	0.03%	0.04%	0.14%
Applied Materials Inc	AMAT	869.95	117.29	0.89	14.50	102,036.08	0.30%	0.26%	4.32%
American Airlines Group Inc	AAL	649.52	17.87	n/a		0.00	0.00%		
Cardinal Health Inc	CAH	272.43	56.32	3.52	5.00	15,343.09	0.04%	0.16%	0.22%
Cerner Corp	CERN	294.10	94.85	1.14	10.00	27,895.20	0.08%	0.09%	0.81%
Cincinnati Financial Corp	CINF	160.36	127.86	2.16	7.00	20,502.99	0.06%	0.13%	0.42%
Paramount Global	PARA	608.40	34.33	2.80	4.50	20,886.20	0.06%	0.17%	0.27%
DR Horton Inc	DHI	352.03	75.15	1.20	11.00	26,455.05	0.08%	0.09%	0.85%
Electronic Arts Inc	EA	279.89	138.65	0.55	9.00	38,807.30	0.11%	0.06%	1.02%
Expeditors International of Washington Inc	EXPD	167.75	108.84	1.23	10.00	18,258.35	0.05%	0.07%	0.53%
Fastenal Co	FAST	575.55	53.56	2.32	8.50	30,826.67	0.09%	0.21%	0.76%
M&T Bank Corp	MTB	179.42	179.97	2.67	8.00	32,289.68	0.09%	0.25%	0.75%
Xcel Energy Inc	XEL	544.65	75.34	2.59	6.00	41,034.16	0.12%	0.31%	0.72%
Fiserv Inc	FISV	646.39	100.18	n/a	11.00	64,755.75	0.19%		2.08%
Fifth Third Bancorp	FITB	686.09	39.43	3.04	11.00	27,052.41	0.08%	0.24%	0.87%
Gilead Sciences Inc	GILD	1254.31	64.85	4.50	13.50	81,342.20	0.24%	1.07%	3.20%
Hasbro Inc	HAS	139.44	89.75	3.12	11.50	12,514.92	0.04%	0.11%	0.42%
Huntington Bancshares Inc/OH	HBAN	1439.18	13.88	4.47	12.50	19,975.75	0.06%	0.26%	0.73%
Welltower Inc	WELL	453.97	89.09	2.74	3.50	40,444.01	0.12%	0.32%	0.41%
Biogen Inc	BIIB	146.45	200.00	n/a	-10.50	29,290.40	0.09%		-0.90%
Northern Trust Corp	NTRS	208.38	111.75	2.51	8.00	23,286.47	0.07%	0.17%	0.54%
Packaging Corp of America	PKG	93.70	157.28	3.18	9.00	14,737.29	0.04%	0.14%	0.39%
Paychex Inc	PAYX	361.02	123.83	2.55	9.50	44,704.74	0.13%	0.33%	1.24%
QUALCOMM Inc	QCOM	1120.00	143.22	2.09		0.00	0.00%	0.00%	
Roper Technologies Inc	ROP	105.91	442.44	0.56	19.00	46,860.15	0.14%	0.08%	2.60%
Ross Stores Inc	ROST	351.39	85.02	1.46	8.50	29,875.35	0.09%	0.13%	0.74%

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IDEXX Laboratories Inc	IDXX	84.01	391.62	n/a	14.00	32,898.82	0.10%		1.34%
Starbucks Corp	SBUX	1146.90	78.50	2.50	12.00	90,031.65	0.26%	0.66%	3.15%
KeyCorp	KEY	932.47	19.96	3.91	16.50	18,612.12	0.05%	0.21%	0.90%
Fox Corp	FOXA	311.68	35.51	1.35	9.50	11,067.90	0.03%	0.04%	0.31%
Fox Corp	FOX	245.07	32.71	1.47	10.50	8,016.08	0.02%	0.03%	0.25%
State Street Corp	STT	367.12	72.49	3.15		0.00	0.00%	0.00%	
Norwegian Cruise Line Holdings Ltd	NCLH	419.10	16.01	n/a	9.50	6,709.81	0.02%		0.19%
US Bancorp	USB	1485.74	53.07	3.47		0.00	0.00%	0.00%	
A O Smith Corp	AOS	130.04	60.12	1.86	6.00	7,817.76	0.02%	0.04%	0.14%
NortonLifeLock Inc	NLOK	577.06	24.34	2.05	11.00	14,045.57	0.04%	0.08%	0.45%
T Rowe Price Group Inc	TROW	227.30	127.09	3.78	9.50	28,887.18	0.08%	0.32%	0.80%
Waste Management Inc	WM	415.16	158.51	1.64	9.50	65,807.01	0.19%	0.31%	1.82%
Constellation Brands Inc	STZ	162.76	245.47	1.30	6.50	39,953.43	0.12%	0.15%	0.76%
DENTSPLY SIRONA Inc	XRAY	215.45	39.56	1.26	5.00	8,523.28	0.02%	0.03%	0.12%
Zions Bancorp NA	ZION	151.36	57.04	2.66	12.00	8,633.52	0.03%	0.07%	0.30%
Alaska Air Group Inc	ALK	126.09	48.26	n/a	7.50	6,085.20	0.02%		0.13%
Invesco Ltd	IVZ	455.03	19.34	3.88		0.00	0.00%	0.00%	
Linde PLC	LIN	501.93	324.68	1.44	15.50	162,965.33	0.48%	0.69%	7.37%
Intuit Inc	INTU	282.08	414.46	0.66	12.00	116,909.63	0.34%	0.22%	4.09%
Morgan Stanley	MS	1749.28	86.14	3.25	17.50	150,683.32	0.44%	1.43%	7.69%
Microchip Technology Inc	MCHP	554.50	72.65	1.52	10.50	40,284.50	0.12%	0.18%	1.23%
Chubb Ltd	CB	423.71	211.29	1.57	10.00	89,525.90	0.26%	0.41%	2.61%
Hologic Inc	HOLX	249.38	75.27	n/a	11.00	18,770.91	0.05%		0.60%
Citizens Financial Group Inc	CFG	495.45	41.38	3.77	25.00	20,501.56	0.06%	0.23%	1.49%
O'Reilly Automotive Inc	ORLY	65.73	637.17	n/a	8.50	41,878.00	0.12%		1.04%
Allstate Corp/The	ALL	274.98	136.69	2.49	13.00	37,587.43	0.11%	0.27%	1.43%
Equity Residential	EQR	376.04	76.83	3.25	4.50	28,891.31	0.08%	0.27%	0.38%
BorgWarner Inc	BWA	239.58	40.32	1.69	-2.00	9,659.66	0.03%	0.05%	-0.06%
Organon & Co	OGN	253.64	37.96	2.95	9.50	9,628.06	0.03%	0.08%	0.27%
Host Hotels & Resorts Inc	HST	714.78	19.99	1.20		0.00	0.00%	0.00%	
Incyte Corp	INCY	221.51	75.89	n/a	8.50	16,810.01	0.05%		0.42%
Simon Property Group Inc	SPG	328.64	114.65	5.93	25.50	37,678.46	0.11%	0.65%	2.80%
Eastman Chemical Co	EMN	128.95	110.16	2.76	2.50	14,205.13	0.04%	0.11%	0.10%
Twitter Inc	TWTR	764.18	39.60	n/a	9.50	30,261.57	0.09%		0.84%
AvalonBay Communities Inc	AVB	139.82	207.96	3.06		0.00	0.00%	0.00%	
Prudential Financial Inc	PRU	375.00	106.25	4.52	6.50	39,843.75	0.12%	0.53%	0.76%
United Parcel Service Inc	UPS	734.44	182.25	3.34	5.50	133,851.33	0.39%	1.30%	2.15%
Walgreens Boots Alliance Inc	WBA	863.77	43.83	4.36	11.50	37,859.17	0.11%	0.48%	1.27%
STERIS PLC	STE	100.08	228.20	0.75	7.50	22,838.26	0.07%	0.05%	0.50%
McKesson Corp	MCK	145.37	328.69	0.57	11.50	47,780.02	0.14%	0.08%	1.60%
Lockheed Martin Corp	LMT	266.11	440.11	2.54	10.00	117,116.35	0.34%	0.87%	3.42%
AmerisourceBergen Corp	ABC	209.46	154.79	1.19	7.00	32,422.93	0.09%	0.11%	0.66%
Capital One Financial Corp	COF	393.05	127.86	1.88	8.50	50,255.50	0.15%	0.28%	1.25%
Waters Corp	WAT	60.24	327.95	n/a		0.00	0.00%		
Nordson Corp	NDSN	57.51	217.88	0.94	6.00	12,530.71	0.04%	0.03%	0.22%
Dollar Tree Inc	DLTR	224.56	160.33	n/a	12.00	36,003.06	0.11%		1.26%
Darden Restaurants Inc	DRI	124.73	125.00	3.52	12.00	15,591.75	0.05%	0.16%	0.55%
Match Group Inc	MTCH	285.59	78.78	n/a	19.50	22,499.02	0.07%		1.28%
Domino's Pizza Inc	DPZ	36.05	363.17	1.21	21.00	13,090.46	0.04%	0.05%	0.80%
NVR Inc	NVR	3.29	4450.62	n/a	15.50	14,642.54	0.04%		0.66%
NetApp Inc	NTAP	222.54	71.95	2.78	5.50	16,011.47	0.05%	0.13%	0.26%
Citrix Systems Inc	CTXS	126.58	100.69	n/a	8.00	12,745.34	0.04%		0.30%
DXC Technology Co	DXC	230.68	35.22	n/a	7.50	8,124.69	0.02%		0.18%
Old Dominion Freight Line Inc	ODFL	113.35	258.24	0.46	5.00	29,272.54	0.09%	0.04%	0.43%
DaVita Inc	DVA	94.60	97.49	n/a	12.00	9,222.55	0.03%		0.32%
Hartford Financial Services Group Inc/The	HIG	328.87	72.51	2.12	12.00	23,846.00	0.07%	0.15%	0.83%
Iron Mountain Inc	IRM	290.56	53.90	4.59	6.50	15,661.29	0.05%	0.21%	0.30%
Estee Lauder Cos Inc/The	EL	231.81	254.65	0.94	11.00	59,029.14	0.17%	0.16%	1.89%
Cadence Design Systems Inc	CDNS	275.76	153.73	n/a	14.00	42,392.43	0.12%		1.73%

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Tyler Technologies Inc	TYL	41.47	355.82	n/a	12.00	14,757.28	0.04%		0.52%
Universal Health Services Inc	UHS	67.13	124.61	0.64	14.00	8,364.82	0.02%	0.02%	0.34%
Skyworks Solutions Inc	SWKS	160.93	108.87	2.06	9.00	17,520.01	0.05%	0.11%	0.46%
Quest Diagnostics Inc	DGX	117.37	141.02	1.87	15.50	16,550.81	0.05%	0.09%	0.75%
Activision Blizzard Inc	ATVI	781.88	77.88	0.60	7.00	60,892.89	0.18%	0.11%	1.24%
Rockwell Automation Inc	ROK	116.26	213.20	2.10	14.00	24,787.06	0.07%	0.15%	1.01%
Kraft Heinz Co/The	KHC	1223.95	37.83	4.23	10.00	46,302.10	0.14%	0.57%	1.35%
American Tower Corp	AMT	456.28	256.13	2.23	5.50	116,867.76	0.34%	0.76%	1.87%
Regeneron Pharmaceuticals Inc	REGN	108.03	664.74	n/a	9.00	71,810.53	0.21%		1.89%
Amazon.com Inc	AMZN	508.72	2404.19	n/a	3.00	1,223,059.54	3.57%		10.70%
Jack Henry & Associates Inc	JKHY	72.86	188.12	1.04	26.50	13,706.80	0.04%	0.04%	1.06%
Ralph Lauren Corp	RL	45.19	101.09	2.97	10.50	4,568.66	0.01%	0.04%	0.14%
Boston Properties Inc	BXP	156.71	111.18	3.53	11.50	17,423.24	0.05%	0.18%	0.58%
Amphenol Corp	APH	597.14	70.86	1.13	-1.50	42,313.27	0.12%	0.14%	-0.19%
Howmet Aerospace Inc	HWM	417.91	35.77	0.22	12.00	14,948.78	0.04%	0.01%	0.52%
Pioneer Natural Resources Co	PXD	241.96	277.94	10.62	12.00	67,250.08	0.20%	2.08%	2.35%
Valero Energy Corp	VLO	408.10	129.60	3.02	23.00	52,889.24	0.15%	0.47%	3.55%
Synopsys Inc	SNPS	152.97	319.20	n/a	11.00	48,828.02	0.14%		1.57%
Etsy Inc	ETSY	127.12	81.12	n/a	12.50	10,311.89	0.03%		0.38%
CH Robinson Worldwide Inc	CHRW	127.27	108.51	2.03	24.50	13,809.63	0.04%	0.08%	0.99%
Accenture PLC	ACN	662.43	298.46	1.30	8.00	197,710.05	0.58%	0.75%	4.61%
TransDigm Group Inc	TDG	54.59	605.37	n/a	12.50	33,044.12	0.10%		1.20%
Yum! Brands Inc	YUM	285.16	121.47	1.88	18.00	34,638.87	0.10%	0.19%	1.82%
Prologis Inc	PLD	739.75	127.48	2.48	10.50	94,302.69	0.28%	0.68%	2.89%
FirstEnergy Corp	FE	570.93	42.96	3.63	6.00	24,527.24	0.07%	0.26%	0.43%
VeriSign Inc	VRSN	109.55	174.55	n/a	7.50	19,121.08	0.06%		0.42%
Quanta Services Inc	PWR	143.71	119.00	0.24	8.50	17,101.37	0.05%	0.01%	0.42%
Henry Schein Inc	HSIC	138.05	85.64	n/a	16.50	11,822.69	0.03%		0.57%
Ameren Corp	AEE	258.09	95.19	2.48	7.00	24,567.78	0.07%	0.18%	0.50%
ANSYS Inc	ANSS	86.99	260.36	n/a	6.50	22,648.72	0.07%		0.43%
FactSet Research Systems Inc	FDS	37.90	381.78	0.93	9.00	14,468.32	0.04%	0.04%	0.38%
NVIDIA Corp	NVDA	2500.00	186.72	0.09	10.50	466,800.00	1.36%	0.12%	14.30%
Sealed Air Corp	SEE	146.08	62.18	1.29	21.50	9,083.50	0.03%	0.03%	0.57%
Cognizant Technology Solutions Corp	CTSH	521.17	74.70	1.45	13.50	38,931.70	0.11%	0.16%	1.53%
SVB Financial Group	SIVB	58.85	488.57	n/a	7.00	28,752.83	0.08%		0.59%
Intuitive Surgical Inc	ISRG	358.96	227.64	n/a	6.00	81,712.97	0.24%		1.43%
Take-Two Interactive Software Inc	TTWO	161.98	124.53	n/a	12.50	20,171.62	0.06%		0.74%
Republic Services Inc	RSG	315.89	133.84	1.37	12.50	42,278.85	0.12%	0.17%	1.54%
eBay Inc	EBAY	559.84	48.67	1.81	12.50	27,247.51	0.08%	0.14%	0.99%
Goldman Sachs Group Inc/The	GS	343.45	326.85	2.45	15.50	112,255.65	0.33%	0.80%	5.08%
SBA Communications Corp	SBAC	107.83	336.61	0.84	5.00	36,296.32	0.11%	0.09%	0.53%
Sempra Energy	SRE	314.31	163.86	2.80	35.50	51,502.02	0.15%	0.42%	5.33%
Moody's Corp	MCO	184.50	301.57	0.93	11.50	55,639.67	0.16%	0.15%	1.87%
Booking Holdings Inc	BKNG	40.62	2243.56	n/a	8.00	91,140.14	0.27%		2.13%
FS Inc	FFIV	60.47	163.04	n/a	14.00	9,859.35	0.03%		0.40%
Akamai Technologies Inc	AKAM	160.31	101.04	n/a	7.00	16,197.22	0.05%		0.33%
Charles River Laboratories International Inc	CRL	50.81	234.08	n/a	9.50	11,892.43	0.03%		0.33%
MarketAxess Holdings Inc	MKTX	37.74	281.68	0.99	12.00	10,631.17	0.03%	0.03%	0.37%
Devon Energy Corp	DEVN	660.00	74.90	6.78	11.50	49,434.00	0.14%	0.98%	1.66%
Alphabet Inc	GOOGL	300.76	2275.24	n/a	30.00	684,310.28	2.00%		59.88%
Bio-Techne Corp	TECH	39.23	369.73	0.35		0.00	0.00%	0.00%	
Teleflex Inc	TFX	46.90	287.74	0.47	17.50	13,495.01	0.04%	0.02%	0.69%
Netflix Inc	NFLX	444.27	197.44	n/a	13.50	87,717.46	0.26%		3.45%
Allegion plc	ALLE	87.81	111.65	1.47	12.50	9,803.43	0.03%	0.04%	0.36%
Agilent Technologies Inc	A	298.71	127.56	0.66	10.50	38,103.19	0.11%	0.07%	1.17%
Warner Bros Discovery Inc	WBD	2426.84	18.45	n/a	11.50	44,775.27	0.13%		1.50%
Anthem Inc	ANTM	241.09	509.61	1.00	12.50	122,859.33	0.36%	0.36%	4.48%
Trimble Inc	TRMB	250.14	68.05	n/a	10.00	17,022.16	0.05%		0.50%
CME Group Inc	CME	359.42	198.83	2.01	7.50	71,463.08	0.21%	0.42%	1.56%

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Juniper Networks Inc	JNPR	323.10	30.68	2.74	9.00	9,912.55	0.03%	0.08%	0.26%
BlackRock Inc	BLK	151.50	669.08	2.92	10.00	101,367.63	0.30%	0.86%	2.96%
DTE Energy Co	DTE	193.74	132.71	2.67	4.50	25,711.50	0.07%	0.20%	0.34%
Nasdaq Inc	NDAQ	164.68	155.26	1.55	6.00	25,567.91	0.07%	0.12%	0.45%
Celanese Corp	CE	108.31	156.52	1.74	9.50	16,952.52	0.05%	0.09%	0.47%
Philip Morris International Inc	PM	1550.11	106.25	4.71	7.00	164,699.19	0.48%	2.26%	3.36%
Salesforce Inc	CRM	993.92	160.24	n/a	16.50	159,265.26	0.46%		7.67%
Ingersoll Rand Inc	IR	405.93	47.15	0.17		0.00	0.00%	0.00%	
Huntington Ingalls Industries Inc	HII	40.05	210.46	2.24	10.00	8,428.29	0.02%	0.06%	0.25%
MetLife Inc	MET	813.21	67.39	2.97	7.50	54,801.95	0.16%	0.47%	1.20%
Under Armour Inc	UA	253.22	9.70	n/a		0.00	0.00%		
Tapestry Inc	TPR	251.80	34.50	2.90	10.00	8,687.17	0.03%	0.07%	0.25%
CSX Corp	CSX	2174.26	31.79	1.26	10.00	69,119.73	0.20%	0.25%	2.02%
Edwards Lifesciences Corp	EW	621.75	100.85	n/a	12.50	62,703.69	0.18%		2.29%
Ameriprise Financial Inc	AMP	109.90	276.27	1.81	15.00	30,363.18	0.09%	0.16%	1.33%
Zebra Technologies Corp	ZBRA	52.51	338.19	n/a	11.50	17,759.71	0.05%		0.60%
Zimmer Biomet Holdings Inc	ZBH	209.58	120.21	0.80	7.00	25,193.25	0.07%	0.06%	0.51%
CBRE Group Inc	CBRE	326.86	82.84	n/a	8.50	27,077.17	0.08%		0.67%
Camden Property Trust	CPT	106.52	143.49	2.62	13.50	15,284.70	0.04%	0.12%	0.60%
Mastercard Inc	MA	964.92	357.87	0.55	13.00	345,316.28	1.01%	0.55%	13.09%
CarMax Inc	KMX	160.54	99.27	n/a	6.50	15,936.61	0.05%		0.30%
Intercontinental Exchange Inc	ICE	558.27	102.39	1.48	52.00	57,160.86	0.17%	0.25%	8.67%
Fidelity National Information Services Inc	FIS	610.77	104.50	1.80	16.50	63,825.57	0.19%	0.33%	3.07%
Chipotle Mexican Grill Inc	CMG	27.96	1402.55	n/a	27.00	39,218.10	0.11%		3.09%
Wynn Resorts Ltd	WYNN	115.97	66.10	n/a		0.00	0.00%		
Live Nation Entertainment Inc	LYV	228.06	95.05	n/a	14.00	21,677.48	0.06%		0.89%
Assurant Inc	AIZ	54.09	176.69	1.54	-10.50	9,556.28	0.03%	0.04%	-0.29%
NRG Energy Inc	NRG	237.28	46.04	3.04	10.50	10,924.56	0.03%	0.10%	0.33%
Regions Financial Corp	RF	934.50	22.09	3.08	11.50	20,643.11	0.06%	0.19%	0.69%
Monster Beverage Corp	MNST	529.67	89.12	n/a	56.50	47,204.28	0.14%		7.78%
Mosaic Co/The	MOS	361.99	62.65	0.96		0.00	0.00%	0.00%	
Baker Hughes Co	BKR	984.58	35.98	2.00		0.00	0.00%	0.00%	
Expedia Group Inc	EXPE	151.57	129.33	n/a	7.50	19,603.07	0.06%		0.43%
Evergy Inc	EVERG	229.48	69.94	3.27		0.00	0.00%	0.00%	
CF Industries Holdings Inc	CF	208.60	98.77	1.62	19.50	20,603.62	0.06%	0.10%	1.17%
Leidos Holdings Inc	LDOS	136.66	104.50	1.38	9.00	14,281.18	0.04%	0.06%	0.37%
APA Corp	APA	338.23	47.01	1.06		0.00	0.00%	0.00%	
Alphabet Inc	GOOG	313.38	2280.78	n/a	18.50	714,741.71	2.08%		38.57%
TE Connectivity Ltd	TEL	322.17	129.39	1.73	10.50	41,686.09	0.12%	0.21%	1.28%
Cooper Cos Inc/The	COO	49.30	350.74	0.02	16.00	17,292.18	0.05%	0.00%	0.81%
Discover Financial Services	DFS	280.97	113.49	2.11	16.00	31,886.72	0.09%	0.20%	1.49%
Visa Inc	V	1645.72	212.17	0.71	13.50	349,172.20	1.02%	0.72%	13.75%
Mid-America Apartment Communities Inc	MAA	115.43	181.00	2.76	8.50	20,892.47	0.06%	0.17%	0.52%
Xylem Inc/NY	XYL	180.09	84.25	1.42	6.50	15,172.84	0.04%	0.06%	0.29%
Marathon Petroleum Corp	MPC	541.00	101.79	2.28		0.00	0.00%	0.00%	
Tractor Supply Co	TSCO	111.88	187.36	1.96	14.50	20,962.21	0.06%	0.12%	0.89%
Advanced Micro Devices Inc	AMD	1620.51	101.86	n/a	17.50	165,064.94	0.48%		8.43%
ResMed Inc	RMD	146.29	203.46	0.83	8.50	29,763.15	0.09%	0.07%	0.74%
Mettler-Toledo International Inc	MTD	22.68	1286.12	n/a	13.50	29,169.20	0.09%		1.15%
Copart Inc	CPRT	237.67	114.53	n/a	12.00	27,220.69	0.08%		0.95%
Albermarle Corp	ALB	117.11	260.42	0.61	15.00	30,498.57	0.09%	0.05%	1.33%
Fortinet Inc	FTNT	160.53	294.14	n/a	21.50	47,217.41	0.14%		2.96%
Moderna Inc	MRNA	397.76	145.33	n/a	-2.50	57,806.46	0.17%		-0.42%
Essex Property Trust Inc	ESS	65.33	283.85	3.10	-2.50	18,544.77	0.05%	0.17%	-0.14%
Realty Income Corp	O	601.60	68.22	4.34	3.50	41,041.02	0.12%	0.52%	0.42%
Westrock Co	WRK	254.85	48.49	2.06	17.00	12,357.77	0.04%	0.07%	0.61%
Westinghouse Air Brake Technologies Corp	WAB	182.65	94.46	0.64	9.00	17,252.93	0.05%	0.03%	0.45%
Pool Corp	POOL	40.07	398.62	1.00	19.00	15,974.30	0.05%	0.05%	0.89%
Western Digital Corp	WDC	313.17	60.69	n/a	20.50	19,006.17	0.06%		1.14%

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
PepsiCo Inc	PEP	1382.68	167.75	2.74	6.00	231,945.24	0.68%	1.86%	4.06%
Diamondback Energy Inc	FANG	177.55	152.02	8.03		0.00	0.00%	0.00%	
ServiceNow Inc	NOW	200.46	467.47	n/a	45.50	93,709.04	0.27%		12.44%
Church & Dwight Co Inc	CHD	242.77	90.06	1.17	8.00	21,863.96	0.06%	0.07%	0.51%
Duke Realty Corp	DRE	384.46	52.83	2.12	2.50	20,310.76	0.06%	0.13%	0.15%
Federal Realty Investment Trust	FRT	79.42	114.97	3.72	2.50	9,130.92	0.03%	0.10%	0.07%
MGM Resorts International	MGM	426.05	34.97	0.03	25.00	14,899.04	0.04%	0.00%	1.09%
American Electric Power Co Inc	AEP	513.54	102.03	3.06	6.50	52,396.89	0.15%	0.47%	0.99%
SolarEdge Technologies Inc	SEDG	55.39	272.79	n/a	19.50	15,109.02	0.04%		0.86%
PTC Inc	PTC	116.98	116.53	n/a	29.00	13,631.21	0.04%		1.15%
JB Hunt Transport Services Inc	JBHT	104.78	172.58	0.93	11.50	18,083.45	0.05%	0.05%	0.61%
Lam Research Corp	LRCX	138.72	520.03	1.15	17.00	72,135.96	0.21%	0.24%	3.58%
Mohawk Industries Inc	MHK	63.54	141.46	n/a	10.50	8,988.23	0.03%		0.28%
Pentair PLC	PNR	165.40	50.17	1.67	13.00	8,298.12	0.02%	0.04%	0.31%
Vertex Pharmaceuticals Inc	VRTX	255.76	268.65	n/a	18.50	68,708.85	0.20%		3.71%
Amcor PLC	AMCR	1502.77	13.10	3.66	15.00	19,686.25	0.06%	0.21%	0.86%
Meta Platforms Inc	FB	2293.52	193.64	n/a	16.00	444,117.02	1.30%		20.73%
T-Mobile US Inc	TMUS	1253.59	133.29	n/a	7.50	167,090.34	0.49%		3.66%
United Rentals Inc	URI	71.61	298.18	n/a	18.00	21,353.27	0.06%		1.12%
ABIOMED Inc	ABMD	45.56	263.70	n/a	7.50	12,015.23	0.04%		0.26%
Honeywell International Inc	HON	680.73	193.62	2.02	11.00	131,803.52	0.38%	0.78%	4.23%
Alexandria Real Estate Equities Inc	ARE	163.22	165.95	2.84	9.00	27,086.03	0.08%	0.22%	0.71%
Delta Air Lines Inc	DAL	641.06	41.69	n/a		0.00	0.00%		
Seagate Technology Holdings PLC	STX	214.84	84.67	3.31	16.00	18,190.84	0.05%	0.18%	0.85%
United Airlines Holdings Inc	UAL	326.73	47.63	n/a		0.00	0.00%		
News Corp	NWS	197.27	17.58	1.14		0.00	0.00%	0.00%	
Centene Corp	CNC	584.89	81.44	n/a	10.00	47,633.20	0.14%		1.39%
Martin Marietta Materials Inc	MLM	62.28	339.38	0.72	8.50	21,137.94	0.06%	0.04%	0.52%
Teradyne Inc	TER	160.20	109.26	0.40	8.50	17,503.78	0.05%	0.02%	0.43%
PayPal Holdings Inc	PYPL	1158.04	85.21	n/a	16.00	98,676.59	0.29%		4.61%
Tesla Inc	TSLA	1036.01	758.26	n/a	50.50	785,564.94	2.29%		115.71%
DISH Network Corp	DISH	291.56	22.83	n/a	2.00	6,656.31	0.02%		0.04%
Dow Inc	DOW	728.10	67.98	4.12		0.00	0.00%	0.00%	
Penn National Gaming Inc	PENN	166.80	31.96	n/a	28.00	5,331.02	0.02%		0.44%
Everest Re Group Ltd	RE	39.44	282.50	2.34	17.50	11,141.24	0.03%	0.08%	0.57%
Teledyne Technologies Inc	TDY	46.84	405.15	n/a	11.50	18,978.44	0.06%		0.64%
News Corp	NWSA	388.47	17.40	1.15		0.00	0.00%	0.00%	
Exelon Corp	EXC	980.14	49.15	2.75		0.00	0.00%	0.00%	
Global Payments Inc	GPV	281.54	131.04	0.76	17.00	36,893.00	0.11%	0.08%	1.83%
Crown Castle International Corp	CCI	433.03	189.65	3.10	12.00	82,124.52	0.24%	0.74%	2.87%
Aptiv PLC	APTIV	270.93	106.24	n/a	21.50	28,783.71	0.08%		1.81%
Advance Auto Parts Inc	AAP	60.64	189.86	3.16	16.00	11,513.11	0.03%	0.11%	0.54%
Align Technology Inc	ALGN	78.81	277.64	n/a	17.00	21,879.70	0.06%		1.08%
Illumina Inc	ILMN	157.10	239.48	n/a	6.50	37,622.31	0.11%		0.71%
LKQ Corp	LKQ	282.83	51.39	1.95	14.00	14,534.79	0.04%	0.08%	0.59%
Nielsen Holdings PLC	NLSN	359.69	25.56	0.94		0.00	0.00%	0.00%	
Zoetis Inc	ZTS	470.63	170.93	0.76	11.00	80,444.61	0.23%	0.18%	2.58%
Equinix Inc	EQIX	91.02	687.09	1.80	15.00	62,540.31	0.18%	0.33%	2.74%
Digital Realty Trust Inc	DLR	284.67	139.59	3.50	-3.50	39,737.36	0.12%	0.41%	-0.41%
Las Vegas Sands Corp	LVS	764.11	35.46	n/a	13.50	27,095.31	0.08%		1.07%
Molina Healthcare Inc	MOH	58.70	290.22	n/a	11.00	17,035.91	0.05%		0.55%

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Atmos Energy Corporation	ATO	3.02%	0.80	14.30%	9.26%	10.43%
New Jersey Resources Corporation	NJR	3.02%	0.95	14.30%	9.26%	11.82%
NiSource Inc.	NI	3.02%	0.85	14.30%	9.26%	10.90%
Northwest Natural Gas Company	NWN	3.02%	0.80	14.30%	9.26%	10.43%
ONE Gas, Inc.	OGS	3.02%	0.80	14.30%	9.26%	10.43%
Spire, Inc.	SR	3.02%	0.80	14.30%	9.26%	10.43%
Mean			0.83			10.74%

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Value Line, as of May 31, 2022  
[3] Source: JMC-5.1 SP500 MRP 1, 2, 3  
[4] Equals [3] - [1]  
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Atmos Energy Corporation	ATO	3.02%	0.774	14.30%	9.26%	10.20%
New Jersey Resources Corporation	NJR	3.02%	0.834	14.30%	9.26%	10.75%
NiSource Inc.	NI	3.02%	0.822	14.30%	9.26%	10.64%
Northwest Natural Gas Company	NWN	3.02%	0.739	14.30%	9.26%	9.87%
ONE Gas, Inc.	OGS	3.02%	0.824	14.30%	9.26%	10.66%
Spire, Inc.	SR	3.02%	0.796	14.30%	9.26%	10.40%
Mean			0.798			10.42%

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 5-Year Betas as of May 31, 2022  
[3] Source: JMC-5.1 SP500 MRP 1, 2, 3  
[4] Equals [3] - [1]  
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BETA  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
Atmos Energy Corporation	ATO	3.80%	0.80	14.30%	8.87%	10.90%
New Jersey Resources Corporation	NJR	3.80%	0.95	14.30%	8.87%	12.23%
NiSource Inc.	NI	3.80%	0.85	14.30%	8.87%	11.34%
Northwest Natural Gas Company	NWN	3.80%	0.80	14.30%	8.87%	10.90%
ONE Gas, Inc.	OGS	3.80%	0.80	14.30%	8.87%	10.90%
Spire, Inc.	SR	3.80%	0.80	14.30%	8.87%	10.90%
Mean			0.83			11.20%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2021, at 14

[2] Source: Value Line, as of May 31, 2022

[3] Source: JMC-5.1 SP500 MRP 1, 2, 3

[4] Equals [3] - [1]

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

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BET  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Company	Ticker					
Atmos Energy Corporation	ATO	3.80%	0.774	14.30%	8.87%	10.67%
New Jersey Resources Corporation	NJR	3.80%	0.834	14.30%	8.87%	11.20%
NiSource Inc.	NI	3.80%	0.822	14.30%	8.87%	11.10%
Northwest Natural Gas Company	NWN	3.80%	0.739	14.30%	8.87%	10.36%
ONE Gas, Inc.	OGS	3.80%	0.824	14.30%	8.87%	11.11%
Spire, Inc.	SR	3.80%	0.796	14.30%	8.87%	10.87%
Mean			0.798			10.89%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2021, at 14

[2] Source: Bloomberg Professional, 5-Year Betas as of May 31, 2022

[3] Source: JMC-5.1 SP500 MRP 1, 2, 3

[4] Equals [3] - [1]

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

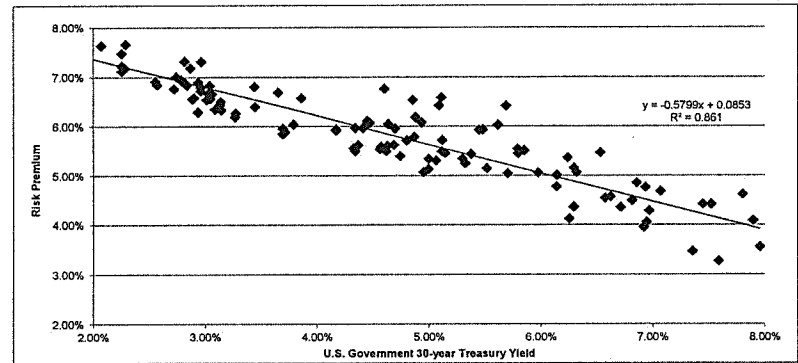


Risk Premium -- Natural Gas Utilities

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
1992.1	12.42%	7.80%	4.62%
1992.2	11.98%	7.89%	4.09%
1992.3	11.87%	7.45%	4.42%
1992.4	11.94%	7.52%	4.42%
1993.1	11.75%	7.07%	4.68%
1993.2	11.71%	6.86%	4.85%
1993.3	11.39%	6.31%	5.07%
1993.4	11.16%	6.14%	5.02%
1994.1	11.12%	6.57%	4.55%
1994.2	10.84%	7.35%	3.48%
1994.3	10.87%	7.58%	3.28%
1994.4	11.53%	7.96%	3.57%
1995.2	11.00%	6.94%	4.06%
1995.3	11.07%	6.71%	4.35%
1995.4	11.61%	6.23%	5.37%
1996.1	11.45%	6.29%	5.16%
1996.2	10.88%	6.92%	3.96%
1996.3	11.25%	6.96%	4.29%
1996.4	11.19%	6.62%	4.58%
1997.1	11.31%	6.81%	4.49%
1997.2	11.70%	6.93%	4.77%
1997.3	12.00%	6.53%	5.47%
1997.4	10.92%	6.14%	4.78%
1998.2	11.37%	5.85%	5.52%
1998.3	11.41%	5.47%	5.94%
1998.4	11.69%	5.10%	6.59%
1999.1	10.82%	5.37%	5.44%
1999.2	11.25%	5.79%	5.46%
1999.4	10.38%	6.25%	4.12%
2000.1	10.66%	6.29%	4.36%
2000.2	11.03%	5.97%	5.06%
2000.3	11.33%	5.79%	5.55%
2000.4	12.10%	5.69%	6.41%
2001.1	11.38%	5.44%	5.93%
2001.2	10.75%	5.70%	5.05%
2001.4	10.65%	5.30%	5.35%
2002.1	10.67%	5.51%	5.15%
2002.2	11.64%	5.61%	6.03%
2002.3	11.50%	5.08%	6.42%
2002.4	11.01%	4.93%	6.08%
2003.1	11.38%	4.85%	6.53%
2003.2	11.36%	4.60%	6.76%
2003.3	10.61%	5.11%	5.50%
2003.4	10.84%	5.11%	5.73%
2004.1	11.06%	4.88%	6.18%
2004.2	10.57%	5.32%	5.25%
2004.3	10.37%	5.06%	5.31%
2004.4	10.66%	4.86%	5.79%
2005.1	10.65%	4.69%	5.96%
2005.2	10.54%	4.47%	6.07%
2005.3	10.47%	4.44%	6.03%
2005.4	10.32%	4.68%	5.63%
2006.1	10.68%	4.63%	6.05%
2006.2	10.60%	5.14%	5.46%
2006.3	10.34%	4.99%	5.34%
2006.4	10.14%	4.74%	5.40%
2007.1	10.52%	4.80%	5.72%
2007.2	10.13%	4.99%	5.14%
2007.3	10.03%	4.95%	5.08%
2007.4	10.12%	4.61%	5.50%
2008.1	10.38%	4.41%	5.97%
2008.2	10.17%	4.57%	5.60%

Risk Premium -- Natural Gas Utilities

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
2008.3	10.55%	4.44%	6.11%
2008.4	10.34%	3.65%	6.69%
2009.1	10.24%	3.44%	6.81%
2009.2	10.11%	4.17%	5.94%
2009.3	9.88%	4.32%	5.56%
2009.4	10.31%	4.34%	5.97%
2010.1	10.24%	4.62%	5.61%
2010.2	9.99%	4.36%	5.62%
2010.3	10.43%	3.86%	6.57%
2010.4	10.09%	4.17%	5.93%
2011.1	10.10%	4.56%	5.54%
2011.2	9.85%	4.34%	5.51%
2011.3	9.65%	3.69%	5.96%
2011.4	9.88%	3.04%	6.84%
2012.1	9.63%	3.14%	6.50%
2012.2	9.83%	2.93%	6.90%
2012.3	9.75%	2.74%	7.01%
2012.4	10.06%	2.86%	7.19%
2013.1	9.57%	3.13%	6.44%
2013.2	9.47%	3.14%	6.33%
2013.3	9.60%	3.71%	5.89%
2013.4	9.83%	3.79%	6.04%
2014.1	9.54%	3.69%	5.85%
2014.2	9.84%	3.44%	6.39%
2014.3	9.45%	3.26%	6.19%
2014.4	10.28%	2.96%	7.32%
2015.1	9.47%	2.55%	6.91%
2015.2	9.43%	2.88%	6.55%
2015.3	9.75%	2.96%	6.79%
2015.4	9.68%	2.96%	6.72%
2016.1	9.48%	2.72%	6.76%
2016.2	9.42%	2.57%	6.85%
2016.3	9.47%	2.28%	7.19%
2016.4	9.67%	2.83%	6.84%
2017.1	9.60%	3.04%	6.56%
2017.2	9.47%	2.90%	6.58%
2017.3	10.14%	2.82%	7.32%
2017.4	9.70%	2.82%	6.88%
2018.1	9.68%	3.02%	6.66%
2018.2	9.43%	3.09%	6.34%
2018.3	9.71%	3.06%	6.65%
2018.4	9.53%	3.27%	6.26%
2019.1	9.55%	3.01%	6.54%
2019.2	9.73%	2.78%	6.94%
2019.3	9.95%	2.29%	7.66%
2019.4	9.74%	2.25%	7.48%
2020.1	9.35%	1.89%	7.46%
2020.2	9.55%	1.38%	8.17%
2020.3	9.52%	1.37%	8.15%
2020.4	9.50%	1.62%	7.88%
2021.1	9.71%	2.07%	7.64%
2021.2	9.48%	2.25%	7.22%
2021.3	9.43%	1.93%	7.50%
2021.4	9.59%	1.94%	7.65%
2022.1	9.38%	2.25%	7.12%
2022.2	9.22%	2.93%	6.28%
AVERAGE	10.43%	4.51%	5.92%
MEDIAN	10.33%	4.58%	5.96%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.92789
R Square	0.86099
Adjusted R Square	0.85979
Standard Error	0.00388
Observations	118

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.0108	0.0108	718.4486	0.0000
Residual	116	0.0017	0.0000		
Total	117	0.0126			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0853	0.00104	82.10507	0.00000	0.08326	0.08737	0.08326	0.08737
X Variable 1	-0.5799	0.02164	-26.80389	0.00000	-0.62280	-0.53709	-0.62280	-0.53709

	[7] U.S. Govt. 30-year Treasury	[8] Risk Premium	[9] ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.02%	6.78%	9.80%
Blue Chip Near-Term Projected Forecast (Q3 2022 - Q3 2023) [5]	3.48%	6.51%	9.99%
Blue Chip Long-Term Projected Forecast (2024-2028) [6]	3.80%	6.33%	10.13%
AVERAGE			9.97%

Notes:

- [1] Source: Regulatory Research Associates, rate cases through May 31, 2022  
[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter  
[3] Equals Column [1] - Column [2]  
[4] Source: Bloomberg Professional  
[5] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022 at 2  
[6] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022 at 14  
[7] See notes [4] & [5]  
[8] Equals  $0.085315 + (-0.579942 \times \text{Column [6]})$   
[9] Equals Column [6] + Column [7]

EXPECTED EARNINGS ANALYSIS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Company	Ticker	Value Line ROE 2025-2027	Value Line Total Capital 2021	Value Line Common Equity Ratio 2021	Total Equity 2021	Value Line Total Capital 2025-2027	Value Line Common Equity Ratio 2025-2027	Total Equity 2025-2027	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
Atmos Energy Corporation	ATO	9.00%	12,837	61.60%	7,908	21,400	60.00%	12,840	10.18%	1.048	9.44%
New Jersey Resources Corporation	NJR	12.00%	3,793	43.00%	1,631	5,310	43.50%	2,310	7.21%	1.035	12.42%
NiSource Inc.	NI	11.50%	16,131	33.50%	5,404	18,225	39.50%	7,199	5.90%	1.029	11.83%
Northwest Natural Gas Company	NWN	9.50%	1,980	47.20%	934	2,290	52.00%	1,191	4.97%	1.024	9.73%
ONE Gas, Inc.	OGS	7.50%	6,033	39.00%	2,353	8,500	48.00%	4,080	11.64%	1.055	7.91%
Spire, Inc.	SR	8.00%	5,597	43.20%	2,418	8,200	45.00%	3,690	8.82%	1.042	8.34%
Mean											9.94%
Median											9.58%

Notes:

[1] Source: Value Line

[2] Source: Value Line

[3] Source: Value Line

[4] Equals [2] x [3]

[5] Source: Value Line

[6] Source: Value Line

[7] Equals [5] x [6]

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

[9] Equals  $2 \times (1 + [8]) / (2 + [8])$

[10] Equals [1] x [9]

COMPARISON OF DUKE ENERGY OHIO AND PROXY GROUP COMPANIES  
RISK ASSESSMENT

		[1]		[2]		[3]		[4]
Company	Jurisdiction/Service	Test Year	Rate Base	Revenue Decoupling	Capital Cost Recovery Mechanism			
Atmos Energy Corporation	Kansas - Gas	Historical	Year End	Partial	Yes			
	Kentucky - Gas	Fully Forecast	Average	Partial	Yes			
	Louisiana - Gas	Historical	Year End	Partial	Yes			
	Mississippi - Gas	Partially Forecast	Average	Partial	Yes			
	Tennessee - Gas	Fully Forecast	Average	Partial	No			
New Jersey Resources Corporation	Texas - Gas	Historical	Year End	Partial	Yes			
	New Jersey - Gas	Partially Forecast	Year End	Full	Yes			
	Indiana - Gas	Historical	Year End	Partial	Yes			
	Kentucky - Gas	Fully Forecast	Average	Partial	Yes			
	Maryland - Gas	Historical	Average	Partial	Yes			
NiSource Inc.	Ohio - Gas	Historical	Year End	No	Yes			
	Pennsylvania - Gas	Fully Forecast	Average	Partial	Yes			
	Virginia - Gas	Fully Forecast	Average	Partial	Yes			
	Oregon - Gas	Fully Forecast	Average	Partial	No			
	Washington - Gas	Historical	Average	No	No			
Northwest Natural Gas Company	Kansas - Gas	Historical	Year End	Partial	Yes			
	Oklahoma - Gas	Historical	Year End	Partial	No			
ONE Gas, Inc.	Texas - Gas	Historical	Year End	Partial	Yes			
	Alabama - Gas	Fully Forecast	Average	Partial	No			
Spire, Inc.	Missouri East - Gas	Historical	Year End	Partial	Yes			
	Missouri West - Gas	Historical	Year End	No	Yes			
Proxy Group Operating Company Count	Fully Forecast	7	Year End	11	Full	1	Yes	16
	Partially Forecast	2	Average	10	Partial	17	No	5
	Historical	12			No	3		
	Forecast	42.86%	Year End	52.38%	RDM	85.71%	CCRM	76.19%
Duke Energy Ohio	Ohio	Historical	Year End	No [5]				Yes

Notes

[1] Source: S&P Global - Market

[2] Source: S&P Global - Market Intelligence Rate Case History (Past Rate Cases), accessed 3/23/2022

[3] - [4] Source: "Adjustment Clauses: A State-by-state Overview," Regulatory Research Associates, November 12, 2019. Operating subsidiaries not covered in this report were excluded from this exhibit.

[5] Duke Energy Ohio has a straight fixed variable rate design

## FLOTATION COST ADJUSTMENT

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
</										

## Notes:

[i] Offering Completion Date

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

The flotation cost adjustment is derived by dividing the dividend yield by  $1 - F$  (where  $F$  = flotation costs expressed in percentage terms), or by 0.9755, 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:

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

		[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]
						Expected Dividend Yield Adjusted for Flotation Costs	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	ROE	ROE Adjusted for Flotation Costs
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield							
Atmos Energy Corporation	ATO	\$2.72	\$115.21	2.36%	2.45%	2.51%	7.50%	8.61%	7.30%	7.80%	10.26%	10.32%
New Jersey Resources Corporation	NJR	\$1.45	\$44.85	3.23%	3.32%	3.41%	5.00%	6.00%	6.00%	5.67%	8.99%	9.08%
NiSource Inc.	NI	\$0.94	\$30.37	3.09%	3.22%	3.30%	9.50%	7.18%	7.20%	7.96%	11.18%	11.26%
Northwest Natural Gas Company	NWN	\$1.93	\$50.78	3.80%	3.91%	4.01%	6.50%	5.90%	4.70%	5.70%	9.61%	9.71%
ONE Gas, Inc.	OGS	\$2.48	\$86.52	2.87%	2.95%	3.02%	6.50%	5.00%	5.00%	5.50%	8.45%	8.52%
Spire, Inc.	SR	\$2.74	\$75.71	3.62%	3.73%	3.82%	9.00%	4.30%	5.00%	6.10%	9.83%	9.92%
Mean											9.72%	9.80%
Flotation Cost Adjustment											[22]	0.08%

## Notes:

[1] - [4] Source: SEC Form 424B2 (Prospectus)

[5] Equals [8]/[1]

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

[7] Equals [1] x [2]

[8] Equals [7] - [6]

[9] Equals [6] / [7]

[10] Equals average [6] / average [7]

[11] Source: Bloomberg Professional

[12] Source: Bloomberg Professional, equals 30-day average as of May 31, 2022

[13] Equals [11] / [12]

[14] Equals [13] x (1 + 0.5 x [19])

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

[16] Source: Value Line

[17] Source: Yahoo! Finance

[18] Source: Zacks

[19] Equals Average ([16], [17], [18])

[20] Equals [14] + [19]

[21] Equals [15] + [19]

[22] Equals Average ([21]) - Average ([20])

## CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]			
Proxy Group Company	Ticker	2020	2019
Atmos Energy Corporation	ATO	58.31%	58.43%
New Jersey Resources Corporation	NJR	55.45%	58.87%
NISource Inc.	NI	54.43%	54.33%
Northwest Natural Gas Company	NWN	47.44%	49.19%
One Gas Inc.	OGS	60.04%	63.28%
Spire Inc.	SR	58.52%	60.85%
Proxy Group			
MEAN		55.70%	57.49%
LOW		47.44%	49.19%
HIGH		60.04%	63.28%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES			
Company Name	Ticker	2020	2019
Atmos Energy Corporation	ATO	58.31%	58.43%
New Jersey Natural Gas Company	NJR	55.45%	58.87%
Columbia Gas of Kentucky, Inc.	NI	54.68%	54.23%
Columbia Gas of Maryland, Inc.	NI	54.95%	52.38%
Columbia Gas of Ohio, Inc.	NI	50.45%	53.00%
Columbia Gas of Pennsylvania, Inc.	NI	55.68%	55.59%
Columbia Gas of Virginia, Inc.	NI	43.69%	42.53%
Northern Indiana Public Service Company LLC	NI	58.01%	56.43%
Northwest Natural Gas Company	NWN	47.44%	49.19%
Kansas Gas Service Company, Inc.	OGS	60.33%	63.55%
Oklahoma Natural Gas Company	OGS	59.85%	63.10%
Texas Gas Service Company, Inc.	OGS	59.90%	63.23%
Spire Alabama Inc.	SR	64.35%	66.82%
Spire Gulf Inc.	SR	40.55%	37.18%
Spire Mississippi Inc.	SR	100.00%	100.00%
Spire Missouri Inc.	SR	56.68%	59.05%

## Notes:

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

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

## CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]			
Proxy Group Company	Ticker	2020	2019
Atmos Energy Corporation	ATO	41.69%	41.57%
New Jersey Resources Corporation	NJR	44.55%	41.13%
NISource Inc.	NI	45.57%	45.67%
Northwest Natural Gas Company	NWN	52.56%	50.81%
One Gas Inc.	OGS	39.96%	36.72%
Spire Inc.	SR	41.48%	39.15%
Proxy Group			
MEAN		44.30%	42.51%
LOW		39.96%	36.72%
HIGH		52.56%	50.81%

LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES			
Company Name	Ticker	2020	2019
Atmos Energy Corporation	ATO	41.69%	41.57%
New Jersey Natural Gas Company	NJR	44.55%	41.13%
Columbia Gas of Kentucky, Inc.	NI	45.32%	45.77%
Columbia Gas of Maryland, Inc.	NI	45.05%	47.62%
Columbia Gas of Ohio, Inc.	NI	49.55%	47.00%
Columbia Gas of Pennsylvania, Inc.	NI	44.32%	44.41%
Columbia Gas of Virginia, Inc.	NI	56.31%	57.47%
Northern Indiana Public Service Company LLC	NI	41.59%	43.57%
Northwest Natural Gas Company	NWN	52.56%	50.81%
Kansas Gas Service Company, Inc.	OGS	39.67%	36.45%
Oklahoma Natural Gas Company	OGS	40.15%	36.90%
Texas Gas Service Company, Inc.	OGS	40.01%	36.77%
Spire Alabama Inc.	SR	35.65%	33.18%
Spire Gulf Inc.	SR	59.45%	62.82%
Spire Mississippi Inc.	SR	0.00%	0.00%
Spire Missouri Inc.	SR	43.32%	40.95%

## Notes:

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

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

## CAPITAL STRUCTURE ANALYSIS

PREFERRED EQUITY RATIO [1]			
Proxy Group Company	Ticker	2020	2019
Atmos Energy Corporation	ATO	0.00%	0.00%
New Jersey Resources Corporation	NJR	0.00%	0.00%
NISource Inc.	NI	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%
One Gas Inc.	OGS	0.00%	0.00%
Spire Inc.	SR	0.00%	0.00%
Proxy Group			
MEAN		0.00%	0.00%
LOW		0.00%	0.00%
HIGH		0.00%	0.00%

PREFERRED EQUITY RATIO - UTILITY OPERATING COMPANIES			
Company Name	Ticker	2020	2019
Atmos Energy Corporation	ATO	0.00%	0.00%
New Jersey Natural Gas Company	NJR	0.00%	0.00%
Columbia Gas of Kentucky, Inc.	NI	0.00%	0.00%
Columbia Gas of Maryland, Inc.	NI	0.00%	0.00%
Columbia Gas of Ohio, Inc.	NI	0.00%	0.00%
Columbia Gas of Pennsylvania, Inc.	NI	0.00%	0.00%
Columbia Gas of Virginia, Inc.	NI	0.00%	0.00%
Northern Indiana Public Service Company LLC	NI	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	0.00%	0.00%
Spire Alabama Inc.	SR	0.00%	0.00%
Spire Gulf Inc.	SR	0.00%	0.00%
Spire Mississippi Inc.	SR	0.00%	0.00%
Spire Missouri Inc.	SR	0.00%	0.00%

## Notes:

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

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

**This foregoing document was electronically filed with the Public Utilities  
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**in**

**Case No(s). 22-0507-GA-AIR, 22-0508-GA-ALT, 22-0509-GA-ATA, 22-0510-GA-AAM**

Summary: Testimony Direct Testimony of James M. Coyne on Behalf of Duke Energy Ohio, Inc. electronically filed by Mrs. Tammy M. Meyer on behalf of Duke Energy Ohio Inc. and D'Ascenzo, Rocco and Kingery, Jeanne W. and Akhbari, Elyse Hanson and Vaysman, Larisa and Elizabeth M. Brama