

1 Capital Cost Recovery: As discussed above, the Company has capital tracking
2 mechanisms (i.e., IIP mechanism and Green Programs charge) to recover a portion
3 of capital investment costs between rate cases. This is consistent with the proxy
4 group where 63.3 percent of the operating companies held by the proxy group have
5 some form of capital cost recovery mechanism in place.

6 **Q. Have you developed any additional analyses to evaluate the regulatory environment in**
7 **New Jersey as compared to the jurisdictions in which the companies in your proxy**
8 **group operate?**

9 A. Yes. I have conducted two additional analyses to compare the regulatory framework of
10 New Jersey to the jurisdictions in which the utility operating subsidiaries of the proxy group
11 operate. Specifically, I considered two different rankings: (1) the Regulatory Research Associates
12 (“RRA”) ranking of regulatory jurisdictions, which is presented in Schedule AEB-11; and (2)
13 S&P’s ranking of the credit supportiveness of regulatory jurisdictions, which is presented in
14 Schedule AEB-12.

15 **Q. Please explain how RRA evaluates the regulatory environment in each jurisdiction.**

16 A. RRA evaluates the regulatory environment from an investor perspective, considering the
17 relative regulatory risk associated with ownership of securities issued by the companies that are
18 regulated in each jurisdiction. RRA considers several factors that affect the regulatory process
19 including gubernatorial, legislative and court activity, rate case decisions and other regulatory
20 decisions, and information obtained through contact with commissioners, staff, company and
21 government outreach.

1 **Q. Please explain how you used the RRA Rankings to compare the regulatory jurisdictions**
2 **of the utility operating subsidiaries of the proxy group companies relative to the**
3 **Company?**

4 A. RRA assigns a ranking for each regulatory jurisdiction between “Above Average/1” to
5 “Below Average/3,” with nine total rankings between these categories. I applied a similar numeric
6 ranking system to the RRA rankings with “Above Average/1” assigned the highest ranking (“1”) and
7 “Below Average/3” assigned the lowest ranking (“9”). As shown on Schedule AEB-11, the
8 Company’s jurisdictional ranking is “7” or “Below Average/1”, which is below the proxy group’s
9 average numeric ranking of “4.75” from RRA, which is between “Average/1” and “Average/2.”

10 **Q. What information does RRA provide about how it determined a Below Average/1**
11 **rating for New Jersey regulation?**

12 A. RRA states that from an investor perspective, the regulatory environment in New Jersey is
13 restrictive and regulatory issues are highly politicized. Further, RRA notes that recently authorized
14 ROEs are below prevailing industry averages and the use of a historical test year results and the
15 inability to include construction work in progress in rate base impede the ability for companies to
16 earn their authorized return. Additionally, RRA noted that New Jersey had a legislatively mandated
17 moratorium on termination of service for non-payment of service during the pandemic that
18 extended through March 15, 2022.⁵² The deferrals resulting from this moratorium have not yet
19 been resolved. RRA estimated the magnitude of the deferrals statewide at \$710 million through
20 the end of December 2020, however the legislatively mandated moratorium extended through
21 March 15, 2022. The extensive lag and uncertainty of the recovery of these costs represents a
22 significant risk factor from an investor perspective.

⁵² Subsequent to RRA’s report, the BPU extended the moratorium through March 15, 2023 for residential customers.

1 **Q. How did you conduct your analysis of the S&P credit supportiveness?**

2 A. For credit supportiveness, S&P classifies each regulatory jurisdiction into five categories
3 that range from “Credit Supportive” to “Most Credit Supportive.” My analysis of the credit
4 supportiveness of the regulatory jurisdictions in which the proxy companies operate relative to the
5 Company’s regulatory jurisdiction is similar to the analysis of the RRA overall regulatory ranking
6 just discussed. Specifically, I assign a numerical ranking to each of S&P’s categories, from Most
7 Credit Supportive (“1”) to Credit Supportive (“5”). As shown in Schedule AEB-12, the proxy
8 group average ranking is 2.58, which would be classified between “Very Credit Supportive” and
9 “Highly Credit Supportive,” while Public Service’s rank is lower at “More Credit Supportive”
10 (“4”), which suggests that investors perceive regulation for the Company as below average relative
11 to the proxy group.

12 **Q. What is your conclusion regarding the regulatory framework in New Jersey as**
13 **compared with the jurisdictions in which the proxy group companies operate?**

14 A. The regulatory framework in which a regulated utility provides service is one of the most
15 important considerations for debt and equity investors. Based on my analysis, I conclude that the
16 regulatory risk for Public Service is higher than for the proxy group, which reflects that the New
17 Jersey regulatory framework has somewhat greater risk than the jurisdictions in which the utility
18 operating subsidiaries of the proxy group companies provide service. This conclusion is reflective
19 of the proxy group generally having more timely cost recovery than the Company and the
20 Company having an S&P credit supportive ranking and RRA ranking that is below the average for
21 the proxy group.

1 **VIII. CAPITAL STRUCTURE AND PROPOSED INTEREST COST**
2 **RECONCILIATION DEFERRAL**

3 **A. Capital Structure**

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

6 A. Yes, it is. The equity ratio is the primary indicator of financial risk for a regulated utility
7 such as Public Service. Assuming other factors equal, a higher debt ratio increases the risk to
8 equity investors. For debt holders, higher debt ratios result in a greater portion of the available
9 cash flow being required to meet debt service, thereby increasing the risk associated with the
10 payments on debt. The result of increased risk is a higher interest rate. The incremental risk of a
11 higher debt ratio is more significant for common equity shareholders, whose claim on the cash
12 flow of the Company is secondary to debt holders. Therefore, the greater the debt service
13 requirement, the less cash flow is available for common equity holders. To the extent the equity
14 ratio is reduced, it is necessary to increase the authorized ROE to compensate investors for the
15 greater financial risk associated with a lower equity ratio.

16 **Q. What is Public Service's proposed capital structure?**

17 A. As discussed in the Direct Testimony of Company Witness Mr. McFadden, the Company is
18 proposing to establish a capital structure consisting of 55.50 percent common equity, 44.29 percent
19 long-term debt, and 0.21 percent customer deposits.

20 **Q. Did you conduct any analysis to determine if this requested equity ratio was**
21 **reasonable?**

22 A. Yes. I reviewed the Company's proposed capital structure relative to the actual capital
23 structures of the utility operating subsidiaries of the companies in the proxy group. Since the ROE
24 is set based on the return that is derived from the risk-comparable proxy group, it is reasonable to

1 look to the average capital structure for the proxy groups to benchmark the equity ratios for the
2 Company.

3 **Q. Please discuss your analysis of the capital structures of the proxy group companies.**

4 A. Specifically, I calculated the average proportion of common equity, long-term debt, and
5 preferred equity for the most recent two years (i.e., eight quarters) for each of the companies in the
6 proxy group at the operating subsidiary level. Schedule AEB-13 summarizes the actual capital
7 structures of the operating subsidiaries. As shown, the two-year average equity ratios for the
8 operating subsidiaries of the proxy group range from 47.21 percent to 66.21 percent. Public
9 Service's proposed equity ratio of 55.5 percent is within the range established by the capital
10 structures of the utility operating subsidiaries of the proxy group.

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

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

15 For example, while Moody's recently revised its outlook for the utility sector from
16 "negative" to "stable", Moody's continues to note that high interest rates and increased capital
17 spending will place pressure on credit metrics. Thus, Moody's highlights constructive regulatory
18 outcomes that promote timely cost recovery as a key factor in supporting utility credit quality.⁵³

19 Fitch Ratings ("Fitch") also highlights similar factors identified by Moody's as challenging
20 utilities' outlook for 2023, stating that the sector faces mounting cost pressures due to "elevated

⁵³ Moody's Investors Service, Outlook. "Outlook turns stable on low prices and credit-supportive regulation." September 7, 2023.

1 commodity prices, inflationary headwinds and rising interest costs,” and that some offset in
2 managing these headwinds include “higher authorized ROEs and the use of tools such as
3 securitization of under-recovered fuel balances.”⁵⁴

4 Likewise, while S&P also recently revised its outlook for the industry from negative to
5 stable, S&P continues to see significant risks over the near-term for the industry as a result of
6 inflation and increased levels of capital spending. Specifically, S&P noted:

7 Despite the improvement in economic data, we expect inflation, rising
8 interest rates, higher capital spending, and the strategic decision by many
9 companies to operate with only minimal financial cushion from their
10 downgrade thresholds to continue to pressure the industry's credit quality.
11 Throughout 2022 and so far in 2023, the Federal Reserve has consistently
12 raised interest rates to reduce the pace of inflation. While these actions
13 appear to have had a positive effect on slowing inflation, there's still been a
14 modest weakening in the industry's financial measures because of inflation
15 and rising interest rates. An environment of continuously rising costs tends
16 to weaken the industry's financial measures because of the timing difference
17 between when the higher costs are incurred and when they are ultimately
18 recovered from ratepayers.⁵⁵

19 The credit ratings agencies’ continued concerns over the negative effects of inflation and
20 increased capital expenditures underscore the importance of maintaining adequate cash flow
21 metrics for the industry as a whole, and Public Service in particular in the context of this
22 proceeding.

23 **Q. Why is this important in the consideration of the Company’s capital structure?**

24 A. The amount of debt in the capital structure decreases the financial flexibility of the company
25 due to the fixed payment requirements of the debt service obligations. Therefore, in order to

⁵⁴ Fitch Ratings. “North American Utilities, Power & Gas Outlook 2023.” December 7, 2022, at 1-2.

⁵⁵ S&P Global Ratings. “The Outlook for North American Regulated Utilities Turns Stable,” May 18, 2023, at 8.

maintain or improve cash flow metrics, the credit rating agencies have historically supported increasing the equity ratio, which reduces fixed payments and improves cash flow coverage ratios.

Q. What is your conclusion with regard to the Company's proposed capital structure?

A. Considering the actual capital structures of the proxy group operating companies, I believe that Public Service's proposed common equity ratio of 55.5 percent is reasonable. The proposed equity ratio is well within the range established by the capital structures of the utility operating subsidiaries of the proxy companies.

B. Interest Cost Reconciliation Deferral Mechanism

Q. Please explain the Company's proposed interest cost reconciliation deferral mechanism.

A. As discussed in the Direct Testimony of Public Service witness Mr. McFadden, the Company will need to refinance existing debt after the end of the test year; however, given that current interest rates (*i.e.*, 30-day average yield on the Moody's A-rated utility bond as of October 31, 2023 was 6.20 percent)⁵⁶ exceed Public Service's embedded cost of long-term debt of 3.96 percent, the Company's interest expense will likely exceed that which can be recovered in rates during the first year that rates will go into effect. Therefore, the Company is proposing a new interest cost reconciliation deferral mechanism to defer the difference between the actual embedded cost of debt and the rate approved by the Board in this proceeding. The deferral mechanisms will only account for changes in the Company's embedded cost of debt associated with refinancing existing debt and will not reflect changes in the cost of debt associated with new issuances. The proposed deferral mechanism would be fully symmetric. Therefore, the deferral

⁵⁶ Source: Bloomberg Professional.

1 mechanism would ensure the Company recovers no more or less than its allowed interest expense
2 and can be reevaluated in a future base rate case.

3 **Q. Why is an interest cost reconciliation deferral mechanism appropriate?**

4 A. There has been significant volatility in long-term interest rates over the past few years. For
5 example, the 30-year Treasury yield reached a low of 0.99 percent in March 2020, but has since
6 significantly increased as a result of the change in market conditions discussed in Section IV of
7 my Direct Testimony. As noted above, the 30-day average yield on the 30-year Treasury bond as
8 of October 31, 2023 was 4.84 percent, a more than four-fold increased from March 2020. The
9 volatility in interest rates increases the likelihood that the Company's actual embedded cost of debt
10 during the period that rates will be in effect will be either lower or higher than the embedded cost
11 of debt approved by the Board in this proceeding. Further, the Company does not have any control
12 over interest rates, which are set by the market and influenced by the monetary policy of the
13 Federal Reserve. The deferral mechanism would ensure that customers only pay the actual cost of
14 debt. Therefore, under this mechanism neither customers nor the Company is disadvantaged by
15 changes in the market rate on the debt that is refinanced.

16 **IX. CONCLUSIONS AND RECOMMENDATION**

17 **Q. What is your conclusion regarding a fair ROE for the Company?**

18 A. Based on the various quantitative analyses summarized in Figure 12 and the qualitative
19 analyses presented in my Direct Testimony, a reasonable range of ROE results for Public Service
20 is from 10.00 percent to 11.00 percent. Within that range, I believe that the Company's requested
21 ROE of 10.40 percent is conservative considering the Company's excellent management
22 performance, current conditions in capital markets including the high interest rates, and elevated

inflationary pressures, both of which increase the cost of capital as well as the relative business and financial risk of Public Service as compared to the proxy group.

Figure 12: Summary of Results

<i>Constant Growth DCF</i>			
	Mean Low	Mean	Mean High
30-Day Average	8.78%	9.69%	10.55%
90-Day Average	8.57%	9.47%	10.34%
180-Day Average	8.42%	9.32%	10.19%
	Median Low	Median	Median High
30-Day Average	8.87%	9.84%	10.44%
90-Day Average	8.53%	9.60%	10.27%
180-Day Average	8.31%	9.48%	10.05%
<i>CAPM</i>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.66%	11.62%	11.55%
Bloomberg Beta	10.84%	10.75%	10.61%
Long-term Avg. Beta	10.47%	10.37%	10.20%
<i>ECAPM</i>			
Value Line Beta	11.87%	11.84%	11.79%
Bloomberg Beta	11.25%	11.18%	11.08%
Long-term Avg. Beta	10.98%	10.90%	10.77%
<i>Bond Yield Risk Premium</i>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.74%	10.50%	10.13%

1 **Q. What is your conclusion regarding Public Service's proposed capital structure?**

2 A. My conclusion is that Public Service's proposed rate-making capital structure consisting of
3 55.50 percent common equity, 44.29 percent long-term debt, and customer deposits of 0.21 percent
4 is reasonable as compared to the proxy group companies and should be used for setting rates in
5 this case.

6 **Q. Does this conclude your Direct Testimony?**

7 A. Yes, it does.

Ann E. Bulkley

PRINCIPAL

Boston

508.981.0866

Ann.Bulkley@brattle.com

With more than 25 years of experience in the energy industry, Ms. Bulkley specializes in regulatory economics for the electric and natural gas sectors, including rate of return, cost of equity, and capital structure issues.

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

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

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

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

AREAS OF EXPERTISE

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

EDUCATION

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

PROFESSIONAL EXPERIENCE

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

SELECTED CONSULTING EXPERIENCE & EXPERT TESTIMONY

REGULATORY ANALYSIS AND RATEMAKING

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

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

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

COST OF CAPITAL

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

RATEMAKING

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

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

VALUATION

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

Representative projects/clients have included:

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

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

STRATEGIC AND FINANCIAL ADVISORY SERVICES

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

Representative projects include:

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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
UNS Electric	11/22	UNS Electric	Docket No. E-04204A-15-0251	Return on Equity
Tucson Electric Power Company	6/22	Tucson Electric Power Company	Docket No. G-01933A-22-0107	Return on Equity
Southwest Gas Corporation	12/21	Southwest Gas Corporation	Docket No. G-01551A-21-0368	Return on Equity
Arizona Public Service Company	10/19	Arizona Public Service Company	Docket No. E-01345A-19-0236	Return on Equity
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Oklahoma Gas and Electric Co	10/21	Oklahoma Gas and Electric Co	Docket No. D-18-046-FR	Return on Equity
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
California Public Utilities Commission				
PacifiCorp, d/b/a Pacific Power	5/22	PacifiCorp, d/b/a Pacific Power	Docket No. A-22-05-006	Return on Equity
San Jose Water Company	05/21	San Jose Water Company	A2105004	Return on Equity
Colorado Public Utilities Commission				
Public Service Company of Colorado	11/22	Public Service Company of Colorado	Docket No. 22AL-0530E	Return on Equity
Public Service Company of Colorado	01/22	Public Service Company of Colorado	Docket No. 22AL-0046G	Return on Equity
Public Service Company of Colorado	07/21	Public Service Company of Colorado	21AL-0317E	Return on Equity
Public Service Company of Colorado	02/20	Public Service Company of Colorado	20AL-0049G	Return on Equity
Public Service Company of Colorado	05/19	Public Service Company of Colorado	19AL-0268E	Return on Equity
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
United Illuminating	09/22	United Illuminating	Docket No. 22-08-08	Return on Equity
United Illuminating	05/21	United Illuminating	Docket No. 17-12-03RE11	Return on Equity
Connecticut Water Company	01/21	Connecticut Water Company	Docket No. 20-12-30	Return on Equity
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline	12/22	Sea Robin Pipeline	Docket No. RP22-____	Return on Equity
Northern Natural Gas Company	07/22	Northern Natural Gas Company	Docket No. RP22-____	Return on Equity
Transwestern Pipeline Company, LLC	07/22	Transwestern Pipeline Company, LLC	Docket No. RP22-____	Return on Equity
Florida Gas Transmission	02/21	Florida Gas Transmission	Docket No. RP21-441	Return on Equity
TransCanyon	01/21	TransCanyon	Docket No. ER21-1065	Return on Equity
Duke Energy	12/20	Duke Energy	Docket No. EL21-9-000	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Wisconsin Electric Power Company	08/20	Wisconsin Electric Power Company	Docket No. EL20-57-000	Return on Equity
Panhandle Eastern Pipe Line Company, LP	10/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-78-000 RP19-78-001	Return on Equity
Panhandle Eastern Pipe Line Company, LP	08/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-1523	Return on Equity
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-352-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Idaho Public Utilities Commission				
Intermountain Gas Co	12/22	Intermountain Gas Co	C-INT-G-22-07	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-21-07	Return on Equity
Illinois Commerce Commission				
Peoples Gas Light & Coke Company	01/23	Peoples Gas Light & Coke Company	D-23-0069	Return on Equity
North Shore Gas Company	01/23	North Shore Gas Company	D-23-0068	Return on Equity
Illinois American Water	02/22	Illinois American Water	Docket No. 22-0210	Return on Equity
North Shore Gas Company	02/21	North Shore Gas Company	No. 20-0810	Return on Equity
Indiana Utility Regulatory Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Indiana American Water Company	03/23	Indiana and Michigan American Water Company	IURC Cause No. 45870	Return on Equity
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Iowa Department of Commerce Utilities Board				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
MidAmerican Energy Company	06/23	MidAmerican Energy Company	Docket No. RPU-2023-__	Return on Equity
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
Kansas Corporation Commission				
Evergy Kansas	04/23	Evergy Kansas	Docket No. 23-__ -__-RTS	Return on Equity
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	06/23	Kentucky American Water Company	Docket No. 2023-__	Return on Equity
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	08/22	Central Maine Power	Docket No. 2022-00152	Return on Equity
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
Hopkinton LNG Corporation	03/20	Hopkinton LNG Corporation	Docket No.	Valuation of LNG Facility

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
National Grid USA	11/20	Boston Gas Company	DPU 20-120	Return on Equity
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Return on Equity
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Michigan Gas Utilities Corporation	03/23	Michigan Gas Utilities Corporation	Case No. U-21366	Return on Equity
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Minnesota Energy Resources Corporation	11/22	Minnesota Energy Resources Corporation	Docket No. G011/GR-22-504	Return on Equity
CenterPoint Energy Resources	11/21	CenterPoint Energy Resources	D-G-008/GR-21-435	Return on Equity
Allete, Inc. d/b/a Minnesota Power	11/21	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-21-630	Return on Equity
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
Allete, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR-19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022-0337	Return on Equity
Missouri American Water Company	07/22	Missouri American Water Company	Case No. WR-2022-0303 Case No. SR-2022-0304	Return on Equity
Evergy Missouri West	1/22	Evergy Missouri West	File No. ER-2022-0130	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Evergy Missouri Metro	1/22	Evergy Missouri Metro	File No. ER-2022-0129	Return on Equity
Ameren Missouri	03/21	Ameren Missouri	Docket No. ER-2021-0240 Docket No. GR-2021-0241	Return on Equity
Missouri American Water Company	06/20	Missouri American Water Company	Case No. WR-2020-0344 Case No. SR-2020-0345	Return on Equity
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-0285 Case No. SR-17-0286	Return on Equity
Montana Public Service Commission				
Montana-Dakota Utilities Co.	11/22	Montana-Dakota Utilities Co.	D2022.11.099	Return on Equity
Montana-Dakota Utilities Co.	06/20	Montana-Dakota Utilities Co.	D2020.06.076	Return on Equity
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
New Hampshire - Board of Tax and Land Appeals				
Liberty Utilities (Granite State Electric)	05/23	Liberty Utilities (Granite State Electric)	Docket No. DE 23-039	Return on Equity
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
New Hampshire Public Utilities Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity

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

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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Oklahoma Gas & Electric	12/21	Oklahoma Gas & Electric	Cause No. PUD 202100164	Return on Equity
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Oregon Public Service Commission				
PacifiCorp d/b/a Pacific Power & Light	03/22	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-399	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	02/20	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-374	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	04/22	Pennsylvania-American Water Company	Docket No. R-2020-3031672 (water) Docket No. R-2020-3031673 (wastewater)	Return on Equity
American Water Works Company Inc.	04/20	Pennsylvania-American Water Company	Docket No. R-2020-3019369 (water) Docket No. R-2020-3019371 (wastewater)	Return on Equity
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
MidAmerican Energy Company	05/22	MidAmerican Energy Company	D-NG22-005	Return on Equity
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
Texas Public Utility Commission				
Entergy Texas, Inc.	07/22	Entergy Texas, Inc.	D-53719	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Southwestern Public Service Commission	08/19	Southwestern Public Service Commission	Docket No. D-49831	Return on Equity
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Utah Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/21	Virginia American Water Company, Inc.	Docket No. PUR-2021-00255	Return on Equity
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
PacifiCorp d/b/a Pacific Power & Light	03/23	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-230172	Return on Equity
Cascade Natural Gas Corporation	06/20	Cascade Natural Gas Corporation	Docket No. UG-200568	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	12/19	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-191024	Return on Equity
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket No. UG-190210	Return on Equity
West Virginia Public Service Commission				
West Virginia American Water Company	05/23	West Virginia American Water Company	Case No. 23-0383-W-42T	Return on Equity
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Power and Light	05/23	Wisconsin Power and Light	Docket No. 6680-UR-124	Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/22	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-110	Return on Equity
Wisconsin Public Service Corp.	04/22	Wisconsin Public Service Corp.	6690-UR-127	Return on Equity
Alliant Energy		Alliant Energy		Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corp.	03/19	Wisconsin Public Service Corp.	6690-UR-126	Return on Equity
Wyoming Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	02/23	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-633-ER-23	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	03/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-578-ER-20	Return on Equity
Montana-Dakota Utilities Co.	05/19	Montana-Dakota Utilities Co.	30013-351-GR-19	Return on Equity

CERTIFICATIONS/ACCREDITATIONS

Certified General Appraiser, licensed in the Commonwealth of Massachusetts and the State of New Hampshire



SUMMARY OF COE ANALYSES RESULTS

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.78%	9.69%	10.55%
90-Day Average	8.57%	9.47%	10.34%
180-Day Average	8.42%	9.32%	10.19%
Constant Growth Average	8.59%	9.49%	10.36%
	Median Low	Median	Median High
30-Day Average	8.87%	9.84%	10.44%
90-Day Average	8.53%	9.60%	10.27%
180-Day Average	8.31%	9.48%	10.05%
Constant Growth Average	8.57%	9.64%	10.25%
CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.66%	11.62%	11.55%
Bloomberg Beta	10.84%	10.75%	10.61%
Long-term Avg. Beta	10.47%	10.37%	10.20%
ECAPM			
Value Line Beta	11.87%	11.84%	11.79%
Bloomberg Beta	11.25%	11.18%	11.08%
Long-term Avg. Beta	10.98%	10.90%	10.77%
Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.74%	10.50%	10.13%

PROXY GROUP SCREENING DATA AND RESULTS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	% Regulated Operating Income > 70%	% Regulated Gas Operating Income > 10%	Announced Merger
Ameren Corporation	AEE	Yes	BBB+	Yes	Yes	100.00%	15.43%	No
Avista Corporation	AVA	Yes	BBB	Yes	Yes	100.00%	26.15%	No
Black Hills Corporation	BKH	Yes	BBB+	Yes	Yes	94.70%	50.09%	No
CenterPoint Energy, Inc.	CNP	Yes	BBB+	Yes	Yes	101.54%	45.49%	No
CMS Energy Corporation	CMS	Yes	BBB+	Yes	Yes	99.71%	34.20%	No
Consolidated Edison, Inc.	ED	Yes	A-	Yes	Yes	90.49%	27.63%	No
Eversource Energy	ES	Yes	A-	Yes	Yes	92.38%	14.65%	No
MGE Energy, Inc.	MGEE	Yes	AA-	Yes	Yes	72.55%	26.84%	No
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	99.75%	15.51%	No
Sempra Energy	SRE	Yes	BBB+	Yes	Yes	74.47%	37.14%	No
Southern Company	SO	Yes	BBB+	Yes	Yes	94.89%	20.78%	No
Wisconsin Energy Corporation	WEC	Yes	A-	Yes	Yes	99.53%	46.01%	No
Xcel Energy Inc.	XEL	Yes	A-	Yes	Yes	100.00%	13.53%	No

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional

[3] Source: Yahoo! Finance and Zacks

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

[5]-[6] Source: Form 10-K's for 2022, 2021, and 2020

[7] Source: S&P Capital IQ Pro Financial News Releases

30-DAY CONSTANT GROWTH DCF – PSEG PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
Ameren Corporation	AEE	\$2.52	\$76.34	3.30%	3.41%	6.50%	6.20%	6.60%	6.43%	9.60%	9.84%	10.01%
Avista Corporation	AVA	\$1.84	\$32.31	5.69%	5.87%	6.00%	6.30%	6.30%	6.20%	11.86%	12.07%	12.17%
Black Hills Corporation	BKH	\$2.50	\$50.10	4.99%	5.08%	3.00%	5.40%	2.20%	3.53%	7.24%	8.61%	10.52%
CenterPoint Energy, Inc	CNP	\$0.76	\$27.31	2.78%	2.88%	6.50%	negative	7.50%	7.00%	9.37%	9.88%	10.39%
CMS Energy Corporation	CMS	\$1.95	\$53.82	3.62%	3.74%	6.50%	5.87%	7.50%	6.62%	9.60%	10.37%	11.26%
Consolidated Edison, Inc	ED	\$3.24	\$87.47	3.70%	3.79%	6.00%	6.12%	2.00%	4.71%	5.74%	8.50%	9.94%
Eversource Energy	ES	\$2.70	\$56.56	4.77%	4.90%	6.50%	4.00%	5.00%	5.17%	8.87%	10.06%	11.43%
MGE Energy, Inc	MGEE	\$1.71	\$70.97	2.41%	2.48%	6.50%	5.40%	5.30%	5.73%	7.77%	8.21%	8.99%
NorthWestern Corporation	NWE	\$2.56	\$48.46	5.28%	5.39%	3.50%	4.08%	5.20%	4.26%	8.87%	9.65%	10.62%
Sempra Energy	SRE	\$2.38	\$69.16	3.44%	3.53%	6.50%	4.14%	5.00%	5.21%	7.65%	8.74%	10.05%
Southern Company	SO	\$2.80	\$66.50	4.21%	4.33%	6.50%	7.10%	4.00%	5.87%	8.29%	10.20%	11.46%
Wisconsin Energy Corporation	WEC	\$3.12	\$81.91	3.81%	3.92%	6.00%	5.70%	5.80%	5.83%	9.62%	9.75%	9.92%
Xcel Energy Inc	XEL	\$2.08	\$58.25	3.57%	3.68%	6.00%	6.75%	6.30%	6.35%	9.68%	10.03%	10.44%
Mean				3.97%	4.08%	5.85%	5.59%	5.28%	5.61%	8.78%	9.69%	10.55%
Median				3.70%	3.79%	6.50%	5.79%	5.30%	5.83%	8.87%	9.84%	10.44%

Notes:

[1] Source: Bloomberg Professional.

[2] Source: Bloomberg Professional, equals 30-day average as of October 31, 2012

[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 – PSEG PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
Ameren Corporation	AEE	\$2.52	\$79.74	3.16%	3.26%	6.50%	6.20%	6.60%	6.43%	9.46%	9.70%	9.86%
Avista Corporation	AVA	\$1.84	\$34.80	5.29%	5.45%	6.00%	6.30%	6.30%	6.20%	11.45%	11.65%	11.75%
Black Hills Corporation	BKH	\$2.50	\$54.84	4.56%	4.64%	3.00%	5.40%	2.20%	3.53%	6.81%	8.17%	10.08%
CenterPoint Energy, Inc	CNP	\$0.76	\$28.38	2.68%	2.77%	6.50%	negative	7.50%	7.00%	9.26%	9.77%	10.28%
CMS Energy Corporation	CMS	\$1.95	\$56.74	3.44%	3.55%	6.50%	5.87%	7.50%	6.62%	9.41%	10.17%	11.07%
Consolidated Edison, Inc	ED	\$3.24	\$89.75	3.61%	3.70%	6.00%	6.12%	2.00%	4.71%	5.65%	8.40%	9.84%
Eversource Energy	ES	\$2.70	\$63.56	4.25%	4.36%	6.50%	4.00%	5.00%	5.17%	8.33%	9.52%	10.89%
MGE Energy, Inc	MGEE	\$1.71	\$74.51	2.30%	2.36%	6.50%	5.40%	5.30%	5.73%	7.66%	8.09%	8.87%
NorthWestern Corporation	NWE	\$2.56	\$51.80	4.94%	5.05%	3.50%	4.08%	5.20%	4.26%	8.53%	9.31%	10.27%
Sempra Energy	SRE	\$2.38	\$70.88	3.36%	3.44%	6.50%	4.14%	5.00%	5.21%	7.57%	8.66%	9.97%
Southern Company	SO	\$2.80	\$68.33	4.10%	4.22%	6.50%	7.10%	4.00%	5.87%	8.18%	10.08%	11.34%
Wisconsin Energy Corporation	WEC	\$3.12	\$85.32	3.66%	3.76%	6.00%	5.70%	5.80%	5.83%	9.46%	9.60%	9.77%
Xcel Energy Inc	XEL	\$2.08	\$59.42	3.50%	3.61%	6.00%	6.75%	6.30%	6.35%	9.61%	9.96%	10.37%
Mean				3.76%	3.86%	5.85%	5.59%	5.28%	5.61%	8.57%	9.47%	10.34%
Median				3.61%	3.70%	6.50%	5.79%	5.30%	5.83%	8.53%	9.60%	10.27%

Notes:

[1] Source: Bloomberg Professiona

[2] Source: Bloomberg Professional, equals 90-day average as of October 31, 202

[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 – PSEG PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
Ameren Corporation	AEE	\$2.52	\$81.85	3.08%	3.18%	6.50%	6.20%	6.60%	6.43%	9.37%	9.61%	9.78%
Avista Corporation	AVA	\$1.84	\$37.95	4.84%	4.99%	6.00%	6.30%	6.30%	6.20%	10.99%	11.19%	11.30%
Black Hills Corporation	BKH	\$2.50	\$58.37	4.28%	4.36%	3.00%	5.40%	2.20%	3.53%	6.53%	7.89%	9.80%
CenterPoint Energy, Inc	CNP	\$0.76	\$28.64	2.65%	2.75%	6.50%	negative	7.50%	7.00%	9.24%	9.75%	10.25%
CMS Energy Corporation	CMS	\$1.95	\$58.15	3.35%	3.46%	6.50%	5.87%	7.50%	6.62%	9.32%	10.09%	10.98%
Consolidated Edison, Inc	ED	\$3.24	\$91.57	3.54%	3.62%	6.00%	6.12%	2.00%	4.71%	5.57%	8.33%	9.77%
Eversource Energy	ES	\$2.70	\$68.77	3.93%	4.03%	6.50%	4.00%	5.00%	5.17%	8.00%	9.19%	10.55%
MGE Energy, Inc	MGEE	\$1.71	\$74.51	2.29%	2.36%	6.50%	5.40%	5.30%	5.73%	7.66%	8.09%	8.87%
NorthWestern Corporation	NWE	\$2.56	\$54.16	4.73%	4.83%	3.50%	4.08%	5.20%	4.26%	8.31%	9.09%	10.05%
Sempra Energy	SRE	\$2.38	\$72.30	3.29%	3.38%	6.50%	4.14%	5.00%	5.21%	7.50%	8.59%	9.90%
Southern Company	SO	\$2.80	\$68.45	4.09%	4.21%	6.50%	7.10%	4.00%	5.87%	8.17%	10.08%	11.34%
Wisconsin Energy Corporation	WEC	\$3.12	\$88.14	3.54%	3.64%	6.00%	5.70%	5.80%	5.83%	9.34%	9.48%	9.65%
Xcel Energy Inc	XEL	\$2.08	\$62.43	3.33%	3.44%	6.00%	6.75%	6.30%	6.35%	9.43%	9.79%	10.19%
Mean				3.61%	3.71%	5.85%	5.59%	5.28%	5.61%	8.42%	9.32%	10.19%
Median				3.54%	3.62%	6.50%	5.79%	5.30%	5.83%	8.31%	9.48%	10.05%

Notes:

[1] Source: Bloomberg Professional.

[2] Source: Bloomberg Professional, equals 180-day average as of October 31, 2012

[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])

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	4.84%	0.85	12.49%	7.64%	11.34%	11.63%
Avista Corporation	AVA	4.84%	0.90	12.49%	7.64%	11.72%	11.91%
Black Hills Corporation	BKH	4.84%	1.00	12.49%	7.64%	12.49%	12.49%
CenterPoint Energy, Inc.	CNP	4.84%	1.10	12.49%	7.64%	13.25%	13.06%
CMS Energy Corporation	CMS	4.84%	0.80	12.49%	7.64%	10.96%	11.34%
Consolidated Edison, Inc.	ED	4.84%	0.80	12.49%	7.64%	10.96%	11.34%
Eversource Energy	ES	4.84%	0.90	12.49%	7.64%	11.72%	11.91%
MGE Energy, Inc.	MGEE	4.84%	0.75	12.49%	7.64%	10.58%	11.05%
NorthWestern Corporation	NWE	4.84%	0.95	12.49%	7.64%	12.10%	12.20%
Sempra Energy	SRE	4.84%	1.00	12.49%	7.64%	12.49%	12.49%
Southern Company	SO	4.84%	0.90	12.49%	7.64%	11.72%	11.91%
Wisconsin Energy Corporation	WEC	4.84%	0.80	12.49%	7.64%	10.96%	11.34%
Xcel Energy Inc.	XEL	4.84%	0.85	12.49%	7.64%	11.34%	11.63%
Mean						11.66%	11.87%
Median						11.72%	11.91%

Notes:

[1] Source: Bloomberg Professional, as of October 31, 2023

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VL BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30- year U.S. Treasury bond yield (Q1 2024 - Q1 2025)	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	4.44%	0.85	12.49%	8.05%	11.28%	11.58%
Avista Corporation	AVA	4.44%	0.90	12.49%	8.05%	11.68%	11.88%
Black Hills Corporation	BKH	4.44%	1.00	12.49%	8.05%	12.49%	12.49%
CenterPoint Energy, Inc.	CNP	4.44%	1.10	12.49%	8.05%	13.29%	13.09%
CMS Energy Corporation	CMS	4.44%	0.80	12.49%	8.05%	10.88%	11.28%
Consolidated Edison, Inc.	ED	4.44%	0.80	12.49%	8.05%	10.88%	11.28%
Eversource Energy	ES	4.44%	0.90	12.49%	8.05%	11.68%	11.88%
MGE Energy, Inc.	MGEE	4.44%	0.75	12.49%	8.05%	10.48%	10.98%
NorthWestern Corporation	NWE	4.44%	0.95	12.49%	8.05%	12.08%	12.19%
Sempra Energy	SRE	4.44%	1.00	12.49%	8.05%	12.49%	12.49%
Southern Company	SO	4.44%	0.90	12.49%	8.05%	11.68%	11.88%
Wisconsin Energy Corporation	WEC	4.44%	0.80	12.49%	8.05%	10.88%	11.28%
Xcel Energy Inc.	XEL	4.44%	0.85	12.49%	8.05%	11.28%	11.58%
Mean						11.62%	11.84%
Median						11.68%	11.88%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 11, November 1, 2023, at 2

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2025 - 2029)	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	3.80%	0.85	12.49%	8.69%	11.18%	11.51%
Avista Corporation	AVA	3.80%	0.90	12.49%	8.69%	11.62%	11.84%
Black Hills Corporation	BKH	3.80%	1.00	12.49%	8.69%	12.49%	12.49%
CenterPoint Energy, Inc.	CNP	3.80%	1.10	12.49%	8.69%	13.36%	13.14%
CMS Energy Corporation	CMS	3.80%	0.80	12.49%	8.69%	10.75%	11.18%
Consolidated Edison, Inc.	ED	3.80%	0.80	12.49%	8.69%	10.75%	11.18%
Eversource Energy	ES	3.80%	0.90	12.49%	8.69%	11.62%	11.84%
MGE Energy, Inc.	MGEE	3.80%	0.75	12.49%	8.69%	10.32%	10.86%
NorthWestern Corporation	NWE	3.80%	0.95	12.49%	8.69%	12.05%	12.16%
Sempra Energy	SRE	3.80%	1.00	12.49%	8.69%	12.49%	12.49%
Southern Company	SO	3.80%	0.90	12.49%	8.69%	11.62%	11.84%
Wisconsin Energy Corporation	WEC	3.80%	0.80	12.49%	8.69%	10.75%	11.18%
Xcel Energy Inc.	XEL	3.80%	0.85	12.49%	8.69%	11.18%	11.51%
Mean						11.55%	11.79%
Median						11.62%	11.84%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	4.84%	0.75	12.49%	7.64%	10.59%	11.06%
Avista Corporation	AVA	4.84%	0.75	12.49%	7.64%	10.59%	11.07%
Black Hills Corporation	BKH	4.84%	0.90	12.49%	7.64%	11.72%	11.91%
CenterPoint Energy, Inc.	CNP	4.84%	0.98	12.49%	7.64%	12.35%	12.38%
CMS Energy Corporation	CMS	4.84%	0.75	12.49%	7.64%	10.55%	11.03%
Consolidated Edison, Inc.	ED	4.84%	0.63	12.49%	7.64%	9.69%	10.39%
Eversource Energy	ES	4.84%	0.80	12.49%	7.64%	10.98%	11.36%
MGE Energy, Inc.	MGEE	4.84%	0.68	12.49%	7.64%	10.04%	10.65%
NorthWestern Corporation	NWE	4.84%	0.86	12.49%	7.64%	11.40%	11.67%
Sempra Energy	SRE	4.84%	0.84	12.49%	7.64%	11.30%	11.60%
Southern Company	SO	4.84%	0.77	12.49%	7.64%	10.75%	11.19%
Wisconsin Energy Corporation	WEC	4.84%	0.73	12.49%	7.64%	10.46%	10.97%
Xcel Energy Inc.	XEL	4.84%	0.74	12.49%	7.64%	10.48%	10.96%
Mean						10.84%	11.25%
Median						10.59%	11.07%

Notes:

[1] Source: Bloomberg Professional, as of October 31, 2023

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30-year U.S. Treasury bond yield		Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
Company	Ticker	(Q1 2024 - Q1 2025)	Beta (β)				
Ameren Corporation	AEE	4.44%	0.75	12.49%	8.05%	10.49%	10.99%
Avista Corporation	AVA	4.44%	0.75	12.49%	8.05%	10.49%	10.99%
Black Hills Corporation	BKH	4.44%	0.90	12.49%	8.05%	11.68%	11.88%
CenterPoint Energy, Inc.	CNP	4.44%	0.98	12.49%	8.05%	12.34%	12.36%
CMS Energy Corporation	CMS	4.44%	0.75	12.49%	8.05%	10.45%	10.96%
Consolidated Edison, Inc.	ED	4.44%	0.63	12.49%	8.05%	9.54%	10.28%
Eversource Energy	ES	4.44%	0.80	12.49%	8.05%	10.90%	11.30%
MGE Energy, Inc.	MGEE	4.44%	0.68	12.49%	8.05%	9.91%	10.55%
NorthWestern Corporation	NWE	4.44%	0.86	12.49%	8.05%	11.34%	11.63%
Sempra Energy	SRE	4.44%	0.84	12.49%	8.05%	11.24%	11.55%
Southern Company	SO	4.44%	0.77	12.49%	8.05%	10.66%	11.12%
Wisconsin Energy Corporation	WEC	4.44%	0.73	12.49%	8.05%	10.35%	10.89%
Xcel Energy Inc.	XEL	4.44%	0.74	12.49%	8.05%	10.37%	10.90%
Mean						10.75%	11.18%
Median						10.49%	10.99%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 11, November 1, 2023, at 2

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
		Projected 30-year U.S. Treasury bond yield		Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
Company	Ticker	(2025 - 2029)	Beta (β)				
Ameren Corporation	AEE	3.80%	0.75	12.49%	8.69%	10.33%	10.87%
Avista Corporation	AVA	3.80%	0.75	12.49%	8.69%	10.33%	10.87%
Black Hills Corporation	BKH	3.80%	0.90	12.49%	8.69%	11.61%	11.83%
CenterPoint Energy, Inc.	CNP	3.80%	0.98	12.49%	8.69%	12.33%	12.37%
CMS Energy Corporation	CMS	3.80%	0.75	12.49%	8.69%	10.28%	10.83%
Consolidated Edison, Inc.	ED	3.80%	0.63	12.49%	8.69%	9.30%	10.10%
Eversource Energy	ES	3.80%	0.80	12.49%	8.69%	10.77%	11.20%
MGE Energy, Inc.	MGEE	3.80%	0.68	12.49%	8.69%	9.70%	10.40%
NorthWestern Corporation	NWE	3.80%	0.86	12.49%	8.69%	11.25%	11.56%
Sempra Energy	SRE	3.80%	0.84	12.49%	8.69%	11.14%	11.46%
Southern Company	SO	3.80%	0.77	12.49%	8.69%	10.52%	11.01%
Wisconsin Energy Corporation	WEC	3.80%	0.73	12.49%	8.69%	10.18%	10.76%
Xcel Energy Inc.	XEL	3.80%	0.74	12.49%	8.69%	10.20%	10.77%
Mean						10.61%	11.08%
Median						10.33%	10.87%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VALUE LINE LT AVERAGE BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	4.84%	0.73	12.49%	7.64%	10.39%	10.91%
Avista Corporation	AVA	4.84%	0.79	12.49%	7.64%	10.84%	11.25%
Black Hills Corporation	BKH	4.84%	0.89	12.49%	7.64%	11.65%	11.86%
CenterPoint Energy, Inc.	CNP	4.84%	0.92	12.49%	7.64%	11.88%	12.03%
CMS Energy Corporation	CMS	4.84%	0.69	12.49%	7.64%	10.12%	10.71%
Consolidated Edison, Inc.	ED	4.84%	0.60	12.49%	7.64%	9.39%	10.17%
Eversource Energy	ES	4.84%	0.74	12.49%	7.64%	10.53%	11.02%
MGE Energy, Inc.	MGEE	4.84%	0.69	12.49%	7.64%	10.08%	10.68%
NorthWestern Corporation	NWE	4.84%	0.75	12.49%	7.64%	10.54%	11.03%
Sempra Energy	SRE	4.84%	0.83	12.49%	7.64%	11.15%	11.48%
Southern Company	SO	4.84%	0.66	12.49%	7.64%	9.85%	10.51%
Wisconsin Energy Corporation	WEC	4.84%	0.66	12.49%	7.64%	9.89%	10.54%
Xcel Energy Inc.	XEL	4.84%	0.66	12.49%	7.64%	9.85%	10.51%
Mean						10.47%	10.98%
Median						10.39%	10.91%

Notes:

[1] Source: Bloomberg Professional, as of October 31, 2023

[2] Source: LT Beta

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VALUE LINE LT AVERAGE BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30- year U.S. Treasury bond yield (Q1 2024 - Q1 2025)	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	4.44%	0.73	12.49%	8.05%	10.27%	10.83%
Avista Corporation	AVA	4.44%	0.79	12.49%	8.05%	10.76%	11.19%
Black Hills Corporation	BKH	4.44%	0.89	12.49%	8.05%	11.60%	11.82%
CenterPoint Energy, Inc.	CNP	4.44%	0.92	12.49%	8.05%	11.84%	12.00%
CMS Energy Corporation	CMS	4.44%	0.69	12.49%	8.05%	9.99%	10.62%
Consolidated Edison, Inc.	ED	4.44%	0.60	12.49%	8.05%	9.23%	10.04%
Eversource Energy	ES	4.44%	0.74	12.49%	8.05%	10.42%	10.94%
MGE Energy, Inc.	MGEE	4.44%	0.69	12.49%	8.05%	9.95%	10.59%
NorthWestern Corporation	NWE	4.44%	0.75	12.49%	8.05%	10.43%	10.95%
Sempra Energy	SRE	4.44%	0.83	12.49%	8.05%	11.08%	11.43%
Southern Company	SO	4.44%	0.66	12.49%	8.05%	9.71%	10.40%
Wisconsin Energy Corporation	WEC	4.44%	0.66	12.49%	8.05%	9.75%	10.43%
Xcel Energy Inc.	XEL	4.44%	0.66	12.49%	8.05%	9.71%	10.40%
Mean						10.37%	10.90%
Median						10.27%	10.83%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 11, November 1, 2023, at 2

[2] Source: LT Beta

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2025 - 2029)	Beta (β)	Market Return (R _m)	Market Risk Premium (R _m - R _f)	ROE (K)	ECAPM ROE (K)
Ameren Corporation	AEE	3.80%	0.73	12.49%	8.69%	10.10%	10.70%
Avista Corporation	AVA	3.80%	0.79	12.49%	8.69%	10.62%	11.09%
Black Hills Corporation	BKH	3.80%	0.89	12.49%	8.69%	11.53%	11.77%
CenterPoint Energy, Inc.	CNP	3.80%	0.92	12.49%	8.69%	11.79%	11.97%
CMS Energy Corporation	CMS	3.80%	0.69	12.49%	8.69%	9.79%	10.47%
Consolidated Edison, Inc.	ED	3.80%	0.60	12.49%	8.69%	8.97%	9.85%
Eversource Energy	ES	3.80%	0.74	12.49%	8.69%	10.26%	10.82%
MGE Energy, Inc.	MGEE	3.80%	0.69	12.49%	8.69%	9.75%	10.43%
NorthWestern Corporation	NWE	3.80%	0.75	12.49%	8.69%	10.27%	10.83%
Sempra Energy	SRE	3.80%	0.83	12.49%	8.69%	10.97%	11.35%
Southern Company	SO	3.80%	0.66	12.49%	8.69%	9.49%	10.24%
Wisconsin Energy Corporation	WEC	3.80%	0.66	12.49%	8.69%	9.53%	10.27%
Xcel Energy Inc.	XEL	3.80%	0.66	12.49%	8.69%	9.49%	10.24%
Mean						10.20%	10.77%
Median						10.10%	10.70%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14

[2] Source: LT Beta

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

HISTORICAL BETA - 2013 - 2022

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	Average
Ameren Corporation	AEE	0.80	0.75	0.75	0.65	0.70	0.55	0.55	0.85	0.60	0.65	0.73
Avista Corporation	AVA	0.75	0.80	0.80	0.70	0.75	0.65	0.60	0.95	0.95	0.90	0.79
Black Hills Corporation	BKH	0.90	0.90	0.90	0.90	0.90	0.75	0.70	1.00	1.00	0.95	0.89
CenterPoint Energy, Inc.	CNP	0.80	0.75	0.85	0.85	0.90	0.85	0.80	1.15	1.15	1.10	0.92
CMS Energy Corporation	CMS	0.70	0.70	0.75	0.65	0.65	0.55	0.50	0.80	0.80	0.80	0.69
Consolidated Edison, Inc.	ED	0.60	0.60	0.60	0.55	0.50	0.40	0.45	0.75	0.75	0.75	0.60
Eversource Energy	ES			0.75	0.70	0.65	0.60	0.55	0.90	0.90	0.90	0.74
MGE Energy, Inc.	MGEE	0.65	0.70	0.75	0.70	0.75	0.60	0.55	0.70	0.75	0.70	0.69
NorthWestern Corporation	NWE	0.70	0.70	0.70	0.70	0.70	0.55	0.60	0.95	0.95	0.90	0.75
Sempra Energy	SRE	0.75	0.75	0.80	0.80	0.80	0.75	0.70	1.00	0.95	0.95	0.83
Southern Company	SO	0.55	0.55	0.60	0.55	0.55	0.50	0.50	0.90	0.95	0.90	0.66
Wisconsin Energy Corporation	WEC	0.65	0.65	0.70	0.60	0.60	0.50	0.50	0.80	0.80	0.80	0.66
Xcel Energy Inc.	XEL	0.65	0.65	0.65	0.60	0.60	0.50	0.50	0.80	0.80	0.80	0.66
Mean		0.71	0.71	0.74	0.69	0.70	0.60	0.58	0.89	0.89	0.87	0.74

Notes:

- [1] Value Line, dated December 26, 2013.
[2] Value Line, dated December 31, 2014.
[3] Value Line, dated December 30, 2015.
[4] Value Line, dated December 29, 2016.
[5] Value Line, dated December 28, 2017.
[6] Value Line, dated December 27, 2018.
[7] Value Line, dated December 26, 2019.
[8] Value Line, dated December 30, 2020.
[9] Value Line, dated December 29, 2021.
[10] Value Line, dated December 30, 2022.
[11] Average ([1] - [10])

MARKET RISK PREMIUM DERIVED FROM ANALYSTS' LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	1.88%
[2] Estimated Weighted Average Long-Term Growth Rate	10.51%
[3] S&P 500 Estimated Required Market Return	12.49%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	324.36	90.24	29,270.43	0.11%	5.54%	0.01%	11.00%	0.01%
American Express Co	AXP	728.75	146.03	106,418.78	0.40%	1.84%	0.01%	13.94%	0.06%
Verizon Communications Inc	VZ	4,204.10	35.13	147,690.10		7.57%			
Broadcom Inc	AVGO	412.74	841.37	347,263.69	1.31%	2.19%	0.03%	12.40%	0.16%
Boeing Co/The	BA	804.98	186.82	113,021.80					
Caterpillar Inc	CAT	510.14	226.05	115,317.83	0.44%	2.30%	0.01%	20.00%	0.09%
JPMorgan Chase & Co	JPM	2,906.09	139.06	404,120.18	1.52%	3.02%	0.05%	1.00%	0.02%
Chevron Corp	CVX	1,867.25	145.73	272,113.61	1.03%	4.14%	0.04%	7.27%	0.07%
Coca-Cola Co/The	KO	4,323.41	56.49	244,229.66	0.92%	3.26%	0.03%	7.02%	0.06%
AbbVie Inc	ABBV	1,765.05	141.18	249,189.34	0.94%	4.39%	0.04%	6.50%	0.06%
Walt Disney Co/The	DIS	1,829.78	81.59	149,291.67				22.27%	
FleetCor Technologies Inc	FLT	73.96	225.17	16,652.90	0.06%			12.40%	0.01%
Extra Space Storage Inc	EXR	211.28	103.59	21,888.18	0.08%	2.38%	0.00%	0.61%	0.00%
Exxon Mobil Corp	XOM	3,962.92	105.85	419,474.87	1.58%	3.59%	0.06%	16.80%	0.27%
Phillips 66	PSX	445.29	114.07	50,794.00	0.19%	3.68%	0.01%	15.21%	0.03%
General Electric Co	GE	1,088.39	108.63	118,231.37	0.45%	0.29%	0.00%	7.00%	0.03%
HP Inc	HPQ	988.27	26.33	26,021.12	0.10%	3.99%	0.00%	0.50%	0.00%
Home Depot Inc/The	HD	1,000.07	284.69	284,708.79	1.07%	2.94%	0.03%	3.32%	0.04%
Monolithic Power Systems Inc	MPWR	47.91	441.74	21,164.21	0.08%	0.91%	0.00%	8.00%	0.01%
International Business Machines Corp	IBM	913.12	144.64	132,073.53	0.50%	4.59%	0.02%	2.77%	0.01%
Johnson & Johnson	JNJ	2,407.28	148.34	357,095.77	1.35%	3.21%	0.04%	3.86%	0.05%
Lululemon Athletica Inc	LULU	121.43	393.48	47,778.31	0.18%			16.00%	0.03%
McDonald's Corp	MCD	728.76	262.17	191,059.80	0.72%	2.55%	0.02%	9.67%	0.07%
Merk & Co Inc	MRK	2,537.52	102.70	260,603.41	0.98%	2.84%	0.03%	8.51%	0.08%
3M Co	MMM	552.32	90.95	50,233.23	0.19%	6.60%	0.01%	4.00%	0.01%
American Water Works Co Inc	AWK	194.67	117.65	22,902.81	0.09%	2.41%	0.00%	8.00%	0.01%
Bank of America Corp	BAC	7,913.73	26.34	208,447.70		3.64%			
Pfizer Inc	PFE	5,645.96	30.56	172,540.54		5.37%		50.40%	
Procter & Gamble Co/The	PG	2,356.89	150.03	353,603.61	1.33%	2.51%	0.03%	7.51%	0.10%
AT&T Inc	T	7,150.02	15.40	110,110.31	0.42%	7.21%	0.03%	2.44%	0.01%
Travelers Cos Inc/The	TRV	228.40	167.44	38,243.13	0.14%	2.39%	0.00%	15.33%	0.02%
RTX Corp	RTX	1,437.90	81.39	117,030.76	0.44%	2.90%	0.01%	8.61%	0.04%
Analog Devices Inc	ADI	498.31	157.33	78,399.74	0.30%	2.19%	0.01%	6.50%	0.02%
Walmart Inc	WMT	2,691.56	163.41	439,828.47	1.66%	1.40%	0.02%	8.00%	0.13%
Cisco Systems Inc	CSCO	4,050.54	52.13	211,154.75	0.80%	2.99%	0.02%	7.50%	0.06%
Intel Corp	INTC	4,216.00	36.50	153,884.00		1.37%		-1.82%	
General Motors Co	GM	1,369.48	28.20	38,619.36	0.15%	1.28%	0.00%	0.36%	0.00%
Microsoft Corp	MSFT	7,432.26	338.11	2,512,922.10	9.48%	0.89%	0.08%	15.72%	1.49%
Dollar General Corp	DG	219.48	119.04	26,126.42		1.98%		-2.50%	
Cigna Group/The	CI	295.98	309.20	91,517.02	0.35%	1.59%	0.01%	9.80%	0.03%
Kinder Morgan Inc	KMI	2,222.77	16.20	36,008.94	0.14%	6.98%	0.01%	2.00%	0.00%
Citigroup Inc	C	1,913.90	39.49	75,579.91		5.37%		-9.70%	
American International Group Inc	AIG	711.90	61.31	43,646.59	0.16%	2.35%	0.00%	10.00%	0.02%
Altria Group Inc	MO	1,768.65	40.17	71,046.55	0.27%	9.76%	0.03%	4.50%	0.01%
HCA Healthcare Inc	HCA	267.66	226.14	60,528.86	0.23%	1.06%	0.00%	7.56%	0.02%
International Paper Co	IP	346.02	33.73	11,671.15		5.48%		-2.00%	
Hewlett Packard Enterprise Co	HPE	1,282.87	15.38	19,730.46	0.07%	3.12%	0.00%	3.03%	0.00%
Abbott Laboratories	ABT	1,735.36	94.55	164,078.10	0.62%	2.16%	0.01%	3.27%	0.02%
Allac Inc	AFL	594.06	78.11	46,402.18	0.18%	2.15%	0.00%	5.98%	0.01%
Air Products and Chemicals Inc	APD	222.15	282.44	62,743.76	0.24%	2.48%	0.01%	10.86%	0.03%
Royal Caribbean Cruises Ltd	RCL	256.24	84.73	21,710.79					
Hess Corp	HES	307.06	144.40	44,339.61	0.17%	1.21%	0.00%	13.00%	0.02%
Archer-Daniels-Midland Co	ADM	533.38	71.57	38,174.08		2.52%		-7.07%	
Automatic Data Processing Inc	ADP	411.70	218.22	89,841.17	0.34%	2.29%	0.01%	16.00%	0.05%
Verisk Analytics Inc	VRSK	145.03	227.36	32,973.34	0.12%	0.60%	0.00%	10.52%	0.01%
AutoZone Inc	AZO	17.63	2,477.13	43,681.71	0.16%			13.72%	0.02%
Avery Dennison Corp	AVY	80.53	174.07	14,018.03	0.05%	1.88%	0.00%	7.00%	0.00%
Enphase Energy Inc	ENPH	136.55	79.58	10,868.73				30.50%	
MSCI Inc	MSCI	79.09	471.55	37,295.36	0.14%	1.17%	0.00%	14.41%	0.02%
Ball Corp	BALL	315.06	48.15	15,170.09	0.06%	1.66%	0.00%	10.30%	0.01%
Axon Enterprise Inc	AXON	74.78	204.49	15,287.67					
Ceridian HCM Holding Inc	CDAY	155.61	84.01	9,960.79					
Carrier Global Corp	CARR	839.05	47.66	39,988.98	0.15%	1.55%	0.00%	10.80%	0.02%
Bank of New York Mellon Corp/The	BK	769.07	42.50	32,685.60	0.12%	3.95%	0.00%	10.00%	0.01%
Otis Worldwide Corp	OTIS	409.26	77.21	31,598.89	0.12%	1.78%	0.00%	9.00%	0.01%
Baxter International Inc	BAX	506.41	32.43	16,422.71	0.06%	3.58%	0.00%	0.33%	0.00%
Becton Dickinson & Co	BDX	290.11	252.78	73,333.75	0.28%	1.44%	0.00%	9.20%	0.03%
Berkshire Hathaway Inc	BRK/B	1,309.07	341.33	446,483.53					
Best Buy Co Inc	BBY	217.64	66.82	14,542.57	0.05%	5.51%	0.00%	3.21%	0.00%
Boston Scientific Corp	BSX	1,464.22	51.19	74,953.58	0.28%			12.10%	0.03%
Bristol-Myers Squibb Co	BMJ	2,034.76	51.53	104,851.08	0.40%	4.42%	0.02%	2.22%	0.01%
Brown-Forman Corp	BF/B	310.14	56.16	17,417.24	0.07%	1.46%	0.00%	7.04%	0.00%
Coterra Energy Inc	CTRA	755.05	27.50	20,763.77		2.91%		23.02%	
Campbell Soup Co	CPB	297.62	40.41	12,028.91	0.05%	3.68%	0.00%	3.17%	0.00%
Hilton Worldwide Holdings Inc	HLT	256.44	151.53	38,858.35	0.15%	0.40%	0.00%	17.09%	0.03%
Carnival Corp	CCL	1,119.45	11.46	12,828.84					
Qorvo Inc	QRVO	97.91	87.42	8,559.29	0.03%			2.83%	0.00%
UDR Inc	UDR	328.93	31.61	10,463.20	0.04%	5.28%	0.00%	6.08%	0.00%
Clorox Co/The	CLX	124.00	117.70	14,594.92	0.06%	4.08%	0.00%	14.82%	0.01%
Paycom Software Inc	PAYC	60.47	244.97	14,812.60		0.61%		21.43%	

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
CMS Energy Corp	CMS	291.76	53.86	15,713.24	0.06%	3.62%	0.00%	7.33%	0.00%
Colgate-Palmolive Co	CL	823.37	75.12	61,851.70	0.23%	2.56%	0.01%	7.61%	0.02%
EPAM Systems Inc	EPAM	57.96	217.57	12,610.57	0.05%			4.70%	0.00%
Comerica Inc	CMA	131.87	39.40	5,195.80	0.02%	7.21%	0.00%	10.63%	0.00%
Conagra Brands Inc	CAG	477.97	27.01	12,909.92	0.05%	5.18%	0.00%	0.84%	0.00%
Airbnb Inc	ABNB	426.36	118.29	50,434.01	0.19%			18.84%	0.04%
Consolidated Edison Inc	ED	344.92	87.79	30,280.88	0.11%	3.69%	0.00%	4.88%	0.01%
Coming Inc	GLW	853.18	26.76	22,830.96	0.09%	4.19%	0.00%	1.57%	0.00%
Cummins Inc	CM	141.65	216.30	30,638.25	0.12%	3.11%	0.00%	11.27%	0.01%
Caesars Entertainment Inc	CZR	215.71	39.69	8,604.71					
Danaher Corp	DHR	738.93	192.02	141,888.76		0.58%		-5.34%	
Target Corp	TGT	461.81	110.79	51,141.22		3.97%		-0.10%	
Deere & Co	DE	288.00	365.36	105,224.05	0.40%	1.48%	0.01%	16.67%	0.07%
Dominion Energy Inc	D	836.77	40.32	33,738.69		6.62%		-3.05%	
Dover Corp	DOV	139.89	129.95	18,178.71	0.07%	1.57%	0.00%	10.00%	0.01%
Alliant Energy Corp	LNT	252.72	48.79	12,330.16	0.05%	3.71%	0.00%	6.26%	0.00%
Steel Dynamics Inc	STLD	165.64	106.51	17,642.74		1.60%		-16.12%	
Duke Energy Corp	DUK	771.00	88.89	68,534.19	0.26%	4.61%	0.01%	6.06%	0.02%
Regency Centers Corp	REG	171.00	60.26	10,304.64	0.04%	4.31%	0.00%	4.98%	0.00%
Eaton Corp PLC	ETN	399.30	207.91	83,018.46	0.31%	1.65%	0.01%	15.00%	0.05%
Ecolab Inc	ECL	285.03	167.74	47,811.60	0.18%	1.26%	0.00%	15.40%	0.03%
Revvity Inc	RVTY	124.14	82.85	10,284.58		0.34%		-26.69%	
Emerson Electric Co	EMR	571.50	88.97	50,848.38	0.19%	2.34%	0.00%	16.70%	0.03%
EOG Resources Inc	EOG	582.28	126.25	73,510.45	0.28%	2.81%	0.01%	11.33%	0.03%
Aon PLC	AON	200.22	309.40	61,946.83	0.23%	0.80%	0.00%	11.58%	0.03%
Entergy Corp	ETR	211.46	95.59	20,213.08	0.08%	4.73%	0.00%	6.03%	0.00%
Equifax Inc	EFX	123.22	169.57	20,893.91	0.08%	0.92%	0.00%	12.33%	0.01%
EQT Corp	EQT	411.33	42.38	17,432.25		1.49%		22.52%	
IQVIA Holdings Inc	IQV	183.12	180.83	33,113.95	0.12%			13.12%	0.02%
Gartner Inc	IT	78.83	332.04	26,173.05	0.10%			7.22%	0.01%
FedEx Corp	FDX	251.42	240.10	60,385.94	0.23%	2.10%	0.00%	14.50%	0.03%
FMC Corp	FMC	124.73	53.20	6,635.85		4.36%		-4.00%	
Brown & Brown Inc	BRO	284.60	69.42	19,756.79	0.07%	0.75%	0.00%	11.00%	0.01%
Ford Motor Co	F	3,932.10	9.75	38,337.99		6.15%		-2.52%	
NextEra Energy Inc	NEE	2,023.71	58.30	117,982.53	0.45%	3.21%	0.01%	8.76%	0.04%
Franklin Resources Inc	BEN	498.98	22.79	11,371.71		5.27%		-9.00%	
Garmin Ltd	GRMN	191.45	102.53	19,629.57	0.07%	2.85%	0.00%	5.60%	0.00%
Freeport-McMoRan Inc	FCX	1,433.64	33.78	48,428.22		1.78%		-13.95%	
Dexcom Inc	DXCM	386.37	88.83	34,321.60				30.59%	
General Dynamics Corp	GD	272.90	241.31	65,852.78	0.25%	2.19%	0.01%	10.40%	0.03%
General Mills Inc	GIS	581.28	65.24	37,922.64	0.14%	3.62%	0.01%	8.00%	0.01%
Genuine Parts Co	GPC	140.20	128.86	18,065.79	0.07%	2.95%	0.00%	9.49%	0.01%
Atmos Energy Corp	ATO	148.48	107.66	15,983.42	0.08%	2.75%	0.00%	7.25%	0.00%
VW Grainger Inc	GWW	49.63	729.83	36,224.38		1.02%			
Halliburton Co	HAL	895.05	39.34	35,211.35		1.63%		24.14%	
L3Harris Technologies Inc	LHX	189.54	179.41	34,005.37	0.13%	2.54%	0.00%	3.50%	0.00%
Healthpeak Properties Inc	PEAK	547.07	15.55	8,507.00		7.72%			
Insulet Corp	PODD	69.82	132.57	9,256.17				39.24%	
Catalent Inc	CTLT	180.27	34.39	6,199.55					
Fortive Corp	FTV	351.43	65.28	22,941.61	0.09%	0.43%	0.00%	8.66%	0.01%
Hershey Co/The	HSY	149.89	187.35	28,080.95	0.11%	2.54%	0.00%	9.00%	0.01%
Synchrony Financial	SYF	413.80	28.05	11,607.20		3.57%			
Hormel Foods Corp	HRL	546.48	32.55	17,787.96	0.07%	3.38%	0.00%	2.39%	0.00%
Arthur J Gallagher & Co	AJG	215.90	235.49	50,842.29	0.19%	0.93%	0.00%	14.49%	0.03%
Mondelez International Inc	MDLZ	1,360.42	86.21	90,073.28	0.34%	2.57%	0.01%	7.97%	0.03%
CenterPoint Energy Inc	CNP	629.43	26.88	16,919.13	0.06%	2.98%	0.00%	8.02%	0.01%
Humana Inc	HUM	123.91	523.69	64,888.86	0.24%	0.68%	0.00%	12.32%	0.03%
Willis Towers Watson PLC	WTW	103.26	235.89	24,358.00	0.09%	1.42%	0.00%	11.19%	0.01%
Illinois Tool Works Inc	ITW	300.89	224.12	67,434.57	0.25%	2.50%	0.01%	3.91%	0.01%
CDW Corp/DE	CDW	134.05	200.40	26,863.22	0.10%	1.18%	0.00%	13.10%	0.01%
Trane Technologies PLC	TT	228.40	190.31	43,466.42	0.16%	1.58%	0.00%	11.86%	0.02%
Interpublic Group of Cos Inc/The	IPG	383.00	28.40	10,877.31	0.04%	4.37%	0.00%	5.71%	0.00%
International Flavors & Fragrances Inc	IFF	255.25	88.35	17,448.54		4.74%		-10.08%	
Generac Holdings Inc	GNRC	62.24	84.07	5,232.77	0.02%			4.50%	0.00%
NXP Semiconductors NV	NXPI	257.80	172.43	44,452.80		2.35%		20.50%	
Kellanova	K	342.35	50.47	17,278.25	0.07%	4.44%	0.00%	1.94%	0.00%
Broadridge Financial Solutions Inc	BR	117.62	170.64	20,070.85		1.88%			
Kimberly-Clark Corp	KMB	337.94	119.64	40,431.26	0.15%	3.95%	0.01%	9.64%	0.01%
Kimco Realty Corp	KIM	619.89	17.94	11,120.86	0.04%	5.35%	0.00%	3.47%	0.00%
Oracle Corp	ORCL	2,739.38	103.40	283,251.48	1.07%	1.55%	0.02%	14.43%	0.15%
Kroger Co/The	KR	719.32	45.37	32,835.37	0.12%	2.58%	0.00%	4.55%	0.01%
Lennar Corp	LEN	250.15	106.68	26,688.22	0.10%	1.41%	0.00%	1.00%	0.00%
Eli Lilly & Co	LLY	949.30	553.93	525,842.98		0.82%		23.26%	
Bath & Body Works Inc	BBWI	227.38	29.65	6,741.85	0.03%	2.70%	0.00%	11.38%	0.00%
Charter Communications Inc	CHTR	147.92	402.80	59,582.18	0.22%			13.16%	0.03%
Lowe's Corp	L	223.25	84.01	14,290.30		0.39%			
Lowe's Cos Inc	LOW	577.12	190.57	109,980.81		2.31%		20.59%	
Hubbell Inc	HUBB	53.63	270.10	14,485.73		1.81%			
IDEX Corp	IE	75.83	191.41	14,475.57	0.05%	1.34%	0.00%	11.00%	0.01%
Marsh & McLennan Cos Inc	MMC	493.07	189.65	93,511.10	0.35%	1.50%	0.01%	10.85%	0.04%
Masco Corp	MAS	224.50	52.09	11,694.26	0.04%	2.19%	0.00%	4.36%	0.00%
S&P Global Inc	SPGI	318.20	349.31	111,150.44	0.42%	1.03%	0.00%	13.54%	0.06%
Medtronic PLC	MDT	1,330.53	70.56	93,882.48	0.35%	3.91%	0.01%	3.17%	0.01%
Viatis Inc	VTRS	1,199.53	8.90	10,875.83		5.39%		-2.38%	
CVS Health Corp	CVS	1,284.40	69.01	88,636.37	0.33%	3.51%	0.01%	7.13%	0.02%
DuPont de Nemours Inc	DD	459.06	72.88	33,456.37	0.13%	1.98%	0.00%	12.18%	0.02%
Micron Technology Inc	MU	1,098.03	86.87	73,425.53		0.69%		-11.00%	
Motorola Solutions Inc	MSI	167.02	278.46	46,508.39	0.18%	1.26%	0.00%	12.22%	0.02%
Cboe Global Markets Inc	CBOE	105.52	163.89	17,293.18	0.07%	1.34%	0.00%	7.62%	0.00%
Laboratory Corp of America Holdings	LH	84.90	199.73	16,957.08		1.44%		-19.90%	
Newmont Corp	NEM	794.80	37.47	29,781.16	0.11%	4.27%	0.00%	12.20%	0.01%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
NIKE Inc	NKE	1,224.01	102.77	125,791.82	0.47%	1.32%	0.01%	16.07%	0.08%
NiSource Inc	NI	413.26	25.16	10,397.50	0.04%	3.97%	0.00%	7.00%	0.00%
Norfolk Southern Corp	NSC	226.14	189.44	42,838.25	0.16%	2.85%	0.00%	0.73%	0.00%
Principal Financial Group Inc	PFG	241.72	87.68	16,359.27	0.06%	3.96%	0.00%	8.76%	0.01%
Eversource Energy	ES	349.09	53.79	18,777.34	0.07%	5.02%	0.00%	5.21%	0.00%
Northrop Grumman Corp	NOC	150.79	471.43	71,088.34	0.27%	1.59%	0.00%	2.53%	0.01%
Wells Fargo & Co	WFC	3,631.64	39.42	143,154.16	0.54%	3.55%	0.02%	13.41%	0.07%
Nucor Corp	NUE	248.72	147.79	36,758.62		1.38%		-11.10%	
Occidental Petroleum Corp	OXY	884.68	61.81	54,682.19		1.16%		-2.25%	
Omnicom Group Inc	OMC	197.93	74.91	14,827.24	0.06%	3.74%	0.00%	6.36%	0.00%
ONEOK Inc	OKE	582.47	85.20	37,977.24	0.14%	5.88%	0.01%	7.43%	0.01%
Raymond James Financial Inc	RJF	208.80	95.44	19,927.87		1.78%			
PG&E Corp	PCG	2,133.51	16.30	34,776.18	0.13%			9.63%	0.01%
Parker-Hannifin Corp	PH	128.51	368.91	47,408.62	0.18%	1.60%	0.00%	14.56%	0.03%
Rollins Inc	ROL	484.04	37.61	18,204.67	0.07%	1.60%	0.00%	14.86%	0.01%
PPL Corp	PPL	737.09	24.57	18,110.28	0.07%	3.91%	0.00%	5.20%	0.00%
ConocoPhillips	COP	1,197.49	118.80	142,261.93		0.51%		0.00%	
PulteGroup Inc	PHM	215.60	73.59	15,865.64	0.06%	0.87%	0.00%	2.04%	0.00%
Pinnacle West Capital Corp	PNW	113.31	74.18	8,405.48	0.03%	4.75%	0.00%	5.90%	0.00%
PNC Financial Services Group Inc/The	PNC	398.34	114.47	45,598.09	0.17%	5.42%	0.01%	12.87%	0.02%
PPG Industries Inc	PPG	235.80	122.77	28,949.17	0.11%	2.12%	0.00%	11.24%	0.01%
Progressive Corp/The	PGR	585.04	158.09	92,489.13		0.25%		38.38%	
Verallio Corp	VLTO	248.31	89.00	16,995.25					
Public Service Enterprise Group Inc	PEG	499.11	81.65	30,770.19	0.12%	3.70%	0.00%	6.23%	0.01%
Robert Half Inc	RHI	105.90	74.77	7,917.77	0.03%	2.57%	0.00%	1.26%	0.00%
Cooper Cos Inc/The	COO	49.52	311.75	15,439.11	0.06%	0.02%	0.00%	7.54%	0.00%
Edison International	EIX	383.29	83.06	24,170.20	0.09%	4.68%	0.00%	4.80%	0.00%
Schlumberger NV	SLB	1,423.42	55.66	79,227.61		1.80%		33.41%	
Charles Schwab Corp/The	SCHW	1,770.22	52.04	92,122.25	0.35%	1.92%	0.01%	3.60%	0.01%
Sherwin-Williams Co/The	SHW	255.97	238.21	60,973.66	0.23%	1.02%	0.00%	7.95%	0.02%
West Pharmaceutical Services Inc	WST	73.99	318.29	23,550.28	0.09%	0.25%	0.00%	5.80%	0.01%
J M Smucker Co/The	SJM	102.14	113.84	11,627.85	0.04%	3.72%	0.00%	6.09%	0.00%
Snap-on Inc	SNA	52.78	257.94	13,614.07	0.05%	2.51%	0.00%	4.85%	0.00%
AMETEK Inc	AME	230.80	140.77	32,489.58	0.12%	0.71%	0.00%	8.16%	0.01%
Southern Co/The	SO	1,091.52	67.30	73,458.96	0.28%	4.18%	0.01%	5.05%	0.01%
Truist Financial Corp	TFC	1,333.67	28.36	37,822.82	0.14%	7.33%	0.01%	16.00%	0.02%
Southwest Airlines Co	LUV	596.12	22.23	13,251.64	0.05%	3.24%	0.00%	10.15%	0.01%
W R Berkley Corp	WRB	258.04	67.42	17,397.33	0.07%	0.65%	0.00%	13.00%	0.01%
Stanley Black & Decker Inc	SWK	153.31	85.05	13,039.10	0.05%	3.81%	0.00%	9.00%	0.00%
Public Storage	PSA	175.83	238.71	41,972.14	0.16%	5.03%	0.01%	4.44%	0.01%
Arista Networks Inc	ANET	311.10	200.37	62,335.11				20.66%	
Sysco Corp	SY	504.23	66.49	33,525.99	0.13%	3.01%	0.00%	13.00%	0.02%
Corteva Inc	CTVA	709.52	48.14	34,158.10	0.13%	1.33%	0.00%	17.67%	0.02%
Texas Instruments Inc	TXN	908.20	142.01	128,974.05	0.49%	3.68%	0.02%	10.00%	0.05%
Textron Inc	TXT	196.01	76.00	14,896.38	0.06%	0.11%	0.00%	11.73%	0.01%
Thermo Fisher Scientific Inc	TMO	385.95	444.77	171,658.98		0.31%		-5.00%	
TJX Cos Inc/The	TJX	1,144.08	88.07	100,759.21	0.38%	1.51%	0.01%	10.00%	0.04%
Globe Life Inc	GL	94.82	116.38	11,033.26		0.77%			
Johnson Controls International plc	JCI	680.32	49.02	33,349.29	0.13%	3.02%	0.00%	13.36%	0.02%
Ulta Beauty Inc	ULTA	49.23	381.31	18,771.51	0.07%			6.54%	0.00%
Union Pacific Corp	UNP	609.80	207.61	126,558.43	0.48%	2.50%	0.01%	6.50%	0.03%
Keysight Technologies Inc	KEYS	177.58	122.05	21,673.03	0.08%			2.52%	0.00%
UnitedHealth Group Inc	UNH	926.31	535.56	496,091.91	1.87%	1.40%	0.03%	12.79%	0.24%
Blackstone Inc	BX	718.44	92.35	66,348.21	0.25%	3.47%	0.01%	7.63%	0.02%
Marathon Oil Corp	MRO	805.69	27.31	16,541.31		1.61%		-10.00%	
Bio-Rad Laboratories Inc	BIO	24.06	275.28	6,622.96	0.02%			4.00%	0.00%
Ventas Inc	VTR	402.38	42.46	17,084.97	0.06%	4.24%	0.00%	7.81%	0.01%
VF Corp	VFC	388.87	14.73	5,728.03	0.02%	2.44%	0.00%	7.80%	0.00%
Vulcan Materials Co	VMC	132.87	196.49	26,108.22		0.88%		23.22%	
Weyerhaeuser Co	WY	730.00	28.69	20,943.73		2.65%			
Whirlpool Corp	WHR	54.85	104.56	5,735.43		6.69%		-2.33%	
Williams Cos Inc/The	WMB	1,216.42	34.40	41,844.88	0.16%	5.20%	0.01%	3.50%	0.01%
Constellation Energy Corp	CEG	321.59	112.92	36,314.17		1.00%		26.26%	
WEC Energy Group Inc	WEC	315.44	81.39	25,673.25	0.10%	3.83%	0.00%	6.47%	0.01%
Adobe Inc	ADBE	455.30	532.06	242,246.92	0.91%			17.33%	0.16%
AES Corp/The	AES	669.63	14.90	9,977.47	0.04%	4.45%	0.00%	6.37%	0.00%
Amgen Inc	AMGN	535.18	255.70	136,845.01	0.52%	3.33%	0.02%	5.33%	0.03%
Apple Inc	AAPL	15,634.23	170.77	2,669,857.80	10.07%	0.58%	0.06%	9.05%	0.91%
Autodesk Inc	ADSK	213.76	197.63	42,246.18	0.16%			13.88%	0.02%
Cintas Corp	CTAS	101.85	507.12	51,652.20	0.19%	1.06%	0.00%	11.86%	0.02%
Comcast Corp	CMCSA	4,015.84	41.29	165,805.57	0.83%	2.81%	0.02%	9.26%	0.06%
Molson Coors Beverage Co	TAP	200.96	57.77	11,609.46	0.04%	2.84%	0.00%	8.01%	0.00%
KLA Corp	KLAC	135.93	469.70	63,847.26	0.24%	1.11%	0.00%	9.93%	0.02%
Merritt International Inc/MD	MAR	298.24	188.58	56,236.13	0.21%	1.10%	0.00%	17.06%	0.04%
Fiserv Inc	FI	600.19	113.75	68,271.16	0.28%			14.08%	0.04%
McCormick & Co Inc/MD	MKC	251.29	83.90	16,057.49	0.06%	2.44%	0.00%	7.01%	0.00%
PACCAR Inc	PCAR	523.10	82.53	43,171.44	0.16%	1.31%	0.00%	12.00%	0.02%
Costco Wholesale Corp	COST	442.74	551.43	244,139.78	0.92%	0.74%	0.01%	13.06%	0.12%
Stryker Corp	SYK	379.78	270.22	102,623.61	0.39%	1.11%	0.00%	7.26%	0.03%
Tyson Foods Inc	TSN	285.55	46.35	13,235.24		4.14%		-24.28%	
Lamb Weston Holdings Inc	LW	144.93	89.52	12,974.39	0.05%	1.25%	0.00%	13.32%	0.01%
Applied Materials Inc	AMAT	836.53	132.35	110,715.27	0.42%	0.97%	0.00%	3.73%	0.02%
American Airlines Group Inc	AAL	853.54	11.15	7,286.98				54.64%	
Cardinal Health Inc	CAH	248.35	91.00	22,418.21		2.20%			
Cincinnati Financial Corp	CINF	156.91	99.67	15,639.02	0.06%	3.01%	0.00%	18.21%	0.01%
Paramount Global	PARA	610.40	10.88	6,641.14		1.84%		-22.86%	
DR Horton Inc	DHI	338.30	104.40	35,318.21		0.96%		-8.43%	
Electronic Arts Inc	EA	270.91	123.79	33,538.20	0.13%	0.61%	0.00%	9.26%	0.01%
Fair Isaac Corp	FICO	24.86	845.87	21,025.79					
Expeditors International of Washington Inc	EXPD	147.90	109.25	16,157.75		1.26%			
Fastenal Co	FAST	571.41	58.34	33,338.23		2.40%			

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
M&T Bank Corp	MTB	165.97	112.75	18,713.12	0.07%	4.61%	0.00%	11.59%	0.01%
Xcel Energy Inc	XEL	551.82	59.27	32,706.13	0.12%	3.51%	0.00%	5.95%	0.01%
Fifth Third Bancorp	FITB	680.99	23.71	16,148.27		5.90%		25.00%	
Gilead Sciences Inc	GILD	1,246.01	78.54	97,881.94	0.37%	3.82%	0.01%	2.15%	0.01%
Hasbro Inc	HAS	138.74	45.15	6,264.16		6.20%		-3.49%	
Huntington Bancshares Inc/OH	HBAN	1,448.08	9.65	13,973.92		6.42%		-7.69%	
Welltower Inc	WELL	532.27	83.61	44,502.93	0.17%	2.92%	0.00%	10.19%	0.02%
Biogen Inc	BIIB	144.82	237.54	34,401.26	0.13%			0.05%	0.00%
Northern Trust Corp	NTRS	207.04	65.91	13,645.74	0.05%	4.55%	0.00%	13.00%	0.01%
Packaging Corp of America	PKG	89.92	153.05	13,761.49	0.05%	3.27%	0.00%	3.00%	0.00%
Paychex Inc	PAYX	361.23	111.05	40,114.81	0.15%	3.21%	0.00%	7.00%	0.01%
QUALCOMM Inc	QCOM	1,116.00	108.99	121,632.84		2.94%		-1.35%	
Ross Stores Inc	ROST	338.63	115.97	39,271.15	0.15%	1.16%	0.00%	10.00%	0.01%
IDEXX Laboratories Inc	IDXX	83.01	399.47	33,160.80	0.13%			17.57%	0.02%
Starbucks Corp	SBUX	1,145.40	92.24	105,651.70		2.47%		20.53%	
KeyCorp	KEY	936.16	10.22	9,567.57	0.04%	8.02%	0.00%	7.08%	0.00%
Fox Corp	FOXA	253.68	30.39	7,709.46	0.03%	1.71%	0.00%	6.24%	0.00%
Fox Corp	FOX	235.58	27.91	6,575.07	0.02%	1.86%	0.00%	6.24%	0.00%
State Street Corp	STT	308.58	84.63	19,943.78	0.08%	4.27%	0.00%	6.92%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	425.42	13.60	5,765.77					
US Bancorp	USB	1,556.97	31.88	49,636.04	0.19%	6.02%	0.01%	7.50%	0.01%
A O Smith Corp	AOS	122.83	69.76	8,568.48		1.83%			
Gen Digital Inc	GEN	639.44	16.66	10,653.05		3.00%			
T Rowe Price Group Inc	TROW	223.47	90.50	20,224.04		5.39%		-3.90%	
Waste Management Inc	WM	402.78	164.33	66,188.02	0.25%	1.70%	0.00%	10.05%	0.03%
Constellation Brands Inc	STZ	183.66	233.26	42,841.23	0.16%	1.53%	0.00%	9.75%	0.02%
DENTSPLY SIRONA Inc	XRAY	211.72	30.41	6,438.28	0.02%	1.84%	0.00%	9.78%	0.00%
Zions Bancorp NA	ZION	148.15	30.85	4,570.30		5.32%		-9.73%	
Alaska Air Group Inc	ALK	127.12	31.63	4,020.81	0.02%			3.56%	0.00%
Invesco Ltd	IVZ	449.55	12.97	5,830.72		6.17%		-4.35%	
Intuit Inc	INTU	280.26	494.95	138,714.19	0.52%	0.73%	0.00%	18.84%	0.10%
Morgan Stanley	MS	1,656.97	70.82	117,346.40	0.44%	4.80%	0.02%	3.64%	0.02%
Microchip Technology Inc	MCHP	544.33	71.29	38,805.57	0.15%	2.30%	0.00%	12.06%	0.02%
Chubb Ltd	CB	407.98	214.62	87,561.53	0.33%	1.60%	0.01%	15.50%	0.05%
Hologic Inc	HOLX	244.94	86.17	16,207.81				-18.00%	
Citizens Financial Group Inc	CFG	466.22	23.43	10,823.58		7.17%		-10.63%	
O'Reilly Automotive Inc	ORLY	59.62	930.44	55,473.76	0.21%			11.39%	0.02%
Allstate Corp/The	ALL	261.57	128.13	33,515.48		2.78%		-3.00%	
Equity Residential	EQR	379.03	55.33	20,971.84	0.08%	4.79%	0.00%	5.17%	0.00%
BorgWarner Inc	BWA	235.06	36.90	8,673.82	0.03%	1.19%	0.00%	5.16%	0.00%
Keurig Dr Pepper Inc	KDP	1,398.34	30.33	42,411.53	0.16%	2.84%	0.00%	6.85%	0.01%
Host Hotels & Resorts Inc	HST	711.61	15.48	11,015.65		4.65%			
Incyte Corp	INCY	224.11	53.93	12,088.20				36.36%	
Simon Property Group Inc	SPG	326.25	109.89	35,851.28	0.14%	6.92%	0.01%	1.71%	0.00%
Eastman Chemical Co	EMN	118.56	74.73	8,860.29	0.03%	4.23%	0.00%	4.75%	0.00%
AvalonBay Communities Inc	AVB	142.02	165.74	23,537.73	0.09%	3.98%	0.00%	10.62%	0.01%
Prudential Financial Inc	PRU	383.00	91.44	33,192.72	0.13%	5.47%	0.01%	10.60%	0.01%
United Parcel Service Inc	UPS	723.28	141.25	102,162.74	0.39%	4.59%	0.02%	1.64%	0.01%
Walgreens Boots Alliance Inc	WBA	863.92	21.08	18,211.33	0.07%	9.11%	0.01%	0.25%	0.00%
STERIS PLC	STE	98.78	209.98	20,742.03		0.99%			
McKesson Corp	MCK	134.90	455.36	61,428.97	0.23%	0.54%	0.00%	10.03%	0.02%
Lockheed Martin Corp	LMT	248.10	454.64	112,795.73	0.43%	2.77%	0.01%	7.04%	0.03%
Cencora Inc	COR	202.18	185.15	37,432.70	0.14%	1.05%	0.00%	9.44%	0.01%
Capital One Financial Corp	COF	381.00	101.29	38,591.49		2.37%		-6.32%	
Waters Corp	WAT	59.10	238.53	14,097.84	0.05%			5.37%	0.00%
Nordson Corp	NDSN	57.01	212.59	12,120.61		1.28%			
Dollar Tree Inc	DLTR	220.01	111.09	24,440.47	0.09%			7.37%	0.01%
Darden Restaurants Inc	DRI	120.32	145.53	17,509.44	0.07%	3.60%	0.00%	10.45%	0.01%
Evergy Inc	EVERG	229.58	49.14	11,281.71	0.04%	4.99%	0.00%	4.82%	0.00%
Match Group Inc	MTCH	278.09	34.60	9,621.81				48.68%	
Domino's Pizza Inc	DPZ	34.88	338.99	11,824.31	0.04%	1.43%	0.00%	13.97%	0.01%
NVR Inc	NVR	3.21	5,412.62	17,374.51				-4.57%	
NetApp Inc	NTAP	208.79	72.78	15,195.81	0.06%	2.75%	0.00%	7.40%	0.00%
Old Dominion Freight Line Inc	ODFL	109.27	376.66	41,158.88	0.16%	0.42%	0.00%	5.83%	0.01%
DeVita Inc	DVA	91.30	77.23	7,051.10	0.03%			15.78%	0.00%
Hartford Financial Services Group Inc/The	HIG	300.77	73.45	22,091.56	0.08%	2.56%	0.00%	7.00%	0.01%
Iron Mountain Inc	IRM	291.85	59.07	17,239.70	0.07%	4.40%	0.00%	4.00%	0.00%
Estee Lauder Cos Inc/The	EL	232.30	128.87	29,938.11		2.05%		22.00%	
Cadence Design Systems Inc	CDNS	272.06	239.85	65,254.07	0.25%			18.58%	0.05%
Tyler Technologies Inc	TYL	42.08	372.90	15,690.89					
Universal Health Services Inc	UHS	62.14	125.89	7,822.80	0.03%	0.64%	0.00%	9.41%	0.00%
Skyworks Solutions Inc	SWKS	159.39	86.74	13,825.75	0.05%	3.14%	0.00%	4.99%	0.00%
Quest Diagnostics Inc	DGX	112.44	130.10	14,627.79		2.18%		-1.27%	
Rockwell Automation Inc	ROK	114.86	262.81	30,186.36	0.11%	1.90%	0.00%	15.47%	0.02%
Kraft Heinz Co/The	KHC	1,228.30	31.46	38,642.16	0.15%	5.09%	0.01%	3.92%	0.01%
American Tower Corp	AMT	466.17	178.19	83,065.94	0.31%	3.64%	0.01%	13.67%	0.04%
Regeneron Pharmaceuticals Inc	REGN	106.74	779.89	83,246.24	0.31%			3.33%	0.01%
Amazon.com Inc	AMZN	10,334.03	133.09	1,375,356.19				52.33%	
Jack Henry & Associates Inc	JKHY	72.80	140.99	10,264.21	0.04%	1.48%	0.00%	7.52%	0.00%
Ralph Lauren Corp	RL	40.39	112.53	4,544.86	0.02%	2.67%	0.00%	10.82%	0.00%
Boston Properties Inc	BXP	156.87	53.57	8,403.26	0.03%	7.32%	0.00%	3.79%	0.00%
Amphenol Corp	APH	598.31	80.55	48,193.87	0.18%	1.09%	0.00%	4.04%	0.01%
Howmet Aerospace Inc	HWM	412.21	44.10	18,178.37	0.07%	0.45%	0.00%	19.27%	0.01%
Pioneer Natural Resources Co	PXD	233.31	239.00	55,780.85		3.08%		-3.00%	
Valero Energy Corp	VLO	340.45	127.00	43,237.53		3.21%		35.66%	
Synopsys Inc	SNPS	152.08	469.44	71,394.31	0.27%			16.27%	0.04%
Etsy Inc	ETSY	123.01	62.30	7,663.77	0.03%			7.02%	0.00%
CH Robinson Worldwide Inc	CHRW	116.44	81.83	9,528.20	0.04%	2.98%	0.00%	5.00%	0.00%
Accenture PLC	ACN	664.79	297.09	197,501.57	0.75%	1.74%	0.01%	10.00%	0.07%
TransDigm Group Inc	TDG	55.18	828.09	45,696.49				26.63%	
Yum! Brands Inc	YUM	280.21	120.86	33,868.30	0.13%	2.00%	0.00%	12.91%	0.02%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Prologis Inc	PLD	923.86	100.75	93,079.10	0.35%	3.45%	0.01%	8.04%	0.03%
FirstEnergy Corp	FE	573.82	35.60	20,427.81		4.61%		-0.83%	
VeriSign Inc	VRSN	102.10	199.66	20,385.29	0.08%			11.50%	0.01%
Quanta Services Inc	PWR	145.20	167.12	24,285.66	0.09%	0.19%	0.00%	8.00%	0.01%
Henry Schein Inc	HSIC	130.59	64.98	8,485.41	0.03%			5.16%	0.00%
Ameren Corp	AEE	262.48	75.71	19,871.98	0.07%	3.33%	0.00%	6.21%	0.00%
ANSYS Inc	ANSS	86.79	278.26	24,150.46	0.09%			11.14%	0.01%
FactSet Research Systems Inc	FDS	37.99	431.89	16,406.64	0.06%	0.91%	0.00%	10.45%	0.01%
NVIDIA Corp	NVDA	2,470.00	407.80	1,007,266.00		0.04%		56.84%	
Sealed Air Corp	SEE	144.41	30.79	4,446.38	0.02%	2.60%	0.00%	0.93%	0.00%
Cognizant Technology Solutions Corp	CTSH	505.04	84.47	32,559.99	0.12%	1.80%	0.00%	12.00%	0.01%
Intuitive Surgical Inc	ISRG	352.07	262.22	92,320.32	0.35%			11.57%	0.04%
Take-Two Interactive Software Inc	TTWO	169.83	133.75	22,714.90				54.11%	
Republic Services Inc	RSG	314.64	148.49	46,720.45	0.18%	1.44%	0.00%	9.93%	0.02%
eBay Inc	EBAY	532.16	39.23	20,878.52	0.08%	2.55%	0.00%	9.50%	0.01%
Goldman Sachs Group Inc/The	GS	329.67	303.61	100,091.41	0.38%	3.62%	0.01%	7.71%	0.03%
SBA Communications Corp	SBAC	108.38	208.63	22,611.95	0.09%	1.63%	0.00%	8.00%	0.01%
Sempra	SRE	629.31	70.03	44,070.37	0.17%	3.40%	0.01%	5.49%	0.01%
Moody's Corp	MCO	183.00	308.00	56,384.00	0.21%	1.00%	0.00%	14.08%	0.03%
ON Semiconductor Corp	ON	430.70	62.64	26,978.92	0.10%			5.61%	0.01%
Booking Holdings Inc	BKNG	35.69	2,789.56	99,564.98	0.38%			17.50%	0.07%
F5 Inc	FFIV	59.21	151.59	8,975.19	0.03%			5.45%	0.00%
Akamai Technologies Inc	AKAM	151.71	103.33	15,678.50	0.06%			10.72%	0.01%
Charles River Laboratories International Inc	CRL	51.27	168.36	8,631.99	0.03%			11.00%	0.00%
MarketAxess Holdings Inc	MKTX	37.91	213.75	8,102.19		1.35%			
Devon Energy Corp	DVN	640.70	46.57	29,837.40		4.21%		-4.00%	
Bio-Techne Corp	TECH	158.24	54.63	8,644.65	0.03%	0.59%	0.00%	5.00%	0.00%
Alphabet Inc	GOOGL	5,918.00	124.08	734,305.44	2.77%			16.65%	0.46%
Teletex Inc	TFX	46.99	184.75	8,681.77	0.03%	0.74%	0.00%	7.03%	0.00%
Bunge Ltd	B699743D	145.29	105.98	15,397.62		2.50%			
Netflix Inc	NFLX	437.68	411.69	180,188.48				30.96%	
Allegion plc	ALLE	87.79	98.36	8,634.83	0.03%	1.83%	0.00%	5.93%	0.00%
Agilent Technologies Inc	A	292.59	103.37	30,244.72	0.11%	0.87%	0.00%	11.00%	0.01%
Warner Bros Discovery Inc	WBD	2,437.38	9.94	24,227.60				71.32%	
Elevance Health Inc	ELV	234.96	450.09	105,752.70	0.40%	1.32%	0.01%	10.85%	0.04%
Trimble Inc	TRMB	248.32	47.13	11,703.42					
CME Group Inc	CME	359.75	213.46	76,791.38	0.29%	2.06%	0.01%	11.10%	0.03%
Juniper Networks Inc	JNPR	318.87	26.92	8,583.93	0.03%	3.27%	0.00%	7.96%	0.00%
BlackRock Inc	BLK	149.30	612.28	91,415.24	0.34%	3.27%	0.01%	6.72%	0.02%
DTE Energy Co	DTE	206.11	96.38	19,864.79	0.07%	3.95%	0.00%	6.00%	0.00%
Nasdaq Inc	NDAQ	491.32	49.60	24,369.27	0.09%	1.77%	0.00%	2.68%	0.00%
Celanese Corp	CE	108.85	114.51	12,464.64	0.05%	2.45%	0.00%	3.27%	0.00%
Philip Morris International Inc	PM	1,552.41	89.16	138,412.52	0.52%	5.83%	0.03%	9.19%	0.05%
Salesforce Inc	CRM	973.00	200.83	195,407.59				21.67%	
Ingersoll Rand Inc	IR	404.40	60.68	24,538.93		0.13%			
Roper Technologies Inc	ROP	106.71	488.57	52,135.79		0.56%		-1.00%	
Huntington Ingalls Industries Inc	HII	39.87	219.82	8,763.78		2.26%		40.00%	
MetLife Inc	MET	752.02	60.01	45,128.84	0.17%	3.47%	0.01%	12.89%	0.02%
Tapestry Inc	TPR	227.44	27.56	6,268.22	0.02%	5.08%	0.00%	15.00%	0.00%
CSX Corp	CSX	1,976.13	29.85	58,987.51	0.22%	1.47%	0.00%	6.39%	0.01%
Edwards Lifesciences Corp	EW	608.50	63.72	38,648.18	0.15%			8.45%	0.01%
Ameriprise Financial Inc	AMP	102.63	314.57	32,283.06	0.12%	1.72%	0.00%	15.82%	0.02%
Zebra Technologies Corp	ZBRA	51.36	209.43	10,756.32					
Zimmer Biomet Holdings Inc	ZBH	208.96	104.41	21,817.93	0.08%	0.92%	0.00%	9.48%	0.01%
CBRE Group Inc	CBRE	304.79	89.34	21,134.35					
Camden Property Trust	CPT	106.77	84.88	9,062.72	0.03%	4.71%	0.00%	6.77%	0.00%
Mastercard Inc	MA	930.44	376.35	350,170.34	1.32%	0.61%	0.01%	17.85%	0.24%
CarMax Inc	KMX	158.67	61.09	9,693.03	0.04%			16.34%	0.01%
Intercontinental Exchange Inc	ICE	594.94	107.44	63,919.92	0.24%	1.58%	0.00%	9.87%	0.02%
Fidelity National Information Services Inc	FIS	592.47	49.11	29,095.96	0.11%	4.24%	0.00%	2.68%	0.00%
Chipotle Mexican Grill Inc	CMG	27.45	1,942.20	53,303.68				25.41%	
Wynn Resorts Ltd	WYNN	113.94	87.78	10,001.30		1.14%			
Live Nation Entertainment Inc	LYV	230.15	80.02	18,418.68					
Assurant Inc	AIZ	53.02	148.90	7,895.12	0.03%	1.88%	0.00%	14.70%	0.00%
NRG Energy Inc	NRG	229.12	42.38	9,709.98	0.04%	3.56%	0.00%	10.26%	0.00%
Regions Financial Corp	RF	938.38	14.53	13,634.62	0.05%	6.61%	0.00%	0.99%	0.00%
Monster Beverage Corp	MNST	1,047.52	51.10	53,528.17	0.20%			15.56%	0.03%
Mosaic Co/The	MOS	332.28	32.48	10,792.45		2.46%		22.93%	
Baker Hughes Co	BKR	1,008.23	34.42	34,634.57	0.13%	2.32%	0.00%	16.00%	0.02%
Expedia Group Inc	EXPE	137.84	95.29	13,134.87	0.05%			17.30%	0.01%
CF Industries Holdings Inc	CF	192.95	79.78	15,393.39		2.01%		44.50%	
Leidos Holdings Inc	LDOS	137.51	99.12	13,629.59	0.05%	1.53%	0.00%	6.45%	0.00%
APA Corp	APA	307.27	39.72	12,204.57		2.52%		-2.68%	
Alphabet Inc	GOOG	5,725.00	125.30	717,342.50	2.71%			16.65%	0.45%
First Solar Inc	FSLR	106.84	142.45	15,219.93	0.06%			19.80%	0.01%
TE Connectivity Ltd	TEL	313.94	117.85	36,997.71	0.14%	2.00%	0.00%	3.10%	0.00%
Discover Financial Services	DFS	250.06	82.08	20,524.76		3.41%		56.16%	
Linde PLC	LIN	484.89	382.18	185,305.56	0.70%	1.33%	0.01%	12.47%	0.03%
Visa Inc	V	1,594.00	235.10	374,749.40	1.41%	0.88%	0.01%	14.73%	0.21%
Mid-America Apartment Communities Inc	MAA	118.68	118.15	13,785.39	0.05%	4.74%	0.00%	2.36%	0.00%
Xylem Inc/NY	XYL	241.08	93.54	22,550.44	0.09%	1.41%	0.00%	12.00%	0.01%
Marathon Petroleum Corp	MPC	379.70	151.25	57,429.17		2.18%		83.00%	
Tractor Supply Co	TSCO	108.81	192.56	20,952.07	0.08%	2.14%	0.00%	3.81%	0.00%
Advanced Micro Devices Inc	AMD	1,615.67	98.50	159,143.59				27.10%	
ResMed Inc	RMD	147.09	141.22	20,772.33	0.08%	1.36%	0.00%	7.00%	0.01%
Mettler-Toledo International Inc	MTD	21.67	985.20	21,541.40	0.08%			8.29%	0.01%
Jacobs Solutions Inc	J	125.92	133.30	16,784.87	0.06%	0.78%	0.00%	9.26%	0.01%
Copart Inc	CPRT	960.18	43.52	41,787.16					
VICI Properties Inc	VICI	1,034.53	27.90	28,863.44	0.11%	5.95%	0.01%	11.05%	0.01%
Albemarle Corp	ALB	117.35	126.78	14,877.25		1.26%		25.23%	
Fortinet Inc	FTNT	785.34	57.17	44,897.72	0.17%			18.00%	0.03%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Moderna Inc	MRNA	380.59	75.96	28,909.84				-42.47%	
Essex Property Trust Inc	ESS	64.18	213.92	13,730.03	0.05%	4.32%	0.00%	9.46%	0.00%
CoStar Group Inc	CSGP	408.36	73.41	29,977.93	0.11%			20.00%	0.02%
Realty Income Corp	O	723.91	47.38	34,298.95		6.48%			
Westrock Co	WRK	256.40	35.93	9,212.56		3.37%		-6.74%	
Westinghouse Air Brake Technologies Corp	WAB	179.16	106.02	18,994.44	0.07%	0.64%	0.00%	12.86%	0.01%
Pool Corp	POOL	38.68	315.77	12,213.67		1.39%		-5.49%	
Western Digital Corp	WDC	324.15	40.15	13,014.42				-10.00%	
PepsiCo Inc	PEP	1,374.86	163.28	224,487.79	0.85%	3.10%	0.03%	8.70%	0.07%
Diamondback Energy Inc	FANG	178.82	160.32	28,668.10	0.11%	2.10%	0.00%	8.97%	0.01%
Palo Alto Networks Inc	PANW	310.82	243.02	75,534.50				20.50%	
ServiceNow Inc	NOW	205.00	581.85	119,279.25					
Church & Dwight Co Inc	CHD	246.05	90.94	22,375.51	0.08%	1.20%	0.00%	5.85%	0.00%
Federal Realty Investment Trust	FRT	81.52	91.19	7,434.08	0.03%	4.78%	0.00%	6.53%	0.00%
MGM Resorts International	MGM	350.89	34.92	12,253.04					
American Electric Power Co Inc	AEP	515.18	75.54	38,918.40	0.15%	4.68%	0.01%	4.83%	0.01%
SolarEdge Technologies Inc	SEDG	56.56	75.95	4,295.58	0.02%			19.59%	0.00%
Invitation Homes Inc	INVH	611.96	29.69	18,169.03	0.07%	3.50%	0.00%	4.51%	0.00%
PTC Inc	PTC	118.83	140.42	16,868.53	0.06%			16.99%	0.01%
JB Hunt Transport Services Inc	JBHT	103.14	171.87	17,727.19		0.98%		27.00%	
Lam Research Corp	LRCX	131.79	588.22	77,522.69	0.29%	1.36%	0.00%	5.44%	0.02%
Mohawk Industries Inc	MHK	63.68	80.38	5,118.76				-3.08%	
GE Healthcare Technologies Inc	GEHC	455.24	66.57	30,305.53	0.11%	0.18%	0.00%	12.70%	0.01%
Pentair PLC	PNR	185.30	58.12	9,607.18	0.04%	1.51%	0.00%	6.22%	0.00%
Vertex Pharmaceuticals Inc	VRTX	258.10	362.11	93,458.78	0.35%			13.55%	0.05%
Amcor PLC	AMCR	1,446.44	8.89	12,858.82	0.05%	5.62%	0.00%	1.33%	0.00%
Meta Platforms Inc	META	2,219.61	301.27	668,701.00				24.05%	
T-Mobile US Inc	TMUS	1,156.48	143.86	166,370.49		1.81%		38.46%	
United Rentals Inc	URI	67.78	406.27	27,537.39	0.10%	1.46%	0.00%	17.87%	0.02%
Honeywell International Inc	HON	659.25	163.26	120,814.34	0.46%	2.36%	0.01%	7.69%	0.04%
Alexandria Real Estate Equities Inc	ARE	173.78	93.13	16,183.67	0.06%	5.33%	0.00%	5.53%	0.00%
Delta Air Lines Inc	DAL	643.46	31.25	20,108.22		1.28%		30.85%	
Seagate Technology Holdings PLC	STX	209.18	68.25	14,276.81	0.05%	4.10%	0.00%	6.11%	0.00%
United Airlines Holdings Inc	UAL	326.73	35.01	11,438.78				46.54%	
News Corp	NWS	191.84	21.44	4,112.99	0.02%	0.93%	0.00%	8.00%	0.00%
Centene Corp	CNC	534.20	68.98	36,849.18	0.14%			4.72%	0.01%
Martin Marietta Materials Inc	MLM	61.80	408.94	25,274.13	0.10%	0.72%	0.00%	19.03%	0.02%
Teradyne Inc	TER	154.01	83.27	12,824.75	0.05%	0.53%	0.00%	7.82%	0.00%
PayPal Holdings Inc	PYPL	1,098.04	51.80	56,878.32	0.21%			15.96%	0.03%
Tesla Inc	TSLA	3,178.92	200.84	638,454.49				32.00%	
Arch Capital Group Ltd	ACGL	373.10	86.68	32,340.31	0.12%			14.50%	0.02%
Dow Inc	DOW	703.08	48.34	33,986.65	0.13%	5.79%	0.01%	0.93%	0.00%
Everest Group Ltd	EG	43.40	395.62	17,189.91		1.77%		35.22%	
Teledyne Technologies Inc	TDY	47.19	374.59	17,675.03	0.07%			6.36%	0.00%
News Corp	NWSA	379.59	20.68	7,849.82	0.03%	0.97%	0.00%	8.00%	0.00%
Exelon Corp	EXC	994.30	38.94	38,718.00	0.15%	3.70%	0.01%	4.00%	0.01%
Global Payments Inc	GPNI	260.39	106.22	27,658.52	0.10%	0.94%	0.00%	13.33%	0.01%
Crown Castle Inc	CCI	434.00	92.98	40,353.32	0.15%	6.73%	0.01%	7.00%	0.01%
Aptiv PLC	APTIV	282.82	87.20	24,662.25	0.09%			12.44%	0.01%
Align Technology Inc	ALGN	76.53	184.39	14,127.41					
Illumina Inc	ILMN	158.30	109.42	17,321.19					
Kenvue Inc	KVUE	1,914.89	18.60	35,617.03		4.30%			
Targa Resources Corp	TRGP	223.71	83.61	18,704.56	0.07%	2.39%	0.00%	15.00%	0.01%
LKQ Corp	LKQ	267.60	43.92	11,752.90		2.73%			
Zoetis Inc	ZTS	460.32	157.00	72,269.77	0.27%	0.96%	0.00%	10.91%	0.03%
Equinix Inc	EQIX	93.88	729.64	68,500.79	0.26%	2.34%	0.01%	15.33%	0.04%
Digital Realty Trust Inc	DLR	302.85	124.36	37,661.93	0.14%	3.92%	0.01%	6.80%	0.01%
Molina Healthcare Inc	MOH	58.30	332.95	19,410.99	0.07%			11.24%	0.01%
Las Vegas Sands Corp	LVS	764.49	47.46	36,282.74		1.69%			

Notes:

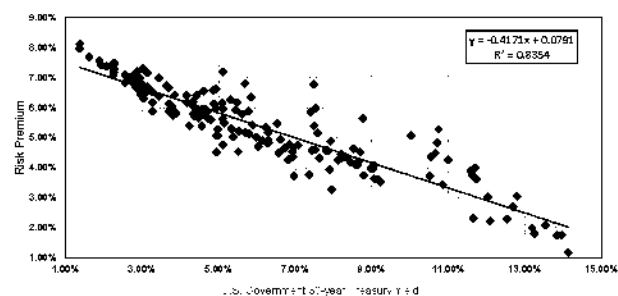
- [1] Equals sum of Col. [9]
[2] Equals sum of Col. [11]
[3] Equals $([1] \times (1 + (0.5 \times [2]))) + [2]$
[4] Source: Bloomberg Professional as of October 31, 2023
[5] Source: Bloomberg Professional as of October 31, 2023
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%
[8] Source: Bloomberg Professional, as of October 31, 2023
[9] Equals [7] x [8]
[10] Source: Bloomberg Professional, as of October 31, 2023
[11] Equals [7] x [10]

BONL'Y ALL FLORIDA FREEMAN

	(I)	(II)	(III)
	Ascorbic Acid 20-25 % of total C	Ascorbic Acid 20-25 % of total C	Ascorbic Acid 20-25 % of total C
1270 1	0.21%	0.19%	2.6%
1260 2	4.25%	0.59%	1.73%
1270 2	1.70%	0.73%	3.1%
1260 2	4.39%	0.06%	1.74%
1271 1	1.52%	2.55%	2.27%
1261 2	5.55%	5.74%	1.0%
1271 2	0.21%	1.55%	0.14%
1261 2	5.59%	5.65%	1.74%
1272 1	0.41%	0.20%	0.1%
1262 2	5.50%	5.59%	2.06%
1272 2	0.70%	2.99%	3.07%
1262 2	6.55%	0.75%	5.76%
1273 1	0.51%	0.41%	2.87%
1265 2	5.5%	5.5%	2.46%
1273 2	0.79%	1.52%	3.74%
1265 2	5.37%	1.74%	1.63%
1274 1	0.70%	2.53%	3.02%
1264 2	5.50%	5.50%	2.02%
1264 2	5.35%	0.79%	2.65%
1264 2	5.59%	1.70%	3.95%
1275 1	0.89%	1.28%	3.95%
1265 2	5.27%	1.0%	2.97%
1275 2	1.21%	0.55%	2.68%
1265 2	5.15%	0.54%	5.07%
1276 1	1.22%	8.17%	5.05%
1266 2	4.27%	7.49%	6.73%
1266 2	5.26%	7.40%	5.52%
1266 2	5.59%	7.55%	5.95%
1277 1	2.20%	1.19%	5.17%
1267 2	5.17%	0.55%	4.84%
1277 2	0.11%	8.00%	1.05%
1277 2	2.40%	9.65%	1.05%
1278 1	2.01%	8.65%	1.11%
1267 2	2.00%	0.96%	5.63%
1278 2	2.96%	9.16%	5.05%
1268 2	0.97%	0.97%	4.05%
1278 2	0.72%	9.01%	5.95%
1268 2	5.27%	0.70%	4.57%
1279 1	2.76%	8.14%	1.65%
1269 2	2.85%	7.95%	4.95%
1220 1	2.52%	8.11%	1.15%
1220 2	0.65%	0.86%	4.75%
1220 2	2.51%	8.19%	4.15%
1220 2	0.55%	0.56%	4.15%
1221 1	2.70%	8.40%	1.15%
1221 2	0.57%	0.51%	5.55%
1221 2	2.99%	8.19%	1.65%
1221 2	0.70%	7.55%	4.57%
1222 1	2.76%	1.81%	1.65%
1222 2	1.65%	7.95%	5.95%
1222 2	2.55%	1.15%	1.65%
1223 1	0.44%	7.55%	4.65%
1223 2	1.51%	8.95%	4.75%
1223 2	1.70%	6.52%	1.8%
1223 2	1.54%	8.14%	4.95%
1224 1	1.71%	6.58%	1.15%
1224 2	1.54%	7.56%	5.75%
1224 2	2.40%	7.56%	5.15%
1224 2	1.74%	7.95%	5.95%
1225 1	1.70%	7.55%	1.65%
1225 2	1.31%	8.94%	4.57%
1225 2	1.71%	6.12%	1.65%
1225 2	1.55%	8.94%	5.55%
1226 1	1.70%	6.29%	5.15%
1226 2	1.68%	8.95%	4.55%
1226 2	0.70%	6.91%	4.75%
1226 2	1.58%	8.95%	4.95%
1227 1	1.78%	6.82%	1.65%
1227 2	1.55%	8.94%	4.85%
1227 2	2.70%	6.55%	5.15%

	(C)	(D)	(E)
	Assessing Alpha-Zeta to 50%	to 50% to 50%	to 50%
Assessing	to 50%	to 50%	to 50%
1222.1	1.10%	6.11%	2.87%
1222.1	1.11%	6.08%	2.43%
1222.2	2.20%	6.07%	2.57%
1222.2	1.25%	5.48%	2.17%
1222.1	2.20%	6.11%	1.12%
1222.1	0.20%	5.57%	5.03%
1222.2	0.21%	6.07%	1.14%
1222.2	0.25%	6.06%	2.71%
1222.1	1.10%	6.27%	2.87%
1222.1	1.21%	6.55%	2.92%
1222.2	1.10%	6.07%	3.02%
1222.2	1.25%	5.75%	5.03%
1222.1	2.20%	6.07%	2.87%
1222.1	1.25%	5.45%	5.03%
1222.2	0.20%	6.07%	1.14%
1222.2	0.25%	5.53%	5.03%
1222.1	1.11%	6.07%	2.27%
1222.1	0.25%	5.57%	2.53%
1222.2	1.11%	6.02%	1.12%
1222.2	1.25%	5.06%	2.15%
1222.1	1.11%	1.87%	3.02%
1222.1	1.25%	4.05%	2.53%
1222.2	1.11%	1.87%	3.02%
1222.2	0.25%	5.11%	2.75%
1222.1	1.10%	6.11%	3.02%
1222.1	1.10%	4.08%	2.12%
1222.2	0.21%	6.07%	1.57%
1222.2	0.25%	5.11%	5.03%
1222.1	0.21%	1.87%	3.02%
1222.1	0.25%	4.71%	5.03%
1222.2	0.25%	1.14%	3.02%
1222.2	0.25%	4.42%	2.42%
1222.1	0.25%	1.87%	3.02%
1222.1	0.25%	4.63%	5.75%
1222.2	0.25%	6.11%	1.12%
1222.2	0.25%	5.06%	5.03%
1222.1	0.25%	1.87%	3.02%
1222.1	0.25%	4.05%	5.53%

	(I)	(II)	(III)
	Average Auto-242 Toluene-50	Auto-242 Toluene-50	75% Toluene
2277.2	0.31%	1.95%	0.27%
2277.5	0.30%	4.05%	5.07%
2277.1	0.30%	1.07%	0.78%
2275.1	0.35%	4.41%	3.81%
2275.2	0.31%	1.57%	0.95%
2275.5	0.30%	4.45%	5.36%
2275.1	0.39%	5.07%	5.07%
2275.1	0.45%	5.44%	7.01%
2275.2	0.39%	1.17%	0.11%
2275.5	0.41%	4.57%	5.05%
2275.1	0.31%	1.37%	0.27%
2275.1	0.45%	4.67%	5.07%
2275.2	0.39%	1.37%	0.37%
2275.5	0.39%	5.55%	5.17%
2275.1	0.31%	1.17%	0.11%
2275.1	0.95%	4.56%	0.61%
2275.2	0.42%	1.37%	0.11%
2275.5	0.36%	5.71%	5.65%
2275.1	0.31%	5.07%	5.17%
2275.1	0.30%	5.15%	7.17%
2275.2	0.95%	2.91%	0.95%
2275.5	0.35%	7.75%	7.05%
2275.1	0.71%	2.85%	0.27%
2275.1	0.77%	5.15%	5.95%
2275.2	0.95%	0.11%	0.17%
2275.5	0.51%	5.71%	5.17%
2275.1	0.95%	0.19%	0.11%
2275.1	0.41%	5.65%	5.58%
2275.2	0.95%	0.11%	0.35%
2275.5	0.75%	5.77%	5.55%
2275.1	0.65%	2.95%	0.37%
2275.1	0.65%	2.55%	7.11%
2275.2	0.50%	2.85%	0.57%
2275.5	0.40%	0.95%	5.45%
2275.1	0.50%	2.95%	0.55%
2275.1	0.75%	2.75%	5.95%
2275.2	0.11%	2.57%	0.97%
2275.5	0.75%	0.95%	7.45%
2275.1	0.95%	2.85%	0.17%
2275.1	0.61%	5.65%	5.57%
2275.2	0.51%	2.95%	0.11%
2275.5	0.75%	2.75%	5.91%
2275.1	0.59%	3.05%	5.17%
2275.2	0.51%	0.95%	0.17%
2275.5	0.65%	3.05%	5.65%
2275.1	0.11%	3.27%	0.11%
2275.1	0.57%	3.01%	5.55%
2275.2	0.58%	2.15%	0.17%
2275.5	0.57%	0.95%	7.55%
2275.1	0.45%	1.25%	7.55%
2275.1	0.45%	1.35%	5.17%
2275.2	0.16%	2.25%	0.27%
2275.5	0.57%	1.95%	7.43%
2275.1	0.37%	1.95%	0.17%
2275.1	0.54%	0.95%	7.05%
2275.2	0.35%	0.95%	0.57%
2275.5	0.14%	5.95%	5.58%
2275.1	0.12%	0.95%	0.87%
2275.1	0.71%	5.75%	5.95%
2275.2	0.51%	0.81%	0.11%
2275.5	0.65%	4.55%	5.41%
2275.1	0.12%	1.95%	0.55%
AVG 242	1.46%	6.01%	5.57%
75% Tol	1.00%	5.55%	6.67%



SUMMARY OF THE

Regression Statistics	
Multiple R	0.8156892
Adjusted R Square	0.8079911
Adjusted R Square	0.8044224
Standard Error	0.0076010
Observations	178

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.00670	0.00670	0.03721	0.86210
Residual	17	0.00076	0.00004		
Total	18	0.00746			

	Coefficient	Standard Error	t-Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.091	0.01	8.97	0.000	0.072	0.110	0.072	0.110
US Govd. 30 year Treasury	0.417	0.01	(41.72)	0.000	0.400	0.434	0.400	0.434

	β	β_1	β_2
	0.9500	0.95	0.95
	Time (s)	Position	PCW
Current 30 days (average of 30 days) of the last day of the year 2015	2.84%	0.9500	0.9500
For the first time, the first day of the year 2015	2.84%	0.9500	0.9500
For the first time, the first day of the year 2015	2.84%	0.9500	0.9500

1255

11. *Supreme Regulatory Commission for the Ministry of Education* (Decree No. 31, 2003).

4. You're a S&P 500 trader. In January, bond yields are 7% average of each trading day in the quarter.

$$\sum_{j=1}^n \int_{\mathbb{R}^d} \partial_{x_j} \phi(x) \cdot \nabla u_j(x) dx = \sum_{j=1}^n \int_{\mathbb{R}^d} \partial_{x_j} \phi(x) \cdot \nabla u_j(x) dx$$

1. Source: S&P Capital IQ. 77-day average as of October 1, 2022.

5. See, e.g., *Boyd v. United Fruit Co.*, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866

U. Volpert, B. L. G. - *Foresta Forestes*, Vol. 12, 1996, June, 203-211.

$$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx = \frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx.$$
$$\delta = q_{\text{eff}} \left[0.01 \left(\frac{1}{\delta_0} - 1 \right) + 0.1 \left(\frac{1}{\delta_0} - 1 \right)^2 \right] \quad \text{with } \delta_0 = \text{turn } (^\circ)$$
$$[X_1, X_2] = 0, \quad [X_1, X_3] = X_2, \quad [X_1, X_4] = X_3,$$

2024-2028 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2022	2024	2025	2026	2027	2028	2024-28 Cap. Ex. / 2022 Net Plant
Ameren Corporation	AEE							
Capital Spending per Share			\$12.55	\$12.78	\$13.00	\$13.00	\$13.00	
Common Shares Outstanding			269.00	277.00	285.00	285.00	285.00	
Capital Expenditures			\$3,376.0	\$3,536.7	\$3,705.0	\$3,705.0	\$3,705.0	57.67%
Net Plant			\$31,262.0					
Avista Corporation	AVA							
Capital Spending per Share			\$6.35	\$6.55	\$6.75	\$6.75	\$6.75	
Common Shares Outstanding			78.50	81.75	85.00	85.00	85.00	
Capital Expenditures			\$498.5	\$535.5	\$573.8	\$573.8	\$573.8	50.60%
Net Plant			\$5,444.7					
Black Hills Corporation	BKH							
Capital Spending per Share			\$9.50	\$9.38	\$9.25	\$9.25	\$9.25	
Common Shares Outstanding			69.00	70.00	71.00	71.00	71.00	
Capital Expenditures			\$655.5	\$656.3	\$656.8	\$656.8	\$656.8	48.28%
Net Plant			\$6,797.9					
CenterPoint Energy, Inc.	CNP							
Capital Spending per Share			\$7.05	\$8.03	\$9.00	\$9.00	\$9.00	
Common Shares Outstanding			632.00	633.00	634.00	634.00	634.00	
Capital Expenditures			\$4,455.6	\$5,079.8	\$5,706.0	\$5,706.0	\$5,706.0	98.20%
Net Plant			\$27,143.0					
CMS Energy Corporation	CMS							
Capital Spending per Share			\$9.50	\$9.63	\$9.75	\$9.75	\$9.75	
Common Shares Outstanding			295.00	297.50	300.00	300.00	300.00	
Capital Expenditures			\$2,802.5	\$2,863.4	\$2,925.0	\$2,925.0	\$2,925.0	63.58%
Net Plant			\$22,713.0					
Consolidated Edison, Inc.	ED							
Capital Spending per Share			\$14.50	\$15.25	\$16.00	\$16.00	\$16.00	
Common Shares Outstanding			345.00	345.00	345.00	345.00	345.00	
Capital Expenditures			\$5,002.5	\$5,261.3	\$5,520.0	\$5,520.0	\$5,520.0	57.36%
Net Plant			\$46,768.0					
Eversource Energy	ES							
Capital Spending per Share			\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	
Common Shares Outstanding			355.00	357.50	360.00	360.00	360.00	
Capital Expenditures			\$3,905.0	\$3,932.5	\$3,960.0	\$3,960.0	\$3,960.0	54.60%
Net Plant			\$36,113.0					
MGE Energy, Inc.	MGEE							
Capital Spending per Share			\$4.00	\$4.63	\$5.25	\$5.25	\$5.25	
Common Shares Outstanding			38.16	38.16	36.16	36.16	38.16	
Capital Expenditures			\$144.6	\$167.2	\$189.8	\$189.8	\$189.8	44.72%
Net Plant			\$1,971.1					
NorthWestern Corporation	NWE							
Capital Spending per Share			\$7.75	\$7.38	\$7.00	\$7.00	\$7.00	
Common Shares Outstanding			62.00	62.00	62.00	62.00	62.00	
Capital Expenditures			\$480.5	\$457.3	\$434.0	\$434.0	\$434.0	39.59%
Net Plant			\$6,657.5					
Sempra Energy	SRE							
Capital Spending per Share			\$8.55	\$8.78	\$9.00	\$9.00	\$9.00	
Common Shares Outstanding			630.00	630.00	630.00	630.00	630.00	
Capital Expenditures			\$5,386.5	\$5,528.3	\$5,670.0	\$5,670.0	\$5,670.0	58.44%
Net Plant			\$47,782.0					
Southern Company	SO							
Capital Spending per Share			\$7.85	\$7.68	\$7.50	\$7.50	\$7.50	
Common Shares Outstanding			1070.00	1070.00	1070.00	1070.00	1070.00	
Capital Expenditures			\$8,399.5	\$8,212.3	\$8,025.0	\$8,025.0	\$8,025.0	43.02%
Net Plant			\$94,570.0					
Wisconsin Energy Corporation	WEC							
Capital Spending per Share			\$9.30	\$9.28	\$9.25	\$9.25	\$9.25	
Common Shares Outstanding			315.43	315.43	315.43	315.43	315.43	
Capital Expenditures			\$2,933.5	\$2,925.6	\$2,917.7	\$2,917.7	\$2,917.7	50.19%
Net Plant			\$29,114.0					
Xcel Energy Inc.	XEL							
Capital Spending per Share			\$9.25	\$9.38	\$9.50	\$9.50	\$9.50	
Common Shares Outstanding			553.00	556.50	560.00	560.00	560.00	
Capital Expenditures			\$5,115.3	\$5,217.2	\$5,320.0	\$5,320.0	\$5,320.0	54.49%
Net Plant			\$48,253.0					
Public Service Electric and Gas Company	PSEG							
Capital Expenditures [8]								51.16%
Net Plant [9]			\$33,230.0					
PSEG CapEx Total (2023 - 2027)								\$17,000.0
PSEG CapEx Annual Average								
Proxy Group Median								54.49%
PSEG as % Proxy Group Median								0.94

Notes:

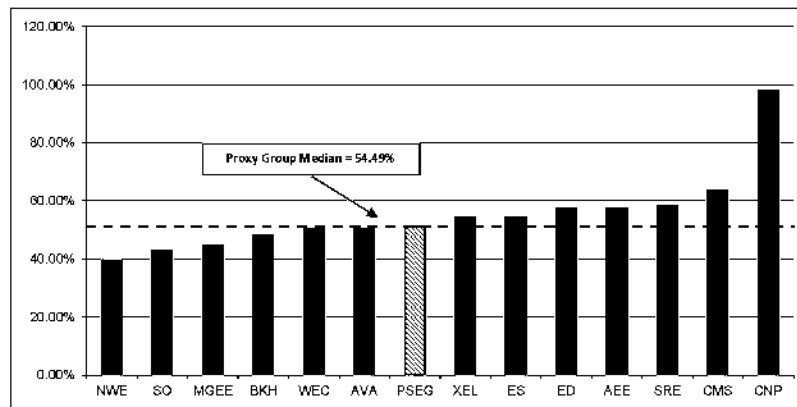
[1] - [6] Source: Value Line, dated October 20, 2023, September 8 2023, and August 11, 2023.

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

[8] Source: PSEG December 2023 Investor Update, approximate mid-point of PSEG capital spending range 2023-2027 \$16.0-\$18.5B.

[9] Source: From the PSEG 2022 10K. Net utility plant is from the PSEG Consolidated Balance Sheet, page 88, Net Property, Plant and Equipment (December 31, 2022 balance is \$32.830 million); the Energy Efficiency regulatory asset is from the Financial Statement Note 7, page 88 (Green Program Recovery Charges (GPRC), December 31, 2022 non-current asset balance is \$447 million).

2024-2028 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT



Rank	Company	2024-2028
1	NorthWestern Corporation	NWE 39.59%
2	Southern Company	SO 43.02%
3	MGE Energy, Inc.	MGEE 44.72%
4	Black Hills Corporation	BKH 48.28%
5	Wisconsin Energy Corporation	WEC 50.19%
6	Avista Corporation	AVA 50.60%
7	Public Service Electric and Gas Company	PSEG 51.16%
8	Xcel Energy Inc.	XEL 54.49%
9	Eversource Energy	ES 54.60%
10	Consolidated Edison, Inc.	ED 57.36%
11	Ameren Corporation	AEE 57.67%
12	Sempra Energy	SRE 58.44%
13	CMS Energy Corporation	CMS 63.58%
14	CenterPoint Energy, Inc.	CNP 98.20%
Proxy Group Median		51.16%
PSEG/Proxy Group		0.94

Notes:
Source: Exhibit AEB-9, page 1 col. [7]

REGULATORY RISK ASSESSMENT

Company	Operating Subsidiary	State	Utility Type	Test Year Convention	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Revenue Decoupling	Revenue Stabilization		Overall Revenue Stabilization	Traditional Generation	Capital Cost Recovery			Environmental Compliance	Overall Capital Cost Recovery
						Formula-Based Rates	Straight Fixed Variable Rate Design			Renewable Non-Traditional Generation	Delivery Infrastructure			
Ameren Corporation	Ameren Illinois Co.	Illinois	Electric	Historical	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
	Ameren Illinois Co.	Illinois	Gas	Fully Forecast	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes
	Union Electric Co.	Missouri	Electric	Historical	Yes	No	No	Yes	No	Yes	No	Yes	No	Yes
	Union Electric Co.	Missouri	Gas	Historical	Yes	No	No	Yes	No	No	No	Yes	No	Yes
Avista Corporation	Alaska Electric Light and Power Co.	Alaska	Electric	Historical	No	No	No	No	No	No	No	No	No	No
	Avista Corp.	Idaho	Electric	Historical	Yes	No	No	Yes	No	No	No	No	No	No
	Avista Corp.	Idaho	Gas	Historical	Yes	No	No	Yes	No	No	No	No	No	No
	Avista Corp.	Oregon	Gas	Fully Forecast	Yes	No	No	Yes	No	No	No	No	No	No
Black Hills Corporation	Avista Corp.	Washington	Electric	Historical	Yes	No	No	Yes	No	No	No	No	No	No
	Avista Corp.	Washington	Gas	Historical	Yes	No	No	Yes	No	No	No	No	No	No
	Black Hills Energy Arkansas Inc.	Arkansas	Gas	Historical	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes
	Black Hills Colorado Electric Inc.	Colorado	Electric	Historical	No	No	No	No	Yes	Yes	No	No	No	Yes
	Black Hills Gas Distribution LLC	Colorado	Gas	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Black Hills Iowa Gas Utility Co.	Iowa	Gas	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Black Hills/Kansas Gas Utility Co.	Kansas	Gas	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Black Hills Nebraska Gas LLC	Nebraska	Gas	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Black Hills Power Inc.	South Dakota	Electric	Historical	No	No	No	No	No	No	No	Yes	Yes	Yes
	Black Hills Wyoming Gas LLC	Wyoming	Gas	Historical	Yes	No	No	Yes	No	Yes	No	Yes	No	Yes
	Cheyenne Light Fuel & Power Co.	Wyoming	Electric	Historical	Yes	No	No	Yes	No	No	No	No	No	No
	Indiana Gas Co.	Indiana	Gas	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
CenterPoint Energy, Inc.	Southern Indiana Gas & Electric Co.	Indiana	Electric	Historical	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes
	Southern Indiana Gas & Electric Co.	Indiana	Gas	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	CenterPoint Energy Arla	Louisiana (PSC)	Gas	Historical	Yes	Yes	Yes	Yes	No	No	No	No	No	No
	CenterPoint Energy Resources Corp.	Minnesota	Gas	Fully Forecast	Yes	No	No	Yes	No	No	No	No	No	No
	Vectren Energy Delivery of Ohio Inc.	Ohio	Gas	Partially Forecast	No	No	No	No	No	No	Yes	No	Yes	Yes
	CenterPoint Energy Houston Electric LLC	Texas (PUC)	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	CenterPoint Energy Resources Corp.	Texas (RRG)	Gas	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Consumers Energy Co.	Michigan	Electric	Fully Forecast	No	No	No	No	No	Yes	No	No	Yes	Yes
	Consumers Energy Co.	Michigan	Gas	Fully Forecast	Yes	No	No	Yes	No	No	No	No	No	No
	Rockland Electric Co.	New Jersey	Electric	Partially Forecast	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes
Consolidated Edison, Inc.	Consolidated Edison Co. of New York Inc.	New York	Electric	Fully Forecast	Yes	No	No	Yes	No	Yes	No	Yes	No	Yes
	Consolidated Edison Co. of New York Inc.	New York	Gas	Fully Forecast	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Orange & Rockland Utilities Inc.	New York	Electric	Fully Forecast	Yes	No	No	Yes	No	Yes	No	No	No	Yes
	Orange & Rockland Utilities Inc.	New York	Gas	Fully Forecast	Yes	No	No	Yes	No	No	No	No	No	No
Eversource Energy	Connecticut Light and Power Co.	Connecticut	Electric	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Yankee Gas Services Co.	Connecticut	Gas	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Eversource Gas Co. of Massachusetts	Massachusetts	Gas	Historical	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes
	NSTAR Electric Co.	Massachusetts	Electric	Historical	Yes	No	No	Yes	No	Yes	Yes	No	Yes	Yes
	NSTAR Gas Co.	Massachusetts	Gas	Historical	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes
	Public Service Co. of New Hampshire	New Hampshire	Electric	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Madison Gas & Electric Co.	Wisconsin	Electric	Fully Forecast	No	No	No	No	No	Yes	No	No	Yes	Yes
	Madison Gas & Electric Co.	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No	No
	NorthWestern Corporation	Montana	Electric	Historical	No	No	No	No	No	No	No	No	No	No
	NorthWestern Corporation	Montana	Gas	Historical	No	No	No	No	No	No	No	No	No	No
NorthWestern Corporation	NorthWestern Corporation	Nebraska	Gas	Historical	No	No	No	No	No	No	No	No	No	No
	NorthWestern Corporation	South Dakota	Electric	Historical	No	No	No	No	No	No	No	No	No	No
	NorthWestern Corporation	South Dakota	Gas	Historical	No	No	No	No	No	No	No	No	No	No
	San Diego Gas & Electric Co.	California	Electric	Fully Forecast	Yes	No	No	Yes	No	Yes	No	No	No	No
Semptra Energy	San Diego Gas & Electric Co.	California	Gas	Fully Forecast	Yes	No	No	Yes	No	No	No	No	No	No
	Southern California Gas Co.	California	Gas	Fully Forecast	Yes	No	No	Yes	No	No	No	No	No	No
	Oncor Electric Delivery Co.	Texas (PUC)	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Alabama Power Co.	Alabama	Electric	Historical	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Southern Company	Atlanta Gas Light Co.	Georgia	Gas	Fully Forecast	No	No	No	No	No	No	Yes	Yes	Yes	Yes
	Georgia Power Co.	Georgia	Electric	Fully Forecast	No	No	No	No	Yes	No	No	Yes	Yes	Yes
	Northern Illinois Gas Co.	Illinois	Gas	Fully Forecast	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes
	Mississippi Power Co.	Mississippi	Electric	Fully Forecast	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes
	Chattanooga Gas Co.	Tennessee	Gas	Historical	Yes	No	No	Yes	No	No	No	No	No	No
	Virginia Natural Gas Inc.	Virginia	Gas	Fully Forecast	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	North Shore Gas Co.	Illinois	Gas	Fully Forecast	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes
	Peoples Gas Light & Coke Co.	Illinois	Gas	Fully Forecast	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes
	Michigan Gas Utilities Corp.	Michigan	Gas	Fully Forecast	No	No	No	No	No	No	Yes	No	Yes	Yes
	Upper Michigan Energy Resources Corp.	Michigan	Electric	Fully Forecast	No	No	No	No	No	Yes	No	No	Yes	Yes
Wisconsin Energy Corporation	Minnesota Energy Resources Corp.	Minnesota	Gas	Fully Forecast	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Wisconsin Electric Power Co.	Wisconsin	Electric	Fully Forecast	No	No	No	No	No	Yes	No	No	Yes	Yes
	Wisconsin Electric Power Co.	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No	No
	Wisconsin Gas LLC	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No	No
	Wisconsin Public Service Corp.	Wisconsin	Electric	Fully Forecast	No	No	No	No	No	No	No	No	No	No
	Wisconsin Public Service Corp.	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No	No
	Public Service Co. of Colorado	Colorado	Electric	Partially Forecast	Yes	No	No	Yes	No	Yes	No	No	No	Yes
	Public Service Co. of Colorado	Colorado	Gas	Historical	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
	Northern States Power Co. - Minnesota	Minnesota	Electric	Fully Forecast	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes
	Northern States Power Co. - Minnesota	Minnesota	Gas	Fully Forecast	No	No	No	No	No	No	Yes	No	Yes	Yes

REGULATORY RISK ASSESSMENT

				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Revenue Stabilization				Capital Cost Recovery				
Company	Operating Subsidiary	State	Utility Type	Test Year Convention	Revenue Decoupling	Formula-Based Rates	Straight Fixed Variable Rate Design	Overall Revenue Stabilization	Traditional Generation	Renewable/ Non-Traditional Generation	Delivery Infrastructure	Environmental Compliance	Overall Capital Cost Recovery
	Southwestern Public Service Co.	New Mexico	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes
	Northern States Power Co. - Minnesota	North Dakota	Electric	Fully Forecast	No	No	No	No	No	Yes	Yes	No	Yes
	Northern States Power Co. - Minnesota	North Dakota	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No
	Northern States Power Co. - Minnesota	South Dakota	Electric	Historical	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes
	Southwestern Public Service Co.	Texas (PUC)	Electric	Historical	No	No	No	No	No	No	No	No	No
	Northern States Power Co. - Wisconsin	Wisconsin	Electric	Fully Forecast	No	No	No	No	No	No	No	No	No
	Northern States Power Co. - Wisconsin	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No
Proxy Group Average			Fully Forecast	35				Yes	45			Yes	50
			Partially Forecast	3				No	34			No	29
			Historical	41									
			Forecast	48.10%	44.30%			% Yes	57.0%			% Yes	63.3%
Public Service Electric and Gas Co.	[11]	New Jersey	Electric	Partially Forecast	Yes	No	No	Yes	No	No	Yes	Yes	Yes
Public Service Electric and Gas Co.	[11]	New Jersey	Gas	Partially Forecast	Yes	No	No	Yes	No	No	Yes	Yes	Yes

Notes:

[1] Regulatory Research Associates, effective as of October 31, 2023.

[2] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded from this exhibit. A designation of "Yes" indicates full or partial decoupling.

[3] - [4] Form 10-K, company tariffs. S&P Global Market Intelligence

[5] If either [2], [3], or [4] equals "Yes", then "Yes"; if not, then "No"

[6] - [9] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded from this exhibit.

[10] If [6] or [7] or [8] or [9] equals "Yes", then "Yes"; if not, then "No"

[11] Data provided by the Company

COMPARISON OF PSEG AND PROXY GROUP COMPANIES
RRA JURISDICTIONAL RANKINGS

Ultimate Parent Company	Jurisdiction	[1]	[2]
		RRA	
		Rank	Numeric Rank
Ameren Corporation	Illinois	Average/2	5
	Missouri	Average/3	6
Avista Corporation	Alaska	Below Average/1	7
	Idaho	Average/2	5
	Oregon	Average/2	5
	Washington	Average/3	6
Black Hills Corporation	Arkansas	Average/1	4
	Colorado	Average/1	4
	Iowa	Above Average/3	3
	Kansas	Below Average/1	7
	Nebraska	Average/1	4
	South Dakota	Average/2	5
	Wyoming	Average/2	5
CenterPoint Energy, Inc.	Indiana	Average/1	4
	Louisiana (PSC)	Average/2	5
	Minnesota	Average/2	5
	Ohio	Average/3	6
	Texas (PUC)	Average/3	6
	Texas (RRC)	Average/1	4
CMS	Michigan	Above Average/3	3
Consolidated Edison, Inc.	New Jersey	Below Average/1	7
	New York	Average/2	5
Eversource Energy	Connecticut	Below Average/2	8
	Massachusetts	Average/2	5
	New Hampshire	Average/2	5
MGE Energy, Inc.	Wisconsin	Above Average/3	3
NorthWestern Corporation	Montana	Below Average/1	7
	Nebraska	Average/1	4
	South Dakota	Average/2	5
Sempra Energy	California	Average/1	4
	Texas (PUC)	Average/3	6
Southern Company	Alabama	Above Average/1	1
	Georgia	Above Average/2	2
	Illinois	Average/2	5
	Mississippi	Above Average/3	3
	Tennessee	Above Average/3	3
	Virginia	Average/2	5
Wisconsin Energy Corporation	Illinois	Average/2	5
	Michigan	Above Average/3	3
	Minnesota	Average/2	5
	Wisconsin	Above Average/3	3
Xcel Energy Inc.	Colorado	Average/1	4
	Minnesota	Average/2	5
	New Mexico	Below Average/2	8
	North Dakota	Average/1	4
	South Dakota	Average/2	5
	Texas (PUC)	Average/3	6
	Wisconsin	Above Average/3	3
Proxy Group Average		Average/1 to Average/2	4.75
Public Service Electric and Gas Co.	New Jersey	Below Average/1	7

Notes

[1] Source: State Regulatory Evaluations, Regulatory Research Associates, as of August 23, 2023.

[2] AA/1= 1, AA/2= 2, AA/3= 3, A/1= 4, A/2= 5, A/3=6, BA/1= 7, BA/2= 8, BA/3= 9

COMPARISON OF PSEG AND PROXY GROUP COMPANIES
S&P JURISDICTIONAL RANKINGS

Ultimate Parent Company	Jurisdiction	[1]	[2]
		Rank	Numeric Rank
Ameren Corporation	Illinois	Very credit supportive	3
	Missouri	Very credit supportive	3
Avista Corporation	Alaska	More credit supportive	4
	Idaho	Very credit supportive	3
	Oregon	More credit supportive	4
Black Hills Corporation	Washington	Very credit supportive	3
	Arkansas	Highly credit supportive	2
	Colorado	Very credit supportive	3
	Iowa	Most credit supportive	1
	Kansas	Highly credit supportive	2
	Nebraska	Very credit supportive	3
	South Dakota	Very credit supportive	3
	Wyoming	Very credit supportive	3
CenterPoint Energy, Inc.	Indiana	Highly credit supportive	2
	Louisiana (PSC)	Highly credit supportive	2
	Minnesota	Highly credit supportive	2
	Ohio	Very credit supportive	3
	Texas (PUC)	Very credit supportive	3
	Texas (RRC)	Highly credit supportive	2
CMS	Michigan	Most credit supportive	1
Consolidated Edison, Inc.	New Jersey	More credit supportive	4
	New York	Very credit supportive	3
Eversource Energy	Connecticut	More credit supportive	4
	Massachusetts	Highly credit supportive	2
	New Hampshire	Highly credit supportive	2
MGE Energy, Inc.	Wisconsin	Most credit supportive	1
NorthWestern Corporation	Montana	More credit supportive	4
	Nebraska	Very credit supportive	3
	South Dakota	Very credit supportive	3
	California	More credit supportive	4
Sempra Energy	Texas (PUC)	Very credit supportive	3
Southern Company	Alabama	Most credit supportive	1
	Georgia	Highly credit supportive	2
	Illinois	Very credit supportive	3
	Mississippi	Very credit supportive	3
	Tennessee	Highly credit supportive	2
	Virginia	Highly credit supportive	2
Wisconsin Energy Corporation	Illinois	Very credit supportive	3
	Michigan	Most credit supportive	1
	Minnesota	Highly credit supportive	2
	Wisconsin	Most credit supportive	1
Xcel Energy Inc.	Colorado	Very credit supportive	3
	Minnesota	Highly credit supportive	2
	New Mexico	Credit supportive	5
	North Dakota	Highly credit supportive	2
	South Dakota	Very credit supportive	3
	Texas (PUC)	Very credit supportive	3
	Wisconsin	Most credit supportive	1
Proxy Group Average		Very Credit Supportive to Highly Credit Supportive	2.58
Public Service Electric and Gas Co.	New Jersey	More credit supportive	4

Notes

[1] S&P Global Ratings, "North American Utility Regulatory Jurisdictions Update: No Revised Assessments, But Notable Developments," July 10, 2023.

[2] Most Credit Supp. = 1, Highly Credit Supp. = 2, Very Credit Supp. = 3, More Credit Supp. = 4, Credit Supp. = 5

CAPITAL STRUCTURE ANALYSIS

Proxy Group Company	Ticker	Most Recent 8 Quarters (2021Q3 - 2023Q2)			
		Common Equity Ratio	Long-Term Debt Ratio	Preferred Equity Ratio	Total Capitalization
Ameren Corporation	AEE	53.17%	46.26%	0.57%	100%
Avista Corporation	AVA	49.76%	50.24%	0.00%	100%
Black Hills Corporation	BKH	66.21%	33.79%	0.00%	100%
CenterPoint Energy, Inc.	CNP	47.21%	52.79%	0.00%	100%
CMS Energy Corporation	CMS	51.59%	48.21%	0.19%	100%
Consolidated Edison, Inc.	ED	48.18%	51.82%	0.00%	100%
Eversource Energy	ES	54.62%	44.69%	0.69%	100%
MGE Energy, Inc.	MGEE	60.59%	39.41%	0.00%	100%
NorthWestern Corporation	NWE	49.29%	50.71%	0.00%	100%
Sempra Energy	SRE	55.16%	44.79%	0.04%	100%
Southern Company	SO	55.56%	44.20%	0.24%	100%
Wisconsin Energy Corporation	WEC	57.26%	42.58%	0.16%	100%
Xcel Energy Inc.	XEL	54.44%	45.56%	0.00%	100%
Average		54.08%	45.77%	0.15%	
Median		54.44%	45.56%	0.00%	
Maximum		66.21%	52.79%	0.69%	
Minimum		47.21%	33.79%	0.00%	

Notes:

[1] Ratios are weighted by actual common capital, preferred capital, and long-term debt of the operating subsidiaries.

[2] Electric and Natural Gas operating subsidiaries with data listed as N/A from S&P Capital IQ have been excluded from the analysis.

BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION

-----X

Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
New York State Electric & Gas Corporation for
Electric Service

Case 22-E- _____

Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
New York State Electric & Gas Corporation for
Gas Service

Case 22-G- _____

Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
Rochester Gas and Electric Corporation
for Electric Service

Case 22-E- _____

Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
Rochester Gas and Electric Corporation for
Gas Service

Case 22-G- _____

-----X

DIRECT TESTIMONY OF ANN E. BULKLEY

(PRINCIPAL OF
THE BRATTLE GROUP)

May 26, 2022

Testimony of Ann E. Bulkley

Table of Contents

I.	INTRODUCTION AND QUALIFICATIONS	1
II.	PURPOSE AND OVERVIEW OF TESTIMONY	2
III.	REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS.....	6
IV.	CAPITAL MARKET CONDITIONS	16
	a) The Effect of Monetary Policy on Market Dynamics	19
	b) Inflationary Expectations in Current and Projected Market Conditions	24
	c) The Effect of Inflation on Interest Rates and the Investor-Required Return	27
	d) Expected Performance of Utility Stocks and the Investor-Required ROE on Utility Investments	32
	e) Conclusion	38
V.	PROXY GROUP SELECTION	38
VI.	COST OF EQUITY ESTIMATION	47
	A. Discounted Cash Flow Model	52
	B. Capital Asset Pricing Model	69
	C. Weighted Average Results	76
VII.	REGULATORY AND BUSINESS RISKS.....	79
	A. Capital Expenditures	79
	B. Regulatory Environment	82
	C. Performance Benchmarks	95
	D. Clean Energy Policy.....	97

VIII.	CAPITAL STRUCTURE.....	101
IX.	MULTI-YEAR RATE PLAN	112
X.	CONCLUSION AND RECOMMENDATION.....	114

TESTIMONY OF ANN E. BULKLEY

I. INTRODUCTION AND QUALIFICATIONS

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

A. My name is Ann E. Bulkley. I am a Principal with The Brattle Group (“Brattle”), located at One Beacon Street, Boston, Massachusetts, 02108.

Q. On whose behalf are you submitting this Direct Testimony?

A. I am submitting this Direct Testimony on behalf of New York State Electric & Gas Corporation (“NYSEG”) and Rochester Gas and Electric Corporation (“RG&E”), collectively referred to as “the Companies,” wholly-owned subsidiaries of AVANGRID, Inc. (“AVANGRID”). My Direct Testimony is part of the Companies’ rate case filings before the New York State Public Service Commission (“PSC” or “Commission”).

Q. Please describe your experience in the energy and utility industries.

A. I hold a Bachelor’s degree in Economics and Finance from Simmons College and a Master’s degree in Economics from Boston University, with more than 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. I have included my resume and a summary of testimony that I have filed in other proceedings as Attachment A.

TESTIMONY OF ANN E. BULKLEY

II. PURPOSE AND OVERVIEW OF TESTIMONY

1

2 **Q. What is the purpose of your Direct Testimony?**

3 A. The purpose of my Direct Testimony in this proceeding is to present
4 evidence and provide a recommended range for the Companies' cost of
5 equity (sometimes referred to as the Return on Equity or "ROE" for rate-
6 setting purposes) and capital structure for their utility operations. My
7 analysis and recommendations are supported by the data presented in
8 Exhibit __ (AEB-1) through Exhibit __ (AEB-11).

9

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

12 A. As discussed in more detail in the remainder of my Direct Testimony, it is
13 important to consider the results of several analytical approaches in
14 determining a reasonable recommendation for the Companies' ROE. To
15 develop my ROE recommendation, I developed a proxy group of companies
16 that face risk generally comparable to that faced by the Companies. The
17 Combined Utility Proxy Group includes both electric utilities and natural
18 gas distribution utilities. I developed a multi-stage Discounted Cash Flow
19 ("DCF") model and two forms of the Capital Asset Pricing Model
20 ("CAPM"). I have presented the DCF and CAPM results weighted equally,
21 and with the Commission's conventional 2/3 weighting of the DCF and 1/3
22 weighting of the CAPM. I have considered the range of results established
23 using the Combined Utility Proxy Group.

TESTIMONY OF ANN E. BULKLEY

1

2 The use of a multi-stage DCF model and two forms of the CAPM is
3 consistent with the approach employed by the Commission in prior cases.

4 While my equal weighting of the DCF and CAPM results does not conform
5 to the weighting typically employed in proceedings before the Commission
6 in the past, I explain in my Direct Testimony why placing less emphasis on
7 the DCF model at this time is consistent with the goals of the Recommended
8 Decision (“RD”) issued in the Generic Finance Proceeding (“GFP”), Case
9 91-M-0509, which is the docket that has been relied on by the Commission
10 to establish the ROE formula.

11

12 **Q. Please summarize the results of the ROE estimation models that you**
13 **considered in your analyses.**

14 A. As noted above, I considered the results of the multi-stage form of the DCF
15 model and two versions of the CAPM. The results of my analyses are
16 summarized in Figure 1 (below).

TESTIMONY OF ANN E. BULKLEY

Figure 1: Summary of Analytical Results¹

	Low	Mean	High
Multi-Stage DCF	8.97%	9.22%	9.47%
Traditional CAPM	10.55%	10.72%	10.78%
Zero-Beta CAPM	11.08%	11.21%	11.26%
Mean CAPM	10.81%	10.97%	11.02%
50%/50% DCF/CAPM	9.89%	10.09%	10.24%
67%/33% DCF/CAPM	9.58%	9.80%	9.98%

Q. What are your conclusions regarding the appropriate cost of equity for the Companies?

A. Based on the quantitative and qualitative analyses discussed throughout my Direct Testimony, the two alternative weightings of the DCF and CAPM results presented in Figure 1, and my assessment of the business and financial risks of NYSEG and RG&E relative to the proxy group, I conclude that the appropriate ROE for the Companies is within the range of 9.75 percent and 11.25 percent. The Companies are requesting an ROE of 10.20 percent, which is at the low end of the range of reasonableness and is a conservative estimate of the investor-required ROE.

¹ The DCF results presented in Figure 1 reflect the results of the models using low, average and high growth rate assumptions. The range of results for the CAPM is based on three interest rate scenarios, a historical average, a five-quarter projection and a long-term projection.

TESTIMONY OF ANN E. BULKLEY

1 **Q. Have there been recent authorized ROEs that support your**
2 **recommendation?**

3 A. Yes. Recently authorized ROEs for electric and natural gas utilities
4 excluding New York jurisdictional cases have been within the range
5 referenced above. From January 2020 through March 2022, authorized
6 ROEs for state jurisdictional electric utilities and natural gas distribution
7 companies excluding New York jurisdictional cases averaged 9.56 percent
8 and have been as high as 10.60 percent..²

9
10 **Q. Please summarize your analysis of the appropriate ratemaking capital**
11 **structure for the companies.**

12 A. The analysis presented in Section VIII of my Direct Testimony
13 demonstrates that the Companies' requested equity ratio of 50 percent is
14 below the mean equity ratio of 53.84 percent for the operating utility
15 companies in my proxy group over the 2017-2020 four-year period.
16 Therefore, I conclude that the Companies' requested equity ratio is
17 reasonable, if not conservative.

18
19 **Q. How is the remainder of your Direct Testimony organized?**

20 A. The remainder of my Direct Testimony is organized as follows:

² S&P Capital IQ Pro. The average authorized ROE calculation excludes the authorized returns in Vermont and for electric utilities in Illinois since they are established based on a formulaic approach that is directly linked to interest rates and therefore is affected by market conditions and monetary policy.

TESTIMONY OF ANN E. BULKLEY

- 1 Section III – Discusses the regulatory guidelines and financial
2 considerations pertinent to the development of the Cost
3 of Capital;
- 4 Section IV – Briefly discusses the current capital market conditions
5 and the effect of those conditions on the Companies' cost
6 of equity;
- 7 Section V – Explains my selection of the proxy group of electric and
8 gas distribution utilities used to develop my analytical
9 results;
- 10 Section VI – Explains my analyses and the analytical bases for my
11 ROE recommendation;
- 12 Section VII – Summarizes the specific regulatory and business risks
13 that have a direct bearing on the Companies' cost of
14 equity;
- 15 Section VIII – Provides an assessment of the Companies' proposed
16 capital structure;
- 17 Section IX – Provides an assessment of the effect of a Multi-Year Rate
18 Plan on the ROE; and
- 19 Section X – Summarizes my conclusions and recommendations.

20

21 **III. REGULATORY GUIDELINES AND FINANCIAL** 22 **CONSIDERATIONS**

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

25 A. The United States Supreme Court's precedent-setting *Hope* and *Bluefield*
26 cases established the standards for determining the reasonableness of a
27 utility's allowed ROE. Among the standards established by the Court in
28 those cases are: (1) consistency with the returns on equity investments in
29 other businesses having similar or comparable risks; (2) adequacy of the
30 return to support credit quality and access to capital; and (3) an

TESTIMONY OF ANN E. BULKLEY

1 understanding that the means of arriving at a fair return are not controlling,
2 only that the end result leads to just and reasonable rates..³

3
4 Based on those standards, the Commission's order in these cases should
5 provide the Companies with the opportunity to earn a ROE that is (1)
6 adequate to attract capital at reasonable terms, thereby enabling them to
7 continue to provide safe, reliable service; (2) sufficient to support the
8 financial soundness of the Companies' operations; and (3) commensurate
9 with returns on equity investments in enterprises having comparable risks.

10 The authorized ROE should enable the Companies to finance capital
11 expenditures at reasonable rates and maintain their financial flexibility over
12 the period during which rates are expected to remain in effect.

13
14 **Q. Has the Commission conducted a proceeding to review the standard for**
15 **estimating the Cost of Capital for a regulated utility?**

16 A. Yes. On August 21, 1991, the Commission established the GFP to review
17 the Commission's then-current methodology for estimating the cost of
18 equity and to examine various alternatives..⁴

19

³ *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("Hope");
Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia,
262 U.S. 679 (1923) ("Bluefield").

⁴ Case 91-M-0509, *Proceeding on Motion of the Commission to Consider Financial and*
Regulatory Policies for New York State Utilities, Recommended Decision, (issued July 19,
1994) ("RD"), at 2.

TESTIMONY OF ANN E. BULKLEY

1 **Q. Please provide a brief summary of the purpose of the GFP.**

2 A. The GFP was initiated because the Commission recognized that the DCF
3 method was particularly sensitive to interest rate fluctuations and was
4 producing returns far below the returns produced by other methodologies..⁵
5 The Commission's goal in opening the GFP was to eliminate controversy
6 around ROE calculations and attempt to find common ground on
7 contentious issues by developing a consensus approach for setting utility
8 equity returns. Among other things, the Commission examined whether
9 there should be greater consistency in rate of return determinations from
10 company to company, such that differences in returns could be directly
11 attributed to differences in risk between companies, and whether the
12 Commission's historical primary reliance on DCF-based ROE
13 determinations continued to provide fair returns..⁶ The Commission's
14 inquiry considered the merits of a generic process to reduce redundancy in
15 litigating equity returns, and sought a robust, but standardized, approach to
16 setting ROE such that ROE results were commensurate with the risk of the
17 individual company and would not be skewed by the shortcomings of a
18 single methodology.

19

⁵ *Ibid.*

⁶ *Id.*, at 13-14.

TESTIMONY OF ANN E. BULKLEY

1 **Q. Please describe the conclusions outlined in the RD of the Generic**
2 **Finance Proceeding.**

3 A. Ultimately, the RD concluded that the Commission should implement a
4 generic process for setting returns, based on proxy groups (not company-
5 specific data), and that reliance on the DCF method should be replaced with
6 a combination of the DCF and CAPM methodologies. The RD proposed to
7 use a preferred convention that gives a respective 2/3 to 1/3 weighting to
8 the results of the DCF and CAPM analyses. The RD recognized that the
9 CAPM “should figure prominently in the analysis” because this
10 methodology provides fundamental information on interest rates and the
11 returns required by stocks as a result of changes in interest rates. At that
12 time, the CAPM was not accorded the same level of prominence as the DCF
13 analysis, given that the former had previously only been used as a check.⁷
14 However, while the RD recognized a benefit to establishing an “operating
15 norm” with respect to setting the ROE, it also recognized that there may be
16 good reason to adjust either the weightings of the DCF and CAPM models
17 or to rely on different ROE estimation models. Specifically, the RD
18 provides the following guidance:

19 In either an annual-proceeding to determine a rate of return or in
20 individual proceedings, the 2/3 DCF and 1/3 CAPM convention
21 should be the presumption, but as Multiple Intervenors suggests,
22 parties would not be barred from introducing new methods or
23 different weightings. Such parties, however, would have the

⁷ *Id.*, at 27.

TESTIMONY OF ANN E. BULKLEY

1 burden of convincing other parties and the Commission of the
2 relevance or superiority of their proposals.⁸

3
4 Although the RD did not give equal weighting to the DCF and the CAPM,
5 there was an acknowledgement regarding the “varying degrees of
6 acceptance in utility rate cases.”⁹ Subsequently, in the intervening decades
7 since the RD was issued, various regulatory commissions have relied on
8 multiple models beyond the DCF in determining the cost of equity in
9 responses to changes in capital market conditions. The RD further notes:

10 There is no doubt that the CAPM should figure prominently in
11 the analysis, for it includes fundamental information on interest
12 rates and the relative returns needed by stocks in view of those
13 interest rates, and it provides information of what competitive
14 firms are earning.¹⁰

15
16 To establish the “operating norm,” the RD recommended specific forms of
17 the ROE estimation models – a two-stage DCF approach and a Traditional
18 and Zero Beta CAPM. Although the RD was never formally adopted by the
19 Commission, it has served as a touchstone for the Commission’s ROE
20 determinations for more than 25 years.

⁸ *Ibid.*

⁹ *Id.*, at 22.

¹⁰ *Id.*, at 27.

TESTIMONY OF ANN E. BULKLEY

1 **Q. Does the analysis presented in the remainder of your Direct Testimony**
2 **meet the intentions of the GFP RD?**

3 A. Yes, it does. As discussed in greater detail in Section VI, the methodologies
4 that I have applied to estimate the return on equity are consistent with
5 Commission precedent since the RD in the GFP. Moreover, the models
6 used in my analysis extend the principles advanced in the RD in the GFP to
7 best practices in financial analysis and current capital market conditions, as
8 was contemplated in the RD.

9
10 Specifically, I rely on the weighted results of DCF and CAPM analyses. In
11 developing these ROE estimation models, I rely on proxy groups of risk
12 comparable companies as discussed in Section IV. I have used both the
13 DCF and CAPM methodologies to estimate the return on equity. The multi-
14 stage DCF model that I relied on is consistent with the methodology that
15 the Commission has relied on in that it allows growth rates to vary over
16 time. Consistent with the fundamental principles upheld by the
17 Commission, I have applied two versions of the CAPM: Traditional and
18 Zero Beta. Finally, consistent with the principles of the GFP, to reduce the
19 volatility associated with the reliance on any one model, I have considered
20 the DCF and CAPM results weighted equally, and with the RD's proposed
21 2/3 weighting on the DCF and 1/3 weighting of the CAPM.

22

TESTIMONY OF ANN E. BULKLEY

1 **Q. Do the principles and intentions of the RD in the GFP require**
2 **adherence to a static formula?**

3 A. No. The GFP and RD did not require rote adherence to a static formula;
4 rather, they promoted some basic principles and afforded parties the
5 flexibility to investigate approaches to address changing financial market
6 conditions. The RD recognized the benefit of using multiple approaches for
7 setting ROE and although it found benefits to a preferred convention for
8 setting ROE, it did not bar parties from introducing new cost of capital
9 estimation methods or weightings and specifically recognized that there
10 may be circumstances where this would be superior. Capital market
11 conditions vary widely over time and each ROE methodology (DCF and
12 CAPM) may be impacted differently by identical conditions. The impact
13 of these conditions on ROE must be assessed and interpreted by the
14 practitioner to determine if their effects are directionally appropriate and are
15 of a reasonable magnitude. Accordingly, it is incumbent on the practitioner
16 to review the results of the analyses and exercise judgment as to how to
17 weight those results in the overall ROE determination. A close read of the
18 RD reveals that the Commission expressed some uncertainty around the
19 correct level of weighting and certainly indicated a willingness to revisit its
20 proposed weightings in the future. It is particularly fitting that the
21 Commission, which is seeking to update the traditional utility regulatory
22 model with new, innovative approaches suitable to current industry
23 circumstances in the New York Reforming the Energy Vision (“NY REV”)

TESTIMONY OF ANN E. BULKLEY

1 efforts, considers the integrity of the intent and principles of the RD and
2 demonstrate the flexibility to adapt the weightings of each methodology to
3 the applicable capital market conditions.

4
5 **Q. Were there other methodologies that the parties considered throughout**
6 **the GFP and determined to be informative in establishing a fair and**
7 **reasonable ROE?**

8 A. Yes. In Case No. 91-M-0509, the parties, which included many of the
9 electric and gas utilities and the Department of Public Service Staff (“Staff”)
10 established a Return on Equity Consensus Document (the “Consensus
11 Document”) in June of 1993. That document summarized the work that had
12 been completed by the Electric and Gas Industry Group (“EGIG”) to
13 evaluate other methodologies to be used in addition to or in substitution for
14 the DCF methodology..¹¹ The Consensus Document recognized that the
15 DCF model had produced volatile returns that were highly sensitive to
16 market conditions, in particular changes in interest rates. The Consensus
17 Document also recommended that the Commission rely on a Three
18 Methodology Approach to determine the allowed return on equity to be
19 reflected in the rates of the utilities including the DCF, the CAPM and a
20 Comparable Earnings methodology, which estimates the cost of equity
21 using the earned and expected returns of companies with similar risk..¹²

¹¹ The EGIG was a group consisting of the nine major electric and natural gas utilities at the time, the Public Utility Law Project of New York and Staff.

¹² Case 91-M-0509, Return on Equity Consensus Document, June 2, 1993.

TESTIMONY OF ANN E. BULKLEY

1

2 **Q. Why is this important at this time?**

3 A. As will be discussed in Section IV, the economy is recovering from the
4 COVID-19 recession and as a result inflation is at its highest level in 40
5 years. In response to inflation, the Federal Reserve is normalizing monetary
6 policy which is expected to include increases in the federal funds rate and
7 an unwinding of the Federal Reserve's balance sheet. As a result, interest
8 rates are expected to increase over the near-term and the utility sector,
9 because its valuations are highly sensitive to interest rates, is expected to
10 underperform relative to the broader market. Further, credit spreads have
11 widened materially since the beginning of the year, reflecting increased risk
12 aversion among fixed income investors. These changes in market conditions
13 is not sufficiently addressed by the DCF and CAPM models. Therefore, it
14 is important to consider at some level, the comparability of the returns for
15 other utilities of similar risk.

16

17 **Q. Has the Commission continued to consider modifications to its**
18 **regulatory approach as industry and market conditions have changed?**

19 A. Yes, it has. The Commission is in the process of developing a clean energy
20 plan to support the state's Climate Leadership and Community Protection
21 Act ("CLCPA") which requires carbon free electricity by 2040 and net zero
22 carbon economy by 2050. As the Commission is considering these
23 expansive policies that significantly affect the investment plans and

TESTIMONY OF ANN E. BULKLEY

1 operations of each of the utilities in New York, it is equally appropriate for
2 the Commission to consider whether the current ROE and capital structure
3 and the methodologies relied on to establish those methodologies provide
4 sufficient financial support to the utilities considering current market
5 conditions and the Commission's expansive energy reformation plans to
6 meet the requirements of *Hope* and *Bluefield*.

7
8 **Q. Is flexibility of approach and judgment important to ROE**
9 **determination?**

10 A. Yes, it is. When faced with the task of estimating the cost of equity, analysts
11 are inclined to gather and evaluate as much relevant data (both quantitative
12 and qualitative) as can be reasonably analyzed. Analysts and academics
13 understand that ROE models are tools to be used in the ROE estimation
14 process, and that strict adherence to any single approach, or the specific
15 results of any single approach, can lead to flawed conclusions. No model
16 can exactly pinpoint the correct return on equity; rather, each model brings
17 its own perspective and set of inputs that inform the estimate of ROE. That
18 position is consistent with the *Hope* finding that "[u]nder the statutory
19 standard of 'just and reasonable,' it is the result reached, not the method
20 employed, which is controlling."¹³

¹³ *Hope*, 320 U.S. at 602.

TESTIMONY OF ANN E. BULKLEY

1 Though each model brings a different perspective and adds depth to the
2 analysis, each model also has its own set of inherent weaknesses and should
3 not be relied upon individually without corroboration from other
4 approaches. Changes to inputs as a result of changes in economic
5 conditions could have widely different effects on the results of the various
6 analyses.

7
8 Regardless of which analyses are performed to estimate the investor's
9 required return on equity, the analyst must apply judgment to assess the
10 reasonableness of results and to determine the best weighting to apply to
11 results under prevailing capital market conditions. No one model can
12 reliably and consistently estimate the cost of capital that meets the fairness
13 standard of *Hope* and *Bluefield* in all market conditions.

IV. CAPITAL MARKET CONDITIONS

14
15
16 **Q. Why is it important to analyze capital market conditions?**

17 **A.** The ROE estimation models rely on market data that are either specific to
18 the proxy group, in the case of the DCF model, or the expectations of market
19 risk, in the case of the CAPM. The results of the ROE estimation models
20 can be affected by prevailing market conditions at the time the analysis is
21 performed. While the ROE that is established in a rate proceeding is
22 intended to be forward-looking, the practitioner uses current and projected
23 market data, specifically stock prices, dividends, growth rates and interest

TESTIMONY OF ANN E. BULKLEY

1 rates in the ROE estimation models to estimate the required return for the
2 subject company.

3 As discussed in the remainder of this section, analysts and regulatory
4 commissions have concluded that current market conditions have affected
5 the results of the ROE estimation models. As a result, it is important to
6 consider the effect of these conditions on the ROE estimation models when
7 determining the appropriate range and recommended ROE to be determined
8 for a future period. If investors do not expect current market conditions to
9 be sustained in the future, it is possible that the ROE estimation models will
10 not provide an accurate estimate of investors' required return during that
11 rate period. Therefore, it is very important to consider projected market
12 data to estimate the return for that forward-looking period.

13 **Q. What factors are affecting the cost of equity for regulated utilities in**
14 **the current and prospective capital markets?**

15 A. The cost of equity for regulated utility companies is being affected by
16 several factors in the current and prospective capital markets, including: 1)
17 changes in monetary policy, 2) currently high inflation continuing into
18 2022, 3) increasing interest rates, and 4) volatile market conditions. These
19 factors affect the assumptions used in the ROE estimation models. In this
20 section, I discuss each of these factors and how it affects the models used to
21 estimate the cost of equity for regulated utilities.

TESTIMONY OF ANN E. BULKLEY

1 **Q. What effect do current and prospective market conditions have on the**
2 **cost of equity for Montana-Dakota?**

3 A. As is discussed in more detail in the remainder of this section, the
4 combination of persistently high inflation, the Federal Reserve's changes in
5 monetary policy, and the dramatic shifts in market conditions resulting from
6 political influences all contribute to an expectation of increased market risk
7 and an increase in the cost of the investor-required return on equity. It is
8 essential that these factors be considered in setting a forward-looking cost
9 of equity. Inflation is currently at its highest level seen in approximately 40
10 years. Interest rates, which have increased significantly from pandemic-
11 related lows seen in 2020 are expected to continue to increase in direct
12 response to the Federal Reserve's use of monetary policy. As discussed later
13 herein, since there is a strong historical inverse correlation between interest
14 rates and the share prices of utility stocks, it is reasonable to expect that
15 investors' cost of equity is increasing. Because the cost of equity in this
16 proceeding is being estimated for the period that the Company's rates will
17 be in effect and the cost of equity is expected to increase over the near-term
18 for utilities, ROE estimates based in whole or in part on current market
19 conditions will understate the ROE during the future period that the
20 Company's rates will be in effect.

TESTIMONY OF ANN E. BULKLEY

1 a) **The Effect of Monetary Policy on Market Dynamics**

2 **Q. Please summarize the monetary policy actions of the Federal Reserve**
3 **in response to the economic effects of COVID-19.**

4 **A. In response to the COVID-19 pandemic, the Federal Reserve:**

- 5 • decreased the Federal Funds rate twice in March 2020, resulting
6 in a target range of 0.00 percent to 0.25 percent;
- 7 • increased its holdings of both Treasury and mortgaged-back
8 securities;
- 9 • started expansive programs to support credit to large employers
10 – the Primary Market Corporate Credit Facility to provide
11 liquidity for new issuances of corporate bonds; and the
12 Secondary Market Corporate Credit Facility to provide liquidity
13 for outstanding corporate debt issuances; and
- 14 • supported the flow of credit to consumers and businesses through
15 the Term Asset-Backed Securities Loan Facility.

16 In addition, Congress also passed the Coronavirus Aid, Relief, and
17 Economic Security (“CARES”) Act in March 2020, the Consolidated
18 Appropriations Act, 2021 in December 2020, and the American Rescue
19 Plan Act in March 2021, which included \$2.2. trillion, \$900 billion, and
20 \$1.9 trillion, respectively, in fiscal stimulus aimed at also mitigating the
21 economic effects of COVID-19. These expansive monetary and fiscal
22 programs mitigated the economic effects of the COVID-19 pandemic and
23 provided additional support as the economy recovers from the COVID-19
24 recession.

TESTIMONY OF ANN E. BULKLEY

1 **Q. How did the accommodative monetary and fiscal policy affect the U.S.**
2 **economy?**

3 A. The expansive monetary and fiscal policy programs resulted in a strong
4 economic recovery in 2021 from the COVID-19 induced recessionary
5 period in 2020. In fact, according to the Bureau of Economic Analysis, real
6 GDP grew by 5.7 percent in 2021 driven primarily by a 7.9 percent increase
7 in personal consumption expenditures..¹⁴ Moreover, the unemployment rate
8 decreased from a high of 14.7 percent in April 2020 to 3.9 percent as of
9 December 2021..¹⁵ As the economy recovered, inflation also accelerated
10 reaching a rate of 5.4% by September. Initially the Fed indicated that the
11 elevated rate of inflation was thought to be related to pandemic-caused
12 supply chain disruptions and was expected to be transitory and the Fed
13 continued with its accommodative monetary policy. However, as the
14 inflation rate continued to climb in the fourth quarter, reaching 7.0% by
15 December, the Fed's Policy stance changed as they signaled the likelihood
16 of multiple increases in the Fed Funds rate and beginning to unwind of its
17 Treasury and mortgage-backed securities holdings in 2022. In 2022
18 inflation accelerated to a rate of 8.5% in March, a level not seen since 1982.
19

¹⁴ Source: Bureau of Economic Analysis, News Release, February 24, 2022, at 8.

¹⁵ Source: Bureau of Labor Statistics. <https://data.bls.gov/timeseries/LNS14000000>

TESTIMONY OF ANN E. BULKLEY

1 **Q. In light of the historically high rate of inflation, has the Fed shifted**
2 **monetary policy?**

3 A. Yes. The Federal Reserve has shifted toward a policy aggressively fighting
4 inflation. At the May 4, 2022 meeting, the Federal Reserve:

- 5 • Completed its taper of Treasury bond and mortgage-backed
6 securities purchases.¹⁶;
- 7 • Increased the target federal funds rate from 0.00 – 0.25 percent to
8 0.25 – 0.50 percent at the March 16, 2022 meeting.¹⁷ and then from
9 0.25 – 0.50 percent to 0.75 to 1.00 percent at the May 4, 2022
10 meeting.¹⁸;
- 11 • Forecasted a total of seven rate increases in 2022 and four rate
12 increases in 2023 which resulted a median forecast of the federal
13 funds rate of 1.9 percent and 2.8 percent, respectively.¹⁹
- 14 • Will begin reducing its holdings of Treasury and mortgage-backed
15 securities on June 1, 2022..²⁰ The Federal Reserve will reduce the
16 size of its balance sheet by only reinvesting principal payments on
17 owned securities after the total amount of payments received
18 exceeds a defined cap. For Treasury Securities, the cap will be set at
19 \$30 billion per month for the first three months and \$60 billion per
20 month after the first three months while for mortgage-backed
21 securities the cap will be set at \$17.5 billion per month for the first
22 three months and \$35 billion per month after the first three
23 months..²¹

24 **Q. What is the market response to the recent FOMC meetings?**

25 A. The market response is an expectation that interest rates will increase to
26 address inflation. The CME Group calculates investors' views regarding the

¹⁶ Source: Federal Reserve Bank of New York,
<https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/treasury-securities/treasury-securities-operational-details#monthly-details>.

¹⁷ Source: Federal Reserve, Press Release, (Mar. 16, 2022).

¹⁸ Source: Federal Reserve, Press Release, (May 4, 2022).

¹⁹ Federal Reserve, Summary of Economic Projections, March 16, 2022, at 2.

²⁰ Source: Federal Reserve, Press Release, (May 4, 2022).

²¹ Source: Federal Reserve, Plans for Reducing the Size of the Federal Reserve's Balance Sheet, Press Release, (May 4, 2022).

TESTIMONY OF ANN E. BULKLEY

1 probability of the target federal funds rate range at upcoming Federal
2 Reserve meetings based on federal funds rate futures contracts. Figure 4
3 below contains investors' expectations regarding the level of the federal
4 funds rate at each of the next ten meetings as of May 5, 2022. As shown in
5 Figure 4, investors expect the Federal Reserve to increase the federal funds
6 rate at a faster pace than what was indicated in the forecasts released at the
7 Federal Reserve's March 16, 2022 meeting. For example, as shown in
8 Figure 4, according to the CME Group, there is a 53.6 percent probability
9 that the target federal funds rate range is 3.00 percent to 3.25 percent as of
10 December 2022 which is greater than the Federal Reserve's median forecast
11 of 1.90 percent. In particular:

- 12 • The 10-year Treasury bond yield has increased significantly,
13 from approximately 1.63 percent in early January 2022 to
14 approximately 2.89 percent as of the end of April 2022.
- 15 • Citigroup, Inc. is now projecting 50 basis point increases at the
16 next four FOMC meetings followed by 25 basis point increases
17 in October and December, reaching 3.50 to 3.75 percent.
- 18 • Bank of America Corp. is projecting a 25 basis point increase in
19 May, followed by two 50 basis point increases, and then a 25
20 basis point increase at each subsequent meeting through May
21 2023, reaching a range of 3.00 to 3.25 percent.
- 22 • Goldman Sachs Group Inc. is projecting 50 basis point increases
23 at the May and June FOMC meetings with a 25 basis point
24 increase at the four remaining meetings in 2022..²²

²² Lanman, Scott, "Wall Street Lifts Fed Forecasts; Citi See Four Half-Point Hikes," Bloomberg, March 25, 2022.

TESTIMONY OF ANN E. BULKLEY

- Moody's recently noted that the financial markets are close to fully pricing in three 50-basis point rate increases this year..²³

Thus, investors expect that the Federal Reserve will pursue more aggressive monetary policy than indicated at the March 16 meeting to combat persistent high levels of inflation.

Figure 2: Investor Expectation of Future Federal Funds Rate Increases.²⁴

MEETING PROBABILITIES															
MEETING DATE	125-150	150-175	175-200	200-225	225-250	250-275	275-300	300-325	325-350	350-375	375-400	400-425	425-450	450-475	475-500
6/15/2022	12.9%	87.1%	0.0%	0.0%											
7/27/2022	0.0%	0.0%	12.8%	86.9%	0.3%	0.0%	0.0%	0.0%	0.0%						
9/21/2022	0.0%	0.0%	0.0%	6.8%	52.1%	41.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
11/2/2022	0.0%	0.0%	0.0%	0.0%	5.4%	43.0%	43.2%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
12/14/2022	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%	41.2%	43.2%	10.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
2/1/2023	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	17.4%	41.9%	31.9%	6.8%	0.3%	0.0%	0.0%	0.0%	0.0%
3/15/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	8.8%	28.4%	37.4%	20.6%	3.8%	0.2%	0.0%	0.0%
5/3/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.5%	10.5%	29.2%	36.0%	19.2%	3.5%	0.1%	0.0%	0.0%
6/14/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	6.4%	20.7%	32.9%	26.8%	10.6%	1.7%	0.1%
7/26/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	5.5%	18.4%	30.9%	27.8%	13.2%	3.1%	0.3%

Q. Has the Federal Reserve provided support for investors' expectations regarding the federal funds rate since the Federal Reserve's projections were released at the March 2022 meeting?

A. Yes. Specifically, at the May 4, 2022 meeting, the Federal Reserve increased the federal funds rate 50 basis points from 0.25 – 0.50 percent to 0.75 to 1.00 percent and at his press conference, Federal Reserve Chairman Powell noted that additional 50 basis point increases may be needed at the next couple of meetings:

“[w]e are on a path to move our policy rate expeditiously to more normal levels. Assuming that economic and financial conditions evolve in line with expectations, there is a broad sense on the Committee that additional 50 basis point increases should be on

²³ Moody's Analytics, Weekly Market Outlook, "Fed Girds for Stagflation", April 14, 2022.
²⁴ CME Group; FedWatch tool as of May 4, 2022.

TESTIMONY OF ANN E. BULKLEY

1 the table at the next couple of meetings. We will make our
2 decisions meeting by meeting, as we learn from incoming data
3 and the evolving outlook for the economy. And we will continue
4 to communicate our thinking as clearly as possible. Our
5 overarching focus is using our tools to bring inflation back down
6 to our 2 percent goal.”²⁵

7 **b) Inflationary Expectations in Current and Projected Market**
8 **Conditions**

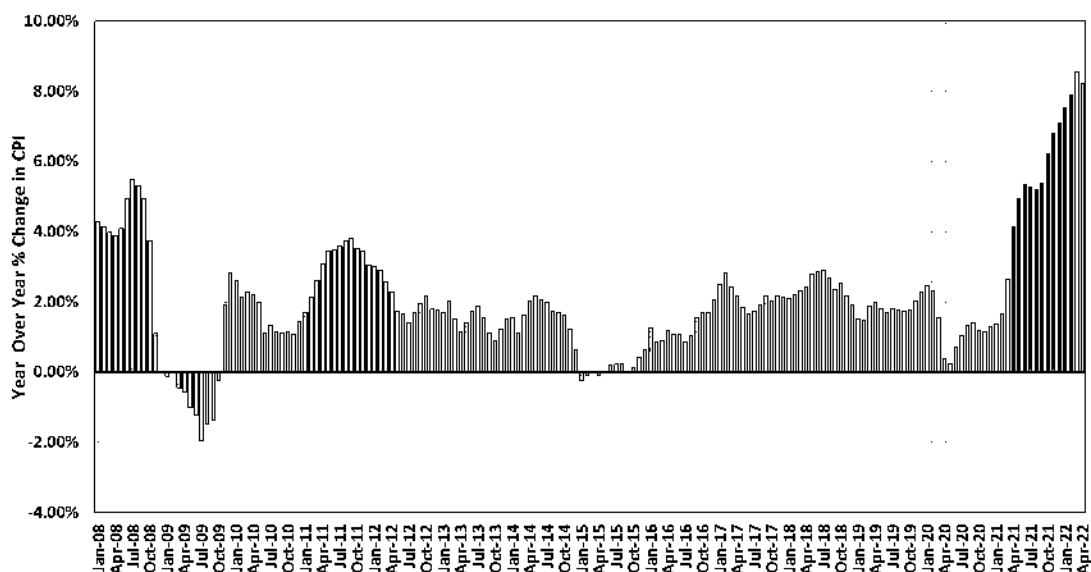
9 **Q. Is the increase in inflation significant?**

10 A. Yes. As shown in Figure 3, the YOY change in the Consumer Price Index
11 (“CPI”) published by the Bureau of Labor statistics has increased steadily
12 over the past year rising from 1.37 percent in January 2021 to 8.22 percent
13 in April 2022. The 8.22 percent YOY in the CPI in April 2022 is down
14 slightly from March 2022 which was the largest 12-month increase since
15 1981 and significantly greater than any level seen since January 2008.

²⁵ Source: Federal Reserve, Transcript of Chair Powell’s Press Conference Opening Statement, (May 4, 2022), at 3.

TESTIMONY OF ANN E. BULKLEY

Figure 3: Consumer Price Index – YOY Percent Change – January 2008 – April 2022.²⁶



Q. What are the expectations for inflation over the near-term?

A. In his press conference following the May 4, 2022 meeting, Chairman Powell noted that “[i]nflation is much too high and we understand the hardship it is causing, and we’re moving expeditiously to bring it back down”.²⁷ Therefore, investors expect inflation to remain elevated over the near-term. One measure of investors’ expectations regarding inflation is the breakeven inflation rate calculated as the spread between the yield on a Treasury bond and the yield on a Treasury Inflation-Protected bond, since a Treasury Inflation-Protected bond would account for the effect of inflation. The maturity of the bond selected would then reflect investors’ views of inflation during the holding period of the bond. For example, the

²⁶ Source: Bureau of Labor Statistics, shaded area indicates a recession.

²⁷ Source: Federal Reserve, Transcript of Chair Powell’s Press Conference Opening Statement, (May 4, 2022), at 1.

TESTIMONY OF ANN E. BULKLEY

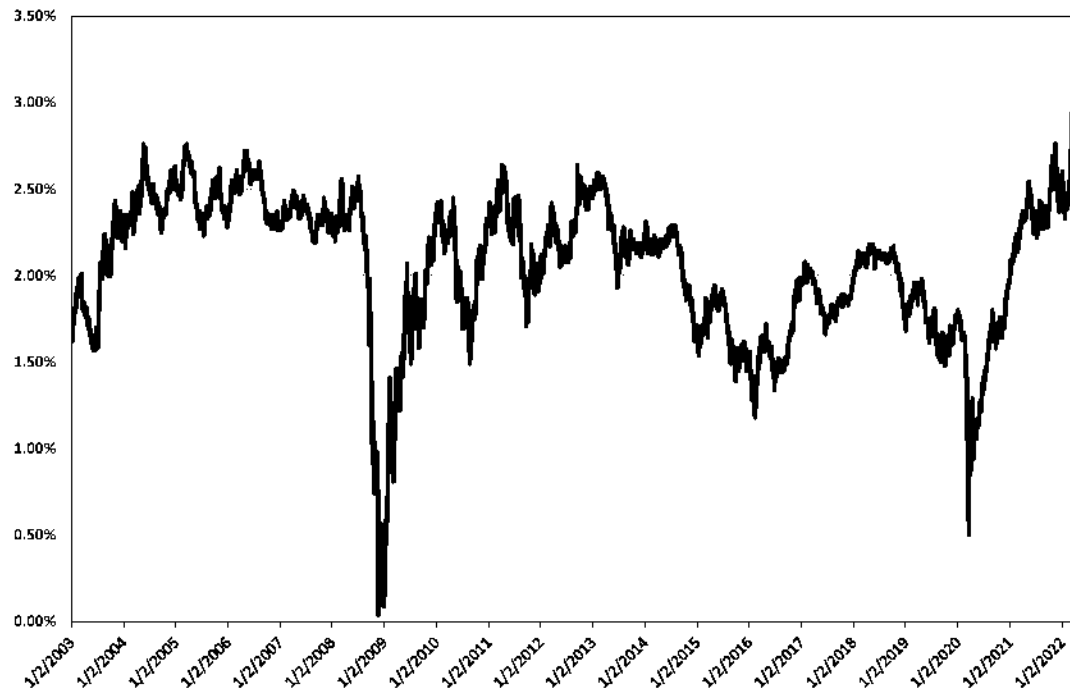
1 10-year breakeven inflation rate calculated as the spread between the 10-
2 year Treasury bond yield and the 10-year Treasury Inflation-Protected bond
3 yield would reflect investors' expectations of inflation over the next 10
4 years. As shown in Figure 4 below, the 10-year breakeven inflation rate is
5 currently greater than any level seen since January 2003. Furthermore, the
6 10-year breakeven inflation rate as of March 31, 2022 was 2.84 percent
7 indicating that investors expect inflation will remain well above the Federal
8 Reserve's 2 percent target over the next 10 years. There are many factors as
9 to why inflation is expected to remain elevated, Kiplinger recently noted a
10 few factors including supply shortages due to COVID-19 and Russia's war
11 in Ukraine which led them to forecast an inflation rate of 5.5 percent for
12 2022:

13 The surge in gasoline prices in March boosted annual inflation to
14 8.5%, the highest in 40 years. This is likely to be the peak for the year,
15 with inflation beginning to ease soon. But it will end the year at a still
16 high 5.5%. The inflation rate will ease because oil prices are coming
17 down off their peaks, though they remain high. Even if the war in
18 Ukraine ends soon, disincentives to imports of Russian oil and gas will
19 likely continue for quite a while. Ukraine is also a major world
20 producer of wheat. Those prices have surged 40% this year. Other
21 grain and meat prices are also at double or triple their previous long-
22 term averages. Plus, there are expectations of continued upward price
23 pressures on rent, housing costs and prices of many services, as the
24 pandemic eases and demand rebounds..²⁸

²⁸ Payne, David, "Inflation Rate Will Ease, But Prices Will Remain High," Kiplinger, April 13, 2022.

TESTIMONY OF ANN E. BULKLEY

Figure 4: 10-year Breakeven Inflation Rate – January 2003 – March 2022²⁹



c) The Effect of Inflation on Interest Rates and the Investor-Required Return

Q. What effect will inflation have on long-term interest rates?

A. Several equity analysts have noted that they expect economic conditions to continue to improve and thus the yields on long-term government bonds to continue to increase through the end of 2022. As shown in Figure 6, according to various equity analysts, the yield on the 10-year Treasury Bond is expected to range from 2.70 percent to 2.80 percent in 2022, and the current 30-day average yield on the 10-year Treasury Bond as of March 31,

²⁹ Federal Reserve Bank of St. Louis, 10-Year Breakeven Inflation Rate [T10YTE], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/T10YTE>, March 31, 2022.

TESTIMONY OF ANN E. BULKLEY

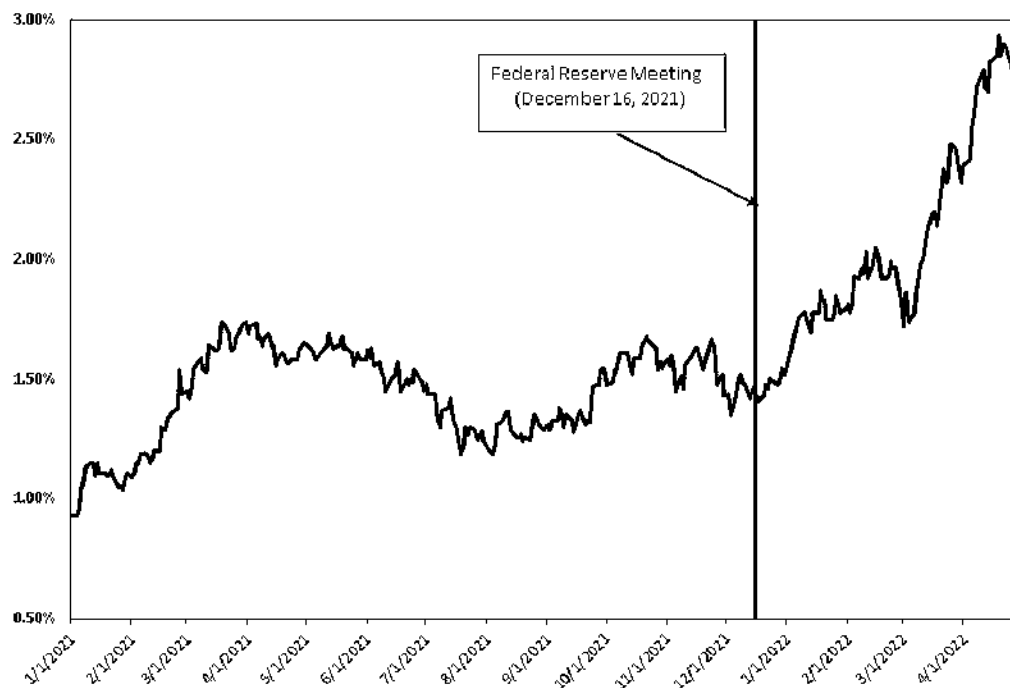
1 2022 is already 2.08 percent and was trading close to 2.90 percent as of
2 April 29, 2022.

3 **Q. Have the yields on long-term government bonds increased in response**
4 **to inflation and the Federal Reserve's normalization of monetary**
5 **policy?**

6 A. Yes, they have. As shown in Figure 5, since the Federal Reserve's
7 December 2021 meeting, as the process of normalizing monetary policy has
8 accelerated to respond to inflation, the yield on the 10-year Treasury bond
9 has increased over 90 basis points from 1.47 percent on December 15, 2021
10 to 2.38 percent on April 1, 2022. The increase is due to the Federal
11 Reserve's announcements at the December 2021, January 2022 and March
12 2022 meetings and the continued increased levels of inflation that are now
13 expected to persist much longer than the Federal Reserve and investors had
14 originally projected.

TESTIMONY OF ANN E. BULKLEY

1 **Figure 5: 10-Year Treasury Bond Yield – January 2021 – April 2022³⁰**



2
3
4 **Q. What have equity analysts said about long-term government bond**
5 **yields?**

6 **A.** Several equity analysts have noted that they expect economic conditions to
7 continue to improve and thus the yields on long-term government bonds to
8 continue to increase through the end of 2022. As shown in Figure 6, as of
9 March 2022, various equity analysts were projecting, the yield on the 10-
10 year Treasury Bond to range from 2.70 percent to 2.80 percent in 2022, and
11 the current 30-day average yield on the 10-year Treasury Bond as of April
12 29, 2022 the yield on the 10-year Treasury bond was 2.60 percent.

³⁰ S&P Capital IQ Pro.

TESTIMONY OF ANN E. BULKLEY

Figure 6: Equity Analysts Forecast of the 10-year Treasury Yield

	Actual
30-Day Average as of April 29, 2022	2.60%
	2022 Forecast
Credit Suisse. ³¹	2.70%
Goldman Sachs. ³²	2.70%
Blue Chip Financial Forecasts (Consensus Estimate). ³³	2.80%
BMO Economics. ³⁴	2.70%

Q. Have you considered any additional indicators that may imply long-term interest rates are expected to increase?

A. Yes, I have. I considered the net position of commercials (i.e., banks) in U.S. Treasury Bond futures contracts as reported in the Commitment of Traders ("COT") Report produced by the Commodity Futures Trading Commission ("CFTC"). A net position is defined as the total number of long positions in a futures contract minus the total number of short positions in a futures contract. A long position means that an investor agrees to purchase an asset in the future at a specified price today and therefore profits if the price of the underlying asset increases. Conversely, short position is when an investor agrees to sell an asset at a time in the future at a specified price today and profits if the price of the asset declines. Therefore, if banks are

³¹ Reuters, "U.S. 10-year yield to hit 2.7% this year - Credit Suisse," February 16, 2022.

³² Worrachate, Anchalee. "Goldman Sees Higher U.S. Treasury Yields, Curve Inversion." Bloomberg.com, March 25, 2022.

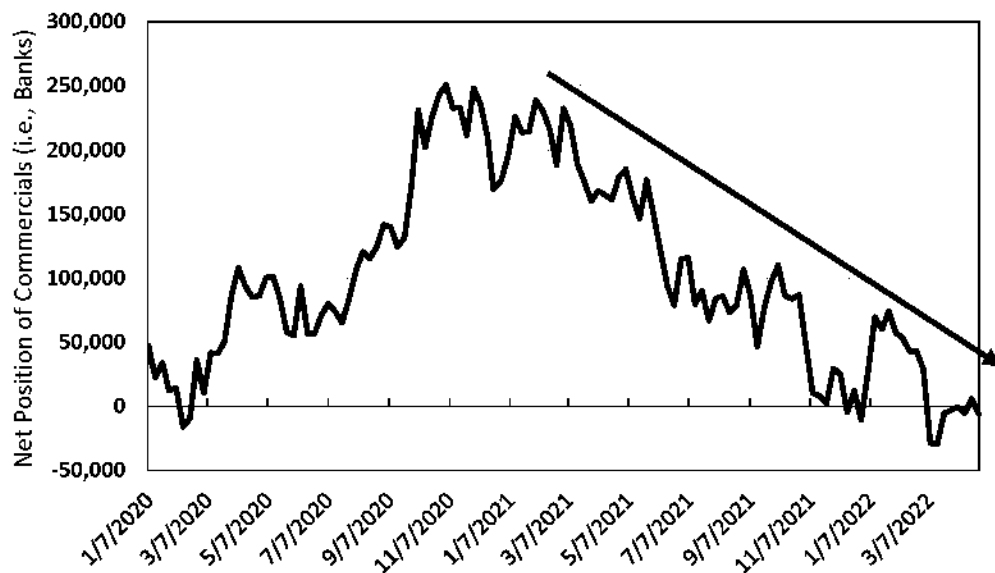
³³ Blue Chip Financial Forecasts, Vol. 41, No. 4, April 1, 2022, at 2.

³⁴ BMO Economics, "North American Outlook: Out of the Pandemic and Into the Fire," March 31, 2022.

TESTIMONY OF ANN E. BULKLEY

1 increasing the number of short positions and thus have a declining net
2 position, the banks are assuming that the price of the asset will decline. As
3 shown in Figure 7, the net position of banks in U.S. Treasury Bonds has
4 been decreasing since the end of 2020. Therefore, banks are forecasting a
5 decrease in the price of long-term government bonds and thus the yields
6 (which are inversely related to the price) to increase over the near-term.

7 **Figure 7: Commitment of Traders Report – Net Position of**
8 **Commercials (i.e., Banks) in U.S. Treasury Bond Futures Contracts.³⁵**



9
10
³⁵ Commitment of Traders Report, as of April 30, 2022 - <https://www.cftc.gov/MarketReports/CommitmentsofTraders/HistoricalCompressed/index.htm>

TESTIMONY OF ANN E. BULKLEY

1 **d) Expected Performance of Utility Stocks and the Investor-**
2 **Required ROE on Utility Investments**

3 **Q. Are utility share prices correlated to changes in the yields on long-term**
4 **government bonds?**

5 A. Yes, interest rates and utility share prices are inversely correlated which
6 means, for example, that an increase in interest rates will result in a decline
7 in the share prices of utilities. For example, Goldman Sachs and Deutsche
8 Bank recently examined the sensitivity of share prices of different industries
9 to changes in interest rates over the past five years. Both Goldman Sachs
10 and Deutsche Bank found that utilities had one of the strongest negative
11 relationships with bond yields (i.e., increases in bond yields resulted in the
12 decline of utility share prices).³⁶

13 **Q. Have electric utility stock prices recently increased?**

14 A. Yes. Utility stock prices had trended down as interest rates moved higher;
15 however, as a result of the political turmoil associated with the war in
16 Ukraine, investors have recently returned to utility stocks as a safe haven
17 seeking to lower risk, resulting in higher electric utility stock prices and thus
18 lower dividend yields.

³⁶ Lec, Justina. "Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks." Bloomberg.com, 11 Mar. 2021, www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks.

TESTIMONY OF ANN E. BULKLEY

1 **Q. How do equity analysts expect the utilities sector to perform in an**
2 **increasing interest rate environment?**

3 A. Even with the recent increase in electric utility stock prices, equity analysts
4 project that utilities are expected to continue to underperform the broader
5 market as interest rates increase. For example, in its most recent Big Money
6 poll, which closed in mid-April and surveyed 112 money managers
7 regarding the outlook for the next twelve months, the professional investors
8 indicated that the utility sector as the least attractive of all industries for
9 investment.³⁷ In addition, Fidelity recently recommended underweighting
10 the utility sector and noted that it classified the sector as underweight due
11 to a combination of “poor fundamentals and expensive valuations”.”³⁸
12 Furthermore, regarding the recent increase in utility share prices, Fidelity
13 stated that:

14 Energy stocks have garnered a lot of attention, but in February
15 utilities was the only sector with monthly returns in the 90th
16 percentile of its historical range. In the past, powerful utilities
17 rallies have signaled investors getting too defensive. The market
18 typically has gained, and utilities have underperformed, in 12-
19 month periods after top-decile monthly relative returns for the
20 sector..³⁹

21 **Q. Have you reviewed any market indicators that may imply that utilities**
22 **will underperform over the near-term?**

23 A. Yes, I have. As discussed above, the utility sector is considered a “bond
24 proxy” or a sector in which investors are attracted as a safe haven alternative

³⁷ Jasinski, Nicholas, *Bearish Now, Bullish Later: How Investors Are Sizing Up Stocks*,
Barron's, updated April 24, 2022.

³⁸ Fidelity, “Top sectors to watch in Q2,” May 4, 2022.

³⁹ *Ibid*

TESTIMONY OF ANN E. BULKLEY

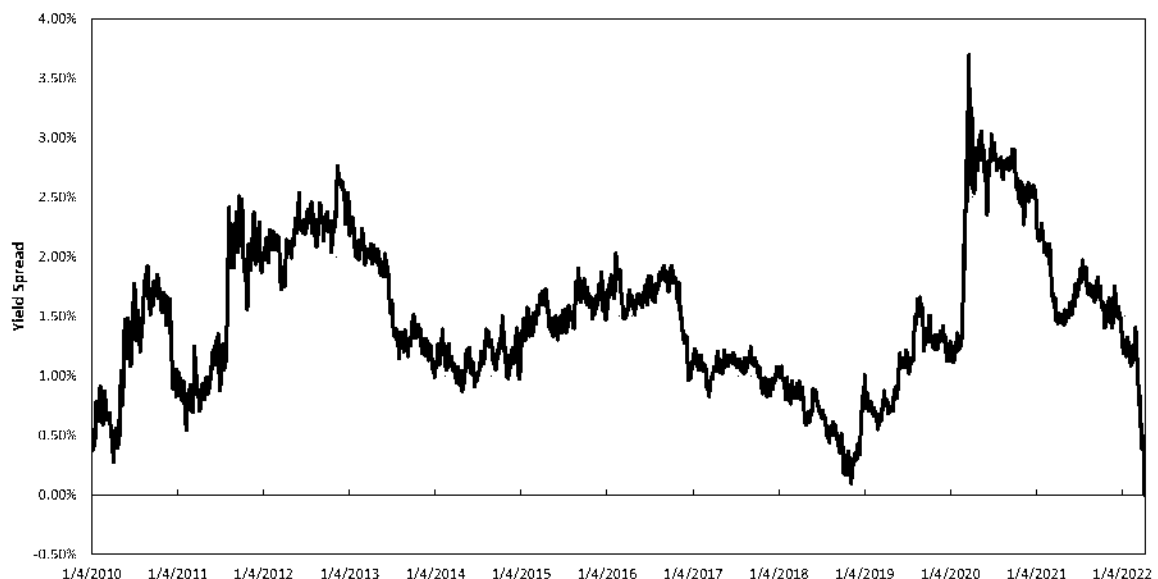
1 to bonds, and utility stock prices are therefore inversely related to changes
2 in interest rates. For example, the utility sector tends to perform well when
3 interest rates are low since the dividend yields for utilities offer investors
4 the prospect of higher returns when compared to the yields on long-term
5 government bonds. Conversely, the utility sector underperforms as the
6 yields on long-term government bonds increase and the spread between the
7 dividend yields on utility stocks and the yields on long-term government
8 bonds decreases. Therefore, I examined the yield spread between the
9 dividend yields of utility stocks and the yields on long-term government
10 bonds from January 2010 through April 2022. I selected the dividend yield
11 on the Utilities Select Sector SPDR Fund (“XLU”).⁴⁰ as the measure of the
12 dividend yields for the utility sector and the yield on the 10-year Treasury
13 Bond as the estimate of the yield on long-term government bonds. As
14 shown in Figure 8, the yield spread as of April 8, 2022 was 0.00 percent
15 indicating that yield on the 10-year Treasury Bond is equivalent to the
16 dividend yield for the XLU which is the smallest yield spread since at least
17 2010. Furthermore, the current yield spread of 0.00 percent is well below
18 the long-term average since January 2010 of 1.47 percent. Given that the
19 yield spread is currently well below the long-term average as well as the
20 expectation that interest rates will continue to increase, it is reasonable to
21 conclude that utility sector will underperform over the near-term. This is

⁴⁰ The Utilities Select Sector Index includes companies from the following industries: electric utilities; water utilities; multi-utilities; independent power and renewable electricity producers; and gas utilities.

TESTIMONY OF ANN E. BULKLEY

1 because investors that purchased utility stocks as an alternative to the low
2 yields on long-term government bonds will begin to rotate back into
3 government bonds as the yields on long-term government bonds continue
4 to increase thus resulting in a decrease in the share prices of utilities.

5 **Figure 8: Yield Spread between the Dividend Yield on the XLU and the Yield**
6 **on the 10-year Treasury Bond – January 2010 – April 2022.⁴¹**



7
8 **Q. What is the significance of the inverse relationship between interest**
9 **rates and utility share prices in the current market?**

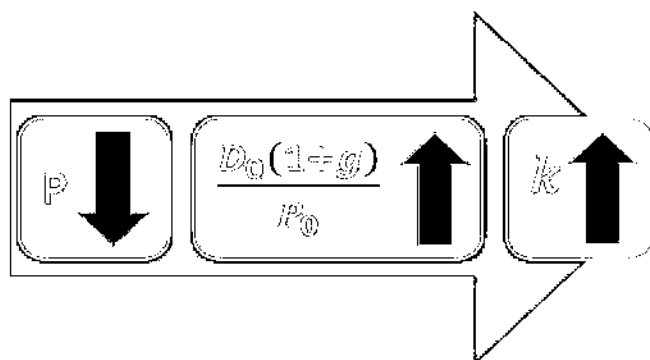
10 **A.** As discussed above, the Federal Reserve is currently normalizing monetary
11 policy in response to inflation which is expected to increase long-term
12 government bond yields. If interest rates increase as expected, then the
13 share prices of utilities will decline. If the prices of utility stocks decline,
14 then the DCF model, which relies on historical averages of share prices, is
15 likely to understate the cost of equity. For example, Figure 9, below

⁴¹ S&P Capital IQ Pro.

TESTIMONY OF ANN E. BULKLEY

summarizes the effect of price on the dividend yield in the Constant Growth DCF model.

Figure 9: The Effect of a Decline in Stock Prices on the Constant Growth DCF Model



A decline in stock prices will increase the dividend yields and thus the estimate of the ROE produced by the Constant Growth DCF model. Therefore, this expected change in market conditions supports consideration of the range of ROE results produced by the mean to mean-high DCF results since the mean DCF results would likely understate the cost of equity during the period that the Company's rates will be in effect. Moreover, prospective market conditions warrant consideration of other ROE estimation models such as the CAPM and ECAPM, which may better reflect expected market conditions. For example, two out of three inputs to the CAPM (i.e., the market risk premium and risk-free rate) are forward-looking.

TESTIMONY OF ANN E. BULKLEY

1 **Q. Have state regulatory commissions considered market events and the**
2 **utility's ability to attract capital in determining the equity return?**

3 A. Yes. In a recent rate case for Consumers Energy Company, the Michigan
4 Public Service Commission ("Michigan PSC") noted that it is important to
5 consider how a utility's access to capital could be affected in the near-term
6 as a result of market reactions to global events like those that have occurred
7 in the recent past. Specifically, the Michigan PSC stated that:

8 [i]n setting the ROE at 9.90%, the Commission believes there is
9 an opportunity for the company to earn a fair return during this
10 period of atypical market conditions. This decision also
11 reinforces the belief, as stated in the Commission's March 29
12 order, "that customers do not benefit from a lower ROE if it
13 means the utility has difficulty accessing capital at attractive
14 terms and in a timely manner." These conditions still hold true
15 based on the evidence in the instant case. The fact that other
16 utilities have been able to access capital despite lower ROEs, as
17 argued by many intervenors, is also a relevant consideration. It
18 is also important to consider how extreme market reactions to
19 global events, as have occurred in the recent past, may impact
20 how easily capital will be able to be accessed during the future
21 test period should an unforeseen market shock occur. The
22 Commission will continue to monitor a variety of market factors
23 in future rate cases to gauge whether volatility and uncertainty
24 continue to be prevalent issues that merit more consideration in
25 setting the ROE.⁴²

26 The Michigan PSC references "global events" and the overall effect the
27 events could have on the ability of a utility to access capital. Consistent with
28 the Michigan PSC's views, it is important to consider current market
29 conditions and the impact of those conditions on the access to and cost of

⁴² Michigan Public Service Commission Order, Cause No. U-20697, Consumers Energy Company, at 165 (Dec. 17, 2020).

TESTIMONY OF ANN E. BULKLEY

1 capital, and to position utilities to be able to maintain access in rapidly
2 changing market conditions.

3 e) Conclusion

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

6 A. Over the near-term, investors expect long-term interest rates to increase in
7 response to continued elevated levels of inflation and the Federal Reserve's
8 normalization of monetary policy. Because the share prices of utilities are
9 inversely correlated to interest rates, an increase in long-term government
10 bond yields will likely result in a decline in utility share prices, which is the
11 reason a number of equity analysts expect the utility sector to underperform
12 over the near-term. The expected underperformance of utilities means that
13 DCF models using recent historical data likely underestimate investors'
14 required return over the period that rates will be in effect. This change in
15 market conditions also supports the use of other ROE estimation models
16 such as the CAPM and the ECAPM, which may better reflect expected
17 market conditions.

18 V. PROXY GROUP SELECTION

19 **Q. Please explain why you have used a group of proxy companies to**
20 **determine the cost of equity for the Companies.**

21 A. In these proceedings, we are focused on estimating the cost of equity for the
22 Companies' rate-regulated, electric and natural gas distribution utility

TESTIMONY OF ANN E. BULKLEY

1 operations in New York. Because ROE is a market-based concept and the
2 Companies are not publicly traded, it is necessary to establish a group of
3 companies that are both publicly traded and comparable to the Companies
4 in certain fundamental business and financial respects to serve as their
5 “proxy” in the ROE determination process. As discussed later in my Direct
6 Testimony, the proxy companies used in my analyses all possess a set of
7 operating and risk characteristics that are substantially comparable to the
8 Companies and thus provide a reasonable basis for the derivation and
9 assessment of the Companies’ ROE.

10
11 In utility rate proceedings before the Commission over the past 25 years
12 (since the RD in the GFP),⁴³ the Commission has endorsed the use of proxy
13 groups for the purpose of determining utility ROEs. Because proxy
14 companies are now commonly used as the basis for estimating the utility
15 cost of equity, the primary objective of the screening process is to establish
16 a group of companies that are as comparable as possible to the Companies
17 with respect to fundamental financial and business risks. As a practical
18 matter, while the determination of an appropriate ROE necessarily requires
19 a degree of informed judgment, the careful selection of a risk-appropriate
20 comparison group serves to mitigate the extent to which subjective
21 assessments must be applied.

⁴³ Generic Finance RD at 133-134.