



**STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSION**

Docket No. DE 19-064

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities  
Distribution Service Rate Case

**DIRECT TESTIMONY**

**OF**

**JOHN COCHRANE**

April 30, 2019

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## TABLE OF CONTENTS

|              |   |           |
|--------------|---|-----------|
| <b>I.</b>    | <b>INTRODUCTION AND BACKGROUND .....</b>                      | <b>1</b>  |
| <b>II.</b>   | <b>PURPOSE AND OVERVIEW OF TESTIMONY .....</b>                | <b>2</b>  |
| <b>III.</b>  | <b>REGULATORY PRINCIPLES.....</b>                             | <b>5</b>  |
| <b>IV.</b>   | <b>PROXY GROUP SELECTION .....</b>                            | <b>6</b>  |
| <b>V.</b>    | <b>COST OF EQUITY ANALYSIS .....</b>                          | <b>9</b>  |
|              | A. Constant Growth DCF Method.....                            | 12        |
|              | B. Multi-stage DCF .....                                      | 16        |
|              | C. Capital Asset Pricing Model .....                          | 22        |
|              | D. Analytical Results and Adjustment for Flotation Costs..... | 26        |
| <b>VI.</b>   | <b>SMALL SIZE PREMIUM AND ROE RECOMMENDATION .....</b>        | <b>30</b> |
|              | A. Small Size Premium.....                                    | 30        |
|              | B. ROE Recommendation .....                                   | 33        |
| <b>VII.</b>  | <b>CAPITAL STRUCTURE.....</b>                                 | <b>33</b> |
| <b>VIII.</b> | <b>COST OF DEBT .....</b>                                     | <b>34</b> |
| <b>IX.</b>   | <b>CONCLUSIONS AND RECOMMENDATIONS.....</b>                   | <b>34</b> |

## ATTACHMENTS

| Attachment | Title                              |
|------------|------------------------------------|
| JC-1       | Resume of John Cochrane            |
| JC-2       | Summary of Results                 |
| JC-3       | Proxy Group Selection              |
| JC-4       | Constant Growth DCF Results        |
| JC-5       | Multi-Stage DCF Results            |
| JC-6       | Proxy Group Betas                  |
| JC-7       | Expected Market Return Calculation |
| JC-8       | CAPM Results                       |
| JC-9       | Flotation Costs                    |
| JC-10      | Small Size Premium                 |
| JC-11      | Proxy Group Capital Structure      |

1   **I.   INTRODUCTION AND BACKGROUND**

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

3   A.   My name is John Cochrane. I am a Senior Managing Director and head of the Power &  
4       Utilities practice at FTI Consulting, Inc. (“FTI”). My business address is 200 State St, 9<sup>th</sup>  
5       Floor, Boston, Massachusetts.

6   **Q.   On whose behalf are you submitting testimony?**

7   A.   I am submitting testimony on behalf of Liberty Utilities (Granite State Electric) Corp.  
8       d/b/a Liberty Utilities (“Granite State” or “the Company”).

9   **Q.   Please describe your education and professional experience.**

10  A.   I have more than 30 years of experience in utility finance. Prior to joining FTI, I held  
11       senior executive positions at National Grid plc (“National Grid”), where I was most  
12       recently Executive Vice President of Global Mergers & Acquisitions and Business  
13       Development. Prior to holding that position, I was Executive Vice President, Chief  
14       Financial Officer, and Treasurer for National Grid’s U.S. business. I also serve or have  
15       served as a member of the Board of Directors of several utilities and other companies in  
16       the energy sector. I hold a Bachelor’s degree in Biology from Harvard University and an  
17       MBA from Northeastern University. A copy of my resume is provided as Attachment  
18       JC-1.

19  **Q.   Please describe FTI’s Power & Utilities practice.**

20  A.   FTI is a worldwide consulting firm dedicated to helping organizations manage change,  
21       mitigate risk, and resolve disputes. Our Power & Utilities practice brings these services

1 to firms in regulated and competitive energy industries. The services we provide our  
2 utility clients include expert testimony, regulatory advice, support for strategic decision-  
3 making, and advice regarding investments and capital allocation. Our team is comprised  
4 of former utility executives, regulators, investors, and financial analysts that combine for  
5 hundreds of years of experience in the regulated energy space.

6 **Q. Have you previously testified before the Commission?**

7 A. Yes, I have testified before the New Hampshire Public Utilities Commission in Docket  
8 Nos. DG 06-107 and DF 92-219. A list of select testimony in proceedings in all  
9 jurisdictions is included in Attachment JC-1.

10 **II. PURPOSE AND OVERVIEW OF TESTIMONY**

11 **Q. What is the purpose of your testimony?**

12 A. The purpose of my testimony is to present evidence and provide recommendations  
13 regarding the Return on Equity (“ROE”) the Company should be allowed to earn on the  
14 equity portion of its rate base as well as recommendations regarding the Company’s  
15 capital costs and capital structure.

16 **Q. Please summarize your conclusions regarding the authorized ROE for the**  
17 **Company.**

18 A. Based on the analyses that I describe in this testimony, I conclude that the reasonable  
19 range within which the Commission should authorize Granite State’s ROE is between  
20 9.32% and 10.03%. I recommend that the Commission authorize the Company to earn an  
21 ROE of 10.00%, which is towards the upper end of that range, because of a number of

1 operational and financial risks to which Granite State is exposed that other electric utility  
2 companies are not.

3 **Q. Please summarize how you reached those conclusions.**

4 A. My recommendations regarding the reasonable range of ROE are based on quantitative  
5 and qualitative analyses I undertook utilizing analytical approaches that are widely  
6 accepted for this purpose in New Hampshire and elsewhere. I developed analyses using  
7 two variants of the Discounted Cash Flow (“DCF”) method, the Constant Growth DCF  
8 method, and the Multi-Stage DCF method, and also used the Capital Asset Pricing Model  
9 (“CAPM”) to arrive at my preliminary estimate of a reasonable range of ROEs for  
10 Granite State. I then undertook a quantitative analysis to adjust that range to account for  
11 the costs that Granite State will incur in the issuance of new capital. Finally, I undertook  
12 quantitative and qualitative analyses of the Company’s risk profile and the business  
13 environment in which it operates to inform my recommendation that the Commission  
14 authorize an ROE for Granite State at the upper end of that reasonable range. A  
15 summary of the results from these analyses can be found in Attachment JC-2.

16 **Q. What are your recommendations regarding the Company’s proposed capital**  
17 **structure and cost of debt?**

18 A. I find that the capital structure proposed by Messrs. Greene and Simek, which consists of  
19 55% equity and 45% debt, is reasonable and consistent with other utility companies.  
20 Regarding the cost of debt, the Company proposes to use its actual net cost of debt of  
21 5.97%, which I also find reasonable.

1 **Q. What are your conclusions regarding Granite State's total rate of return.**

2 A. I conclude that a total Rate of Return ("ROR") of 8.19% is reasonable, based on an  
3 authorized ROE of 10.00%, a weighted debt cost of 5.97%, and a capital structure that  
4 includes 55% equity.

5 **Table 1. ROR Summary Calculation**

|                                 |               |                 |
|---------------------------------|---------------|-----------------|
| Cost of equity                  | 10.00%        | <i>a</i>        |
| Capital structure equity weight | 55.00%        | <i>b</i>        |
| Cost of debt                    | 5.97%         | <i>c</i>        |
| Capital structure debt weight   | <u>45.00%</u> | <i>d</i>        |
| Overall rate of return          | 8.19%         | $e = a*b + c*d$ |

6  
7 **Q. How is the remainder of your testimony organized?**

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

- 9 • Section III describes the key regulatory principles underlying the estimation of the  
10 cost of capital for a regulated utility;
- 11 • Section IV describes the selection and composition of a proxy group of utility  
12 companies I used to conduct the analyses that underlie my testimony;
- 13 • Section V details the analyses I undertook to estimate Granite State's cost of  
14 equity;
- 15 • Section VI describes the risk factors that I believe justify establishing Granite  
16 State's ROE at the upper range of reasonable ROEs;
- 17 • Section VII discusses my findings regarding the Company's proposed capital  
18 structure;



- Section VIII discusses my findings regarding the Company's proposed cost of debt; and
- Section IX describes my conclusions and recommendations.

### **III. REGULATORY PRINCIPLES**

**Q. Please describe the guiding principles to which you adhere in estimating the ROE for a regulated utility.**

A. The United States Supreme Court established the standards for determining the fairness or reasonableness of a utility's allowed ROE in *Bluefield Water Works and Improvement Co. v. Public Service Commission of Virginia* ("Bluefield")<sup>1</sup> and *Federal Power Commission v. Hope Natural Gas Co.* ("Hope").<sup>2</sup> In those proceedings, the Court established that a regulated utility's ROE should be sufficient to attract capital and support the company's credit quality, and that the ROE should be consistent with the returns investors would require in making investments of similar risk.

**Q. Did you review any relevant precedents in New Hampshire?**

A. Yes, I did. Commission Order No. 24,972 supports the *Hope* and *Bluefield* standards. Specifically, that Order states that the Commission is:

[B]ound to set a rate of return that falls within a zone of reasonableness, neither so low to result in a confiscation of company property, nor so high as to result in extortionate charges to customers. A rate falling within the zone should, at a minimum, be sufficient to yield the cost of debt and

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<sup>1</sup> *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923).

<sup>2</sup> *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

equity capital necessary to provide the assets required for the  
discharge of the company's responsibility.<sup>3</sup>

**Q. Please summarize what these standards require.**

A. Based on these standards, the return authorized in this proceeding should afford Granite  
State the opportunity to earn a return that is:

- Adequate to attract capital at reasonable rates, allowing the Company to make the capital investments it requires to provide safe, reliable service;
- Sufficient to ensure the Company's financial integrity; and
- Consistent with returns provided by investments in other utilities with comparable risk profiles.

**IV. PROXY GROUP SELECTION**

**Q. Please briefly describe Granite State.**

A. Granite State provides electric-only distribution services to approximately 44,000 customers in New Hampshire. The Company is a wholly owned subsidiary of Liberty Utilities Co. ("Liberty"). Liberty is a wholly owned subsidiary of Algonquin Power & Utilities Corp. ("Algonquin"). Algonquin is based in Ontario, Canada, and owns regulated utility companies and renewable generation assets in jurisdictions throughout North America. Algonquin is traded on the Toronto Stock Exchange and the New York Stock Exchange.

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<sup>3</sup> Order No. 24,972 at 54 (May 29, 2009) (quoting *Appeal of Conservation Law Foundation*, 127 N.H. 606, 635 (1986)).

1   **Q.    Why is it necessary to use a proxy group to estimate Granite State's ROE?**

2    A.    Granite State is not a publicly-traded company, which makes it impossible to directly  
3       observe its cost of equity. Even if it were publicly traded, anomalous or transitory events  
4       may mean that its current ROE is not generally reflective of its economic and financial  
5       fundamentals or indicative of investor expectations moving forward. For both reasons, it  
6       is standard practice to develop a "proxy group" of comparable, publicly-traded  
7       companies that can be analyzed and from which inferences regarding Granite State's  
8       ROE can be drawn.

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

10   A.    Starting with the list of all companies categorized by Value Line as Electric Utilities, I  
11       applied the following screening criteria.

12       Companies were included in the proxy group only if:

- 13           • They consistently paid quarterly dividends with no cuts over the past four years;
- 14           • They were covered by at least two industry analysts;
- 15           • They had positive earnings growth estimates from at least two industry analysts;
- 16           • They received at least 50% of their operating revenues from regulated electric  
17           operations;
- 18           • They had investment grade long-term issuer ratings from Moody's or Standard &  
19           Poors; and
- 20           • They have not been part of a merger or other significant transaction within the  
21           past six months.

**Q. Have similar criteria been used to select proxy group companies in past proceedings before the Commission?**

A. Yes, these criteria are similar to those used in past proceedings before the Commission.

**Q. Please identify the companies in your proxy group.**

A. The screening criteria discussed above is shown in Attachment JC-3 and resulted in a proxy group includes the following 26 companies:

**Table 2. Proxy Group**

| Company Name                      | Ticker |
|-----------------------------------|--------|
| Ameren Corp.                      | AEE    |
| American Electric Power           | AEP    |
| Avangrid, Inc.                    | AGR    |
| ALLETE, Inc.                      | ALE    |
| Avista Corporation                | AVA    |
| CMS Energy Corporation            | CMS    |
| Duke Energy Corporation           | DUK    |
| Consolidated Edison, Inc.         | ED     |
| El Paso Electric Company          | EE     |
| Edison International              | EIX    |
| Eversource Energy                 | ES     |
| Hawaiian Electric                 | HE     |
| IDACORP, Inc.                     | IDA    |
| Alliant Energy Corporation        | LNT    |
| MGE Energy, Inc.                  | MGEE   |
| NextEra Energy, Inc.              | NEE    |
| Northwestern Corporation          | NWE    |
| Otter Tail Corporation            | OTTR   |
| PNM Resources, Inc.               | PNM    |
| Pinnacle West Capital Corporation | PNW    |
| Portland General Electric         | POR    |
| PPL Corporation                   | PPL    |
| Southern Company                  | SO     |
| Unitil Corp                       | UTL    |
| WEC Energy Group, Inc.            | WEC    |
| Xcel Energy, Inc.                 | XEL    |

1 **Q. Why is neither Granite State nor Algonquin included in your proxy group of**  
2 **companies?**

3 A. It is typical not to include the company that is the subject of a rate proceeding in the  
4 composition of a proxy group in order to avoid any circularity issues that could bias  
5 results. In addition, Granite State is not publicly traded nor does it make up the entirety  
6 of a publicly-traded company. As the cost of equity is a market-based concept and  
7 necessitates the use of publicly-observable data, the proxy group cannot include Granite  
8 State and instead consists of publicly traded companies that are similar in business and  
9 financial aspects to Granite State.

10 **V. COST OF EQUITY ANALYSIS**

11 **Q. Please explain the relevance of a regulated utility's ROE in the context of setting**  
12 **retail electric rates.**

13 A. Utilities are allowed to earn a return on the capital investments they make to provide for  
14 safe and reliable operation of their electric systems. Those returns contribute to the  
15 utility's cost of service, which are recovered through rates approved by the Commission.  
16 Regulators authorize a Rate of Return ("ROR") that utilities are allowed to earn on their  
17 investments based on the weighted average cost of debt and cost of equity for  
18 investments made. These authorized returns will reimburse investors for the capital they  
19 have provided to the utility.

1    **Q.    How is a regulated utility's ROE estimated?**

2    A.    While a utility's cost of debt can generally be observed directly from market rates paid  
3           for newly issued debt, the cost of equity must be estimated using market-based  
4           information. Although methods vary, the generally accepted approach for doing so is to  
5           identify a group of utility companies with similar risk and operating profiles as the utility  
6           in question, apply various methodologies to determine their ROEs, and compile an  
7           estimate of the utility's ROE based on the results of those analyses plus any adjustments  
8           that are required to account for the specific operating and financial factors applicable to  
9           the utility that is the subject of the analysis.

10   **Q.   Which methods did you utilize to estimate Granite State's ROE?**

11   A.    I utilized three different financial models to analyze the proxy group I identified and  
12           estimate the Company's ROE. Those models are the Constant Growth DCF, the Multi-  
13           Stage DCF, and the CAPM. I used those results to establish a preliminary range of  
14           reasonable ROEs. I then adjusted that range to account for the costs that Granite State  
15           incurs when issuing new common equity to fund investments in its system. Finally, I  
16           analyzed the impact of the Company's small size as well as current conditions in the  
17           capital markets to inform my recommendation that Granite State's ROE be established at  
18           the upper end of the reasonable range.

19   **Q.   Why did you use three models to estimate Granite State's ROE?**

20   A.    It is widely accepted practice in New Hampshire and elsewhere to estimate ROE using  
21           multiple models, and then synthesize a recommended range and point estimate from

1 those results, since any model developed will necessarily be beholden to certain  
2 assumptions which could, under some conditions, limit the accuracy of the model.  
3 Additionally, since the models rely on different data inputs and assumptions, using more  
4 than one reduces the potential of some anomalous market result or transient market  
5 conditions having an undue influence on results.

6 **Q. Has the Commission recognized the use of more than one analytical approach for**  
7 **estimating ROE?**

8 A. Yes, it has done so on numerous occasions. I have reviewed every gas and electric rate  
9 case filed before the Commission in the last five years. In each of those proceedings,  
10 multiple analytical approaches were used to estimate the filing utility's ROE.

11 **Q. Has the Commission commented on the appropriateness of using DCF models to**  
12 **estimate ROE in previous proceedings?**

13 A. Yes, it has. It is my understanding that DCF models are frequently used for this purpose  
14 in New Hampshire.

15 **Q. Has the Commission and its Staff commented on the appropriateness of using the**  
16 **Constant Growth DCF and Multi-Stage DCF models in previous proceedings?**

17 A. Yes, they have. The Constant Growth DCF model appears to enjoy widespread support  
18 from both the Commission and its Staff. Regarding the Multi-Stage DCF model, the  
19 Commission indicated in 2004 that, "Staff testimony supports the view that a three-stage

1 version of the DCF represents a valuable refinement to the DCF method of estimating the  
2 cost of capital looking forward over the long term. We agree.”<sup>4</sup>

3 **Q. Is the Multi-Stage DCF method appropriate given current conditions in the utility**  
4 **industry and capital markets?**

5 A. Yes, I believe that it is. As I discuss in further detail later in my testimony, the Multi-  
6 Stage DCF method provides some flexibility to account for changing market conditions  
7 through different growth rates over time. The Constant Growth DCF requires adherence  
8 to several assumptions, including a constant earnings growth rate in perpetuity, which  
9 may change with market conditions, and the Multi-Stage DCF provides some ability to  
10 temper that assumption.

11 **A. Constant Growth DCF Method**

12 **Q. Please describe the Constant Growth DCF approach.**

13 A. The Constant Growth DCF method of estimating a utility’s ROE is based on the theory  
14 that a company’s stock price represents the Present Value (“PV”) of all future dividend  
15 payments. Dividend payments are assumed to continue at their current level into  
16 perpetuity and stock prices can be observed in the market. The discount rate implied by  
17 the dividends and the current stock price is equal to the company’s cost of equity. Thus,  
18 the theory holds that a company’s stock price is equal to the following:

19 
$$P_0 = \frac{D}{ROE - g}$$

---

<sup>4</sup> *Verizon New Hampshire*, Order No. 24,265 at 65 (Jan. 16, 2004).



1 where  $P_0$  is the current stock price,  $D$  is the current dividend,  $ROE$  is equal to the  
2 discount rate required to yield the observable stock price given expected dividends, and  $g$   
3 is the expected growth rate in dividends. By restating the same equation, ROE can be  
4 expressed as:

$$ROE = \frac{D}{P_0} + g$$

6 **Q. What assumptions are required by the Constant Growth DCF approach?**

7 A. The Constant Growth DCF approach relies on seven strict assumptions. *First*, dividend  
8 payments are required to grow at a single, constant rate into perpetuity. *Second*, the  
9 company's earnings are assumed to grow at a single, constant rate into perpetuity. *Third*,  
10 the company's book value is assumed to grow at a single, constant ratio into perpetuity.  
11 *Fourth*, the dividend payout ratio, which is the ratio between total dividends paid and the  
12 net income of the company, is assumed to be held constant into perpetuity. *Fifth*, the  
13 company's Price-to-Earnings Ratio ("PE Ratio"), the ratio of a company's stock price to  
14 its per-share earnings, is assumed to be held constant into perpetuity. *Sixth*, the current  
15 cost of equity is assumed to remain unchanged into perpetuity. *Seventh*, the method  
16 requires a discount rate that is greater than the expected earnings growth rate.

17 **Q. Please summarize your approach to estimating ROE using the Constant Growth**  
18 **DCF method.**

19 A. For each of the companies in the proxy group, I calculated ROE using the company's  
20 current stock price and its current dividend payment, assuming that each of the

assumptions I describe above hold. The calculations are based on publicly available data for stock prices and analyst estimates of earnings growth. The ROE estimate for Granite State is based on the average of the ROE estimates for each proxy group company. Low, Mid, and High estimates are developed based on which growth estimates are used, as I describe in detail below.

**Q. Please explain the stock price data you used in your calculations.**

A. Rather than relying on a single stock closing price, I averaged the closing stock prices over three periods: 30, 90, and 180 trading days. The periods I used for each calculation are shown below:

**Table 3. Stock Price Averaging Periods**

| Averaging Period | Start Date       | End Date      |
|------------------|------------------|---------------|
| 30-day           | January 25, 2019 | March 8, 2019 |
| 90-day           | October 26, 2018 | March 8, 2019 |
| 180-day          | June 20, 2018    | March 8, 2019 |

**Q. Why is it necessary to use different averaging periods?**

A. I used the multiple averaging periods to reduce any bias that could be introduced by anomalous market conditions if the stock price were based on the results of a single trading day.

**Q. Did you make any adjustments to the dividend yield?**

A. Yes. To account for the fact that dividends are paid on a quarterly basis and may be increased at different times, I have adjusted the dividend yield by one-half of the

1 expected long-term growth rate. This adjustment has been common practice both in New  
2 Hampshire and elsewhere. In particular, the Federal Energy Regulatory Commission  
3 (“FERC”) has stated:

4 For ratemaking purposes, the Commission rearranges the  
5 DCF formula to solve for “k”, the discount rate, which  
6 represents the rate of return that investors require to invest  
7 in a company’s common stock, and then multiplies the  
8 dividend yield by the express  $(1 + .5g)$  to account for the fact  
9 that dividends are paid on a quarterly basis. Multiplying the  
10 dividend yield by  $(1 + .5g)$  increases the dividend yield by  
11 one half of the growth rate and produces what the  
12 Commission refers to as the “adjusted dividend yield.”<sup>5</sup>

13 **Q. Please identify the source of the growth expectations assumptions you used in your**  
14 **calculations.**

15 A. For each company in the proxy group, I used the latest earnings growth estimate as  
16 reported by Yahoo Finance, Value Line, and Zacks. These sources are widely used in  
17 regulatory proceedings in New Hampshire and elsewhere.

18 **Q. Please describe the results of your analysis using the Constant Growth DCF method.**

19 A. Using the stock prices from each of the three averaging periods, I developed three ROE  
20 estimates, which vary by the earnings growth estimate relied on. My Mid ROE  
21 calculation is based on average earnings growth estimates from Zacks, Value Line, and  
22 Yahoo Finance. The Low ROE and High ROE calculations use the earnings growth

---

<sup>5</sup> Opinion No. 531, 147 FERC ¶ 61,234 at p. 9.

estimates that are the lowest and highest, respectively, of the three sources. My calculations are provided in Attachment JC-4 and the results are shown below:

**Table 4. Constant Growth DCF Method Calculation Results**

| <b>Averaging Period</b> | <b>Low</b>   | <b>Mid</b>   | <b>High</b>  |
|-------------------------|--------------|--------------|--------------|
| 30-day                  | 8.03%        | 8.82%        | 9.75%        |
| 90-day                  | 8.10%        | 8.89%        | 9.83%        |
| 180-day                 | <u>8.15%</u> | <u>8.93%</u> | <u>9.87%</u> |

I note that the results do not change significantly based on the stock price averaging period utilized. Therefore, I have averaged the results for each of the three averaging periods to calculate the Low, Mid, and High Estimates shown below in Table 5.

**Table 5. Average Constant Growth DCF Results**

| <b>Low</b> | <b>Mid</b> | <b>High</b> |
|------------|------------|-------------|
| 8.09%      | 8.88%      | 9.82%       |

**B. Multi-stage DCF**

**Q. What other types of DCF analysis did you utilize to estimate Granite State's ROE?**

A. I also utilized a Multi-Stage (three stage) DCF method to estimate the ROE.

**Q. Please explain the Multi-Stage DCF.**

A. Like the Constant Growth DCF, the analytical basis for the Multi-Stage DCF is the assumption that a utility's stock price is equal to the PV of the cash flows that will be received by the stock's holder. The Multi-Stage DCF assumes that those cash flows are received in three different periods. Stage 1 includes cash flows from dividend payments

1 received in years 1 through 5 in the future. Stage 2 includes cash flows from dividend  
2 payments received in years 6 through 10. Stage 3 includes cash flows received thereafter.  
3 As with my calculations using the Constant Growth DCF method, I estimated Granite  
4 State's ROE using the stock prices from the three averaging periods (30-day, 90-day, and  
5 180-day) and developed a Low, Mid, and High ROE estimate using each averaging  
6 period.

7 **Q. Why did you choose the Multi-Stage DCF method to augment your Constant**  
8 **Growth DCF results?**

9 A. As described earlier in my testimony, the Constant Growth DCF relies on a number of  
10 strict assumptions, including constant growth in dividend payments, company earnings,  
11 and company book value at a single, constant rate into perpetuity as well as the fact that  
12 the company's current cost of equity will likewise remain constant into perpetuity. In  
13 actuality, these and other factors can change over time. A Multi-Stage DCF model  
14 allows for the specification of different growth rates over multiple stages, which reduces  
15 the likelihood of establishing Granite State's ROE based on financial metrics that may  
16 not be sustainable in the long-term.

17 **Q. How did you estimate the dividend payments in Stage 1?**

18 A. In Stage 1, my estimate of dividend payments are based on the earnings growth estimates  
19 from Zacks, Yahoo Finance, and Value Line. For the Mid ROE estimate, I used the  
20 average of the three sources. For the Low and High ROE estimates, I used the lowest and  
21 highest, respectively, of those three estimates.

1   **Q.    How did you estimate the dividend payments in Stage 3?**

2    A.    Beginning 11 years into the future, I assume that dividend payments will grow at the  
3           same rate as the long-term growth of the economy as a whole, as measured by U.S. Gross  
4           Domestic Product (“GDP”). My estimate of long-term GDP growth is based on historical  
5           real GDP growth plus an adjustment for expected inflation.

6   **Q.    How did you calculate the historical GDP?**

7    A.    Using quarterly data from the U.S. Bureau of Economic Analysis as reported by the  
8           Federal Reserve Bank of St. Louis, I calculated that over the period 1929 to 2017, the  
9           U.S. economy grew at an average rate of 3.22% per year. .

10   **Q.    How did you develop your estimate of inflation?**

11   A.    I averaged three sources. First, I used the average of the last 180 trading days as of  
12           March 11, 2018, of the 10-Year Breakeven Inflation Rate reported by the Federal  
13           Reserve Bank of St. Louis. The 10-Year Breakeven Inflation Rate represents a measure  
14           of expected inflation derived from 10-Year Treasury constant Maturity Securities.  
15           Second, I used the annual growth rate of the Consumer Price Index (“CPI”) from 2028–  
16           2050 for all urban consumers as projected by the Energy Information Administration  
17           (“EIA”). Third, I used the annual growth rate of the GDP chain-type price index from  
18           2028–2050 as reported by the EIA. The inflation measures and the average are shown in  
19           Table 6 below.

**Table 6. Inflation Assumption**

|                                  |       |
|----------------------------------|-------|
| 10-year Breakeven Inflation Rate | 1.95% |
| CPI                              | 2.31% |
| GDP Chain-Type Price Index       | 2.29% |
| Average                          | 2.18% |

**Q. Please summarize your nominal GDP growth estimate.**

A. My nominal GDP estimate was developed by combining my estimates of real GDP growth and inflation, each of which are described above. My results are shown in Table 7 below.

**Table 7. Long-Term GDP Growth Estimate**

|                    |       |
|--------------------|-------|
| Real GDP Growth    | 3.22% |
| Inflation          | 2.18% |
| Nominal GDP Growth | 5.40% |

**Q. How did you estimate the cash flows received in Stage 2?**

A. Earnings Growth in Stage 2 are designed to provide for a gradual transition between Stage 1 and Stage 3. In all cases, there are significant differences between the earnings outlook for Stage 1, which is based on the analysts' earnings outlook, and the long-term GDP outlook. Since there is no reason to believe that there will be a step change in company earnings between years 5 and 6 of the forward-looking period, I assumed that the Stage 2 earnings growth rates would provide a "bridge" between Stages 1 and 3 such that a linear transition occurs in the growth rates between years 5 and 11.

An illustrative example is provided below. Here, the company is assumed to have a Stage 1 growth rate of 6.00%. The Stage 3 growth rate is 5.40%, based on the calculation shown in Table 7. Growth rates for years 6-10 provide for a linear transition between Stages 1 and 3.

**Table 8. Stage 2 Growth Rates Calculation Illustrative Example**

| $a$                     | $b=(g-a)/6+a$ | $c=(g-a)/6+b$ | $d=(g-a)/6+c$ | $e=(g-a)/6+d$ | $f=(g-a)/6+e$ | $g$                      |
|-------------------------|---------------|---------------|---------------|---------------|---------------|--------------------------|
| First Stage<br>(Year 5) | Year 6        | Year 7        | Year 8        | Year 9        | Year 10       | Third Stage<br>(Year 11) |
| 6.00%                   | 5.90%         | 5.80%         | 5.70%         | 5.60%         | 5.50%         | 5.40%                    |

**Q. Does the PV of the cash flows received in Stage 3 assume that the stock is held into perpetuity?**

A. Not necessarily. The PV of the Stage 3 cash flows is equal to the PV of a series of dividend payments based on the Stage 3 earnings growth rate into perpetuity. In other words, the PV of the Stage 3 cash flows is calculated using the Constant Growth DCF method. As I discuss earlier in my testimony, financial theory indicates that the stock price is equal to the discounted value of the dividend payments. As such, the PV of the Stage 3 cash flows is the same whether the investor sells the stock or holds it into perpetuity.

**Q. What are the results of your analysis using the Multi-Stage DCF method?**

A. The results of my analysis using the Multi-Stage DCF method are shown in Table 9 and the calculations are provided in Attachment JC-5.



**Table 9. Multi-Stage DCF Method Calculation Results**

| <b>Averaging Period</b> | <b>Low</b> | <b>Mid</b> | <b>High</b> |
|-------------------------|------------|------------|-------------|
| 30-day                  | 8.84%      | 9.02%      | 9.24%       |
| 90-day                  | 8.91%      | 9.09%      | 9.32%       |
| 180-day                 | 8.96%      | 9.14%      | 9.37%       |

As was the case with the Constant Growth method, these results do not vary significantly based on the stock price averaging period. Therefore, I based my Low, Mid, and High estimates of Granite State's ROE from the simple average of the three averaging periods. The results are shown below.

**Table 10. Multi-Stage DCF Results**

| <b>Low</b> | <b>Mid</b> | <b>High</b> |
|------------|------------|-------------|
| 8.91%      | 9.08%      | 9.31%       |

**Q. What do you conclude about your results from both the Constant Growth and Multi-Stage DCF models?**

A. The DCF model results rely on historical averages of abnormally high utility stock prices that result in low dividend yields. In its latest report on the electric utility industry, Value Line notes that:

Even after a pullback in late 2018, most stocks in the Electric Utility Industry are still priced expensively, in our view. Many of the equities are still trading within our 2021-2023 Target Price Range. The industry's average dividend yield is

1 3.5%, and some stocks have yields that aren't significantly  
2 higher than the median of all stocks under our coverage.<sup>6</sup>

3 With the expectation that dividend yields will increase,<sup>7</sup> using current utility stock  
4 valuations and low dividend yields will result in an underestimated ROE under the DCF  
5 methodology. Therefore, I conclude that it is reasonable to recommend an ROE towards  
6 the higher end of the range of results. Additionally, in order to moderate the effect of the  
7 DCF models tendency towards understating the ROE when utility stock prices are  
8 abnormally high and dividend yields abnormally low, I have also considered results from  
9 the CAPM method described below.

10 **C. Capital Asset Pricing Model**

11 **Q. Please summarize the CAPM method.**

12 A. CAPM describes the relationship between the price of a security and the return that  
13 investors will require to hold it. The analytical basis is that any security is subject to  
14 market risk and that investors will require higher returns for holding riskier assets, all else  
15 being equal. In the case of a regulated utility stock, the required return is equal to the  
16 ROE. Analysis of the risk profile and market conditions to which the proxy group is  
17 exposed using CAPM yields an ROE estimate for Granite State.

18 **Q. Please provide the analytical form of the CAPM.**

19 A. The CAPM is defined as follows:

---

<sup>6</sup> Value Line Investment Survey, Electric Utility (West) Industry, January 25, 2019.

<sup>7</sup> Value Line's projected 3-5 year dividend yields are higher than current dividend yields for 25 of the 27 proxy group companies.

1 
$$RR_i = R_f + \beta_i(R_m - R_f)$$

2 where:

3  $RR_i$  is the required return of the investment, which is equal to the ROE;

4  $R_f$  is the risk-free rate;

5  $\beta_i$  is the beta coefficient of the investment; and

6  $R_m$  is the expected return of the securities market as a whole.

7 **Q. Please explain the meaning and significance of the risk-free rate.**

8 A. Investors require compensation for risk and for the time-value of money; the risk-free  
9 rate accounts for the latter. The risk-free rate is set at the return that investors could  
10 achieve while exposing themselves to zero risk. It is the minimum return any investor  
11 will accept since, by definition, taking on more than zero risk will require compensation  
12 beyond this amount. It is typical for the risk-free rate to be estimated using yields on  
13 U.S. Treasury bonds.

14 **Q. How did you estimate the risk-free rate?**

15 A. I estimated the risk-free rate by taking the average of the yields on 30-year constant  
16 maturity U.S. Treasury securities as reported by the U.S. Department of the Treasury  
17 over the last 30 trading days as of March 11, 2018. Using this approach, I estimate the  
18 risk-free rate to be 3.03%.

19 **Q. Please explain the meaning and significance of the beta coefficient.**

20 A. The beta coefficient is a measure of a security's systematic, or non-diversifiable, risk. It  
21 indicates a stock's riskiness (volatility) compared to that of the market as a whole and is

1 indexed to the latter. If a stock has a beta coefficient of 1.0, it is exactly as risky as the  
2 market. A higher coefficient indicates that the stock is riskier than the market and,  
3 conversely, a lower coefficient means that the security is less risky than the market.

4 Beta is calculated by analyzing the returns of a security and the returns of the market as a  
5 whole over some historical period and is mathematically defined as:

$$\beta_i = \frac{\text{Covariance}(R_i, R_m)}{\text{Variance}(R_m)}$$

7 where  $\beta_i$  is the beta coefficient of the security,  $R_i$  is the return of the security, and  $R_m$  is  
8 the return of the market as a whole. Calculation of the covariance between  $R_i$  and  $R_m$   
9 measures the degree to which the returns of the security and market returns move  
10 together while the variance of  $R_m$  measures the degree of volatility in the market.

11 **Q. How did you estimate the beta coefficient?**

12 A. The beta coefficient I use in my CAPM analysis is based on the average of the beta  
13 coefficients for the companies in my proxy group, excluding Evergy, Inc. (“Evergy”),  
14 which equals 0.57. The proxy group betas are reported by Value Line and are shown  
15 below in Table 11 and included as Attachment JC-6.

16 **Table 11. Proxy Group Beta Coefficients**

| Company                 | Beta |
|-------------------------|------|
| Ameren Corp             | 0.55 |
| American Electric Power | 0.55 |
| Avangrid, Inc.          | 0.30 |
| ALLETE, Inc.            | 0.65 |
| Avista Corporation      | 0.65 |

|                             |             |
|-----------------------------|-------------|
| CMS Energy Corporation      | 0.55        |
| Duke Energy Corporation     | 0.50        |
| Consolidated Edison, Inc.   | 0.40        |
| El Paso Electric Company    | 0.65        |
| Edison International        | 0.55        |
| Eversource Energy           | 0.60        |
| Hawaiian Electric           | 0.60        |
| IDACORP, Inc.               | 0.55        |
| Alliant Energy Corporation  | 0.60        |
| MGE Energy, Inc.            | 0.60        |
| NextEra Energy, Inc.        | 0.55        |
| Northwestern Corporation    | 0.55        |
| Otter Tail Corporation      | 0.75        |
| PNM Resources, Inc.         | 0.65        |
| Pinnacle West Capital Corp. | 0.55        |
| Portland General Electric   | 0.60        |
| PPL Corporation             | 0.70        |
| Southern Company            | 0.50        |
| Unitil Corp                 | 0.55        |
| WEC Energy Group, Inc.      | 0.50        |
| Xcel Energy, Inc.           | <u>0.50</u> |
| <b>Average</b>              | <b>0.57</b> |

1

2 **Q. Please explain the meaning and significance of the expected market return.**

3 A. The primary relevance of the expected market return is that it is used to calculate the  
4 Market Risk Premium, which is defined by the term  $(R_m - R_f)$ . This represents the return  
5 that investors can expect from the securities market as a whole above and beyond the  
6 return that would be provided by a risk-free investment.

7 **Q. How did you calculate the expected market return?**

8 A. I calculated the expected market return by applying the Constant Growth DCF method  
9 described earlier in my testimony to the companies in the S&P 500 Index as reported by

Value Line. Using this approach, I estimate that the expected market return is 16.53%.

My calculations are provided in Attachment JC-7.

**Q. What were the results of your CAPM analysis?**

A. Based on the risk-free rate, beta, and market risk premium calculations I describe above, the CAPM method indicates that Granite State's ROE is 10.66%, as shown below in Table 12 and in Attachment JC-8.

**Table 12. CAPM Results**

|                        |        |                      |
|------------------------|--------|----------------------|
| Risk-free rate         | 3.03%  | <i>a</i>             |
| Beta                   | 0.57   | <i>b</i>             |
| Expected market return | 16.53% | <i>c</i>             |
| Market risk premium    | 13.49% | <i>d = c - a</i>     |
| ROE                    | 10.66% | <i>e = a + b * d</i> |

**D. Analytical Results and Adjustment for Flotation Costs**

**Q. Briefly summarize your results using the two DCF and CAPM methods.**

A. As I previously described, using the Constant Growth DCF method, I calculated estimates of Granite State's ROE that range from 8.09% to 9.82%. Using the Multi-Stage DCF method, I calculated estimates of ROE that range from 8.91% to 9.31%. Using the CAPM method, I estimate that Granite State's ROE is 10.66%.

**Q. How have you aggregated the estimates you developed using the three models.**

A. I aggregated them using simple averaging. As shown below in Table 13, I developed preliminary Low, Mid, and High ROE estimates using the three methods by averaging the results of the Constant Growth DCF, the Multi-Stage Growth DCF, and the CAPM.

1 The averages yield a range of preliminary ROE estimates for Granite State of 9.22% to  
2 9.93%.

3 **Table 13. Aggregation of Preliminary Analytical Results**

|                     | <b>Low</b>    | <b>Mid</b>    | <b>High</b>   |
|---------------------|---------------|---------------|---------------|
| Constant Growth DCF | 8.09%         | 8.88%         | 9.82%         |
| Multi-Stage DCF     | 8.91%         | 9.08%         | 9.31%         |
| CAPM                | <u>10.66%</u> | <u>10.66%</u> | <u>10.66%</u> |
| Average             | 9.22%         | 9.54%         | 9.93%         |

4  
5 **Q. Have you made any adjustments to your preliminary range?**

6 A. Yes, I have. I have incorporated a small adder to account for security flotation costs to  
7 my estimate.

8 **Q. What are security flotation costs?**

9 A. Flotation costs are expenses that companies incur when they issue new common stock.  
10 Flotation costs include underwriting, legal expenses, issuance preparation, and other  
11 expenses that companies incur when they issue new securities.

12 **Q. Should flotation costs be recovered through ROE rather than through operating**  
13 **expenses?**

14 A. Yes, they should. A utility's cost to issue new stock is part of its capital rather than  
15 operating costs. If a company cannot recover its flotation costs through ROE, its actual  
16 ROE will be less than those required by investors to own the stock. This will, in turn,  
17 impair the company's ability to attract the capital required to operate a safe and reliable  
18 system. This situation could become particularly problematic if other utilities with whom

1 the Company competes to attract capital are allowed recovery of their flotation costs  
2 while Granite State is not.

3 **Q. Are flotation costs accounted for in the DCF and CAPM models you used to develop**  
4 **the preliminary estimates shown in Table 13?**

5 A. No, they are not. The DCF and CAPM models are designed to estimate the returns that  
6 an investor would require for holding a stock based on expected dividend payments (in  
7 the case of the DCF models) and/or has a certain risk profile (in the case of the CAPM).  
8 For purposes of this proceeding, that required return is used as a proxy for the Company's  
9 ROE since the authorized return must match investor requirements in order for Granite  
10 State to attract capital. Because neither the DCF nor the CAPM models are primarily  
11 designed to estimate the ROE for a regulated utility, neither take flotation costs into  
12 consideration.

13 **Q. How did you estimate Granite State's flotation cost adjustment?**

14 A. I estimated Granite State's flotation costs by examining the costs of issuing equity  
15 incurred by the proxy group companies and Algonquin in their two most recent common  
16 equity issuances. After calculating the average flotation costs for the proxy group and  
17 Algonquin, I adjusted the Constant Growth DCF model to incorporate a dividend yield  
18 that would allow investors to recover costs associated with the issuance of equity. The  
19 resulting dividend yield is calculated by dividing the current dividend yield by one minus  
20 the weighted average flotation costs of the proxy group companies. The difference  
21 between the resulting ROE from the adjusted Constant Growth DCF and the unadjusted



1 Constant Growth DCF is the flotation cost adjustment. My calculations can be found in  
2 Attachment JC-9.

3 **Q. What is your estimate of the appropriate adder to Granite State's ROE estimate to**  
4 **cover flotation costs?**

5 A. Using this method, I estimate that the ROE adder required to cover flotation costs is  
6 0.10%.

7 **Q. Please update your preliminary ROE range to account for flotation costs.**

8 A. In Table 14, below, I add the flotation costs to the preliminary ROE estimates I  
9 previously described.

10 **Table 14. ROE Range**

|                      | <b>Low</b>   | <b>Mid</b>   | <b>High</b>  |
|----------------------|--------------|--------------|--------------|
| Preliminary estimate | 9.22%        | 9.54%        | 9.93%        |
| Flotation costs      | <u>0.10%</u> | <u>0.10%</u> | <u>0.10%</u> |
| ROE estimate         | 9.32%        | 9.64%        | 10.03%       |

11  
12 **Q. Do these calculations support the range of reasonable ROEs for Granite State?**

13 A. Yes, they do. Based on the information shown in Table 14, I conclude that Granite  
14 State's authorized ROE should fall within the reasonable range of 9.32% to 10.03%.

15 **Q. Is the midpoint in the range your recommendation for Granite State's authorized**  
16 **ROE?**

17 A. No, it is not. There are multiple factors related to Granite State's risk profile as well as  
18 current conditions in capital markets that lead me to conclude that establishing Granite

1 State's ROE at or near the midpoint of the range will not allow it to attract sufficient  
2 capital to maintain its financial integrity and fund a safe and reliable system.

3 **VI. SMALL SIZE PREMIUM AND ROE RECOMMENDATION**

4 **Q. Please explain the factors that support your conclusion that Granite State's ROE**  
5 **should be established towards the high end of the range of reasonable ROEs you**  
6 **previously described.**

7 A. Granite State is considerably smaller than the utilities in the proxy group, a situation that  
8 creates risk for the Company's investors for which they will need to be compensated with  
9 a higher return.

10 **A. Small Size Premium**

11 **Q. Please explain why smaller utilities are riskier than larger ones.**

12 A. There is a broad body of evidence supporting the existence of a "firm size effect" on  
13 firms in general, and utilities in particular, that requires smaller companies to provide  
14 higher returns than larger companies in the same industries.<sup>8</sup> Smaller electric utilities  
15 have smaller customer bases, have fewer financial resources, and are less diversified in  
16 terms of customers and geography.<sup>9</sup> These challenges increase the investors' risks of  
17 owning securities in small companies which, in turn, requires them to pay a higher return  
18 in order to attract capital.

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<sup>8</sup> Shannon Pratt and Roger Grabowski, *Cost of Capital: Applications and Examples*, 3<sup>rd</sup> Edition, New Jersey, John Wiley & Sons, 2008 at Chapter 12; Duff & Phelps, *2018 Cost of Capital: Annual US Guidance and Examples*, 2018 at Chapter 4 pp. 1-7; Rolf W. Banz, "The Relationship between Return and Market Value of Common Stocks", *Journal of Financial Economics* (March 1981) at pp. 3-18.

<sup>9</sup> Duff & Phelps, *2018 Cost of Capital: Annual US Guidance and Examples*, 2018 at Chapter 4 p. 2.

1 **Q. How does Granite State compare in size to the other utilities in the proxy group?**

2 A. The Company's operations are significantly smaller than those of the proxy group  
3 companies. As shown in Attachment JC-10, Granite State had less than half (42%) of the  
4 customers of the smallest company by customer count in the proxy group, and only 3% of  
5 the median number of customers. Granite State is also much less well capitalized than  
6 the other proxy group companies. Attachment JC-10 shows the actual market  
7 capitalization for the proxy group companies based on recent data and estimates the  
8 implied market capitalization for Granite State.

9 **Q. How did you estimate Granite State's capitalization?**

10 A. Because the Company is not a standalone publicly-traded entity, I have estimated its  
11 market capitalization by applying the median market-to-book ratio of the proxy group  
12 companies to Granite State's equity of \$66.1 million.<sup>10</sup> The resulting implied market  
13 capitalization for Granite State is approximately \$139.5 million, or less than 1% of the  
14 median market capitalization for the proxy group companies.

15 **Q. What did you conclude regarding a small size premium for Granite State's ROE?**

16 A. By calculating an implied market capitalization for the Company, I was able to evaluate  
17 the impact of Granite State's small size on its ROE relative to the proxy group  
18 companies. In its Cost of Capital Navigator, Duff & Phelps calculate size premia  
19 associated with deciles of market capitalizations, as well as categorizations of Mid Cap,

---

<sup>10</sup> Shareholder equity was calculated by applying the Company's proposed equity ratio of 55% to its rate base of \$120.2 million as of the end of 2018.

1 Low Cap, and Micro Cap.<sup>11</sup> As shown in Attachment JC-10, both the mean market  
2 capitalization of the proxy group companies of \$17.6 billion and the median market  
3 capitalization of \$14.4 billion fall into the second decile, corresponding to a size premium  
4 of approximately 0.52%. Granite State's implied market capitalization falls in the tenth  
5 decile, which includes market capitalizations up to \$321.6 million, and also in the Micro  
6 Cap category, which includes market capitalizations up to \$727.8 million. According to  
7 Duff & Phelps data, Granite State would merit a size premium of between 3.39% and  
8 5.22%, which is 2.87% to 4.70% higher than the size premium for the mean and median  
9 of the proxy group.

10 **Q. Do you propose to adjust your reasonable range to account for the size premium?**

11 A. No, I do not. Estimating the size premium is a complex analysis that lacks the  
12 transparency of the calculations on which I relied for other aspects of my testimony.  
13 While it is clear that Granite State is exposed to the small size premium, the magnitude of  
14 the impact of this influence is a matter of debate in the academic literature and limitations  
15 regarding data availability make the estimation less robust. I have therefore used the  
16 results of the size premium analysis to inform my recommendation that Granite State's  
17 authorized ROE should be set at the high end of the reasonable range I previously  
18 described. I view this as a conservative approach.

---

<sup>11</sup> Duff & Phelps defines Mid Cap companies as companies with market capitalizations between \$2,996 million and \$13,455.8 million, Low Cap companies as companies with market capitalizations between \$730 million and \$2,992.3 million, and Micro Cap companies as companies with market capitalizations between \$2.5 million and \$727.8 million. Granite State falls in the Micro Cap category, while the majority of companies in the proxy group are larger than the Mid Cap range and tend to fall in the first and second deciles of market capitalization (between \$13,513 million and \$1,073,390.6 million).

1    **Q.    Is it important to account for the small size premium in establishing ROE?**

2    A.    Yes, it is. Granite State competes with other utilities to attract the capital it needs to  
3           maintain its financial integrity and fund a safe and reliable system. Because its small size  
4           makes it a riskier investment than other utilities, it will need to offer enhanced returns in  
5           order to remain an attractive investment.

6                   **B. ROE Recommendation**

7    **Q.    Given the impact of the small size premium as well as current conditions in capital**  
8           **markets, what is your recommendation regarding Granite State's authorized ROE.**

9    A.    I recommend that Granite State be authorized to earn an ROE of 10.00% which, for  
10           reasons I discuss, is at the upper end of the reasonable range of ROEs that I established  
11           using the analyses that support my testimony.

12   **VII. CAPITAL STRUCTURE**

13   **Q.    What is the Company's proposed capital structure?**

14   A.    As described in the testimony of Messrs. Greene and Simek, the Company has proposed a  
15           capital structure of 55% common equity and 45% debt.

16   **Q.    What is the Company proposing to include for debt in its capital structure?**

17   A.    As described by Messrs. Greene and Simek, 45% of the capital structure is comprised of  
18           long-term debt.

1 **Q. Have you compared this proposed capital structure to the other companies in the**  
2 **proxy group?**

3 A. Yes, I have. I calculated the average capital structure for the proxy group companies  
4 over the past five years and compared it to Granite State's proposed capital structure. As  
5 shown in Attachment JC-11, over this period, the capital structure of the proxy group  
6 was, on average, comprised of approximately 51% common equity and 49% debt. Over  
7 that same period, the maximum average equity weight for the proxy group companies  
8 was approximately 77% while the minimum was approximately 32%.

9 **Q. What is your conclusion regarding the Company's proposed capital structure?**

10 A. I conclude that the Company's proposed capital structure is reasonable.

11 **VIII. COST OF DEBT**

12 **Q. What is the Company's proposed cost of debt?**

13 A. As described by Messrs. Greene and Simek, the Company proposes a cost of debt of  
14 5.97%.

15 **Q. What is your conclusion regarding the Company's proposed cost of debt?**

16 A. As described in the Company's testimony, the proposed cost of debt is based on Granite  
17 State's actual cost of debt. I conclude that it is reasonable.

18 **IX. CONCLUSIONS AND RECOMMENDATIONS**

19 **Q. Please summarize your conclusions**

20 A. I have four primary conclusions. *First*, I conclude that the Company's ROE should fall  
21 between the range of 9.32% and 10.03%. *Second*, I conclude that the authorized ROE

1 should be established on the high side of the range given the risks associated with Granite  
2 State's small size and current conditions in the capital markets. *Third*, I conclude that the  
3 Company's proposed capital structure is reasonable. *Fourth*, I conclude that the  
4 Company's proposed cost of debt is reasonable.

5 **Q. Please summarize your recommendations.**

6 A. I recommend that the Commission authorize an ROE for Granite State of 10.00%, that it  
7 accept the Company's proposed capital structure and debt costs, and that it authorize a  
8 total ROR of 8.19%.

9 **Q. Does this conclude your testimony?**

10 A. Yes.

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**Education**

M.B.A., Northeastern  
University  
  
B.A. Biology, Harvard  
University

Mr. Cochrane is a Senior Managing Director in FTI's Power & Utilities practice within the Economic and Financial Consulting segment, specializing in advising electric and gas utility clients in all economic, regulatory and financial areas of their business. He has more than 30 years of US and international utility sector experience, including over 20 years of experience testifying on financial issues for electric utility rate cases including capital structure and ROE in New Hampshire, Massachusetts, Rhode Island, New York and before FERC. In addition, he has extensive experience in mergers and acquisitions, joint ventures, partnerships, restructurings, regulation and business development, both domestic and international. He has held C-suite and other senior leadership positions at major US utilities and served as a member of the Board of Directors on a variety of energy sector companies including start-ups.

**PROFESSIONAL EXPERIENCE**

**FTI Consulting, Senior Managing Director, Boston, MA, 2013 to present**, with responsibility for leading the Economic and Financial Consulting Power & Utilities team based in Boston

- Advised Trans Bay Cable, an underwater direct current transmission cable connecting San Francisco to Pittsburg (CA), on the reasonableness and methodology of its ROE calculation for the 3-year rate case reset before FERC; provided analysis and expert advice for testimony development.
- Provided expert testimony pertaining to a purchase price dispute stemming from CCI's acquisition of a portfolio of power plants located in PJM.
- Advised PPL Electric Utilities on financial modeling and rate case strategy on the development of transmission projects in PJM.
- Advised global infrastructure fund on financial modeling and rate case strategy applying to a wholly-owned portfolio company, a water utility covering three separate jurisdictions in the U.S. southwest.

**National Grid PLC, Executive Vice President** – Global Business Development & Mergers and Acquisitions (most recently, among other senior roles), US/UK/Europe 2006-2013

- Assisted in the development of the Cap & Floor regime for regulatory return

on capital for transmission interconnectors in Great Britain.

- Led all business development, mergers, acquisitions, divestitures and joint ventures globally, including the sale of a wide range of businesses totaling \$10B, the negotiation of a 15 year, \$4.5B power supply agreement with Long Island Power Authority, and commercial and regulatory negotiations for a \$3B joint venture with six New York transmission owners.
- Led joint venture negotiations, feasibility studies, project budgets and timelines, and vendor selections for four £1B sub-sea interconnectors between the United Kingdom, Norway, Belgium, France and the Netherlands.

***National Grid USA, 1999 – 2006 Executive Vice President, Chief Financial Officer and Treasurer***

- Testified on behalf of National Grid with respect to capital structure in rate cases, in all National Grid state jurisdictions, including New Hampshire, Massachusetts, Rhode Island, New York and before FERC.
- Testified as a witness with respect to ROE for a rate case in New Hampshire on behalf of Granite State.
- Testified on behalf of National Grid with respect to debt and equity financings including first mortgage bonds, bank agreements, private placements, common equity issuances in all National Grid state jurisdictions, including New Hampshire, Massachusetts, Rhode Island, New York and before FERC.
- Managed ROE expert testimony preparation on behalf of National Grid in all National Grid state jurisdictions, including New Hampshire, Massachusetts, Rhode Island, New York and before FERC.
- Managed the preparation of FERC ROE filing for two DC transmission lines from Canada in New Hampshire and Massachusetts.
- Supported regulatory approval filings for several M&A deals completed by National Grid including: the sale of New England Electric to National Grid, the purchase of Eastern Utilities by National Grid, the purchase of Niagara Mohawk by National Grid, the purchase of KeySpan Corp by National Grid, The purchase of Rhode Island gas assets of Southern Union Co by National Grid, helping to create the second largest US utility with a total enterprise value of \$27B.
- Ran the sale process on behalf of National Grid for Granite State and EnergyNorth, purchased by Liberty Utilities.
- In addition to mergers & acquisitions, he was responsible for accounting, tax, pensions, insurance/claims, risk management, energy supply, property, investments, cash management, forecasting/budgeting, planning, financial analysis and all third-party financing. In this capacity, he managed a 500-person organization with 13 reporting functions.
- Served as a U.S. board member on US/European companies involved in cross-border tax structures including Luxemburg, Ireland, Jersey, Iceland and Malta.

***New England Electric Systems, Treasurer*** (most recently, among other senior roles), Westborough, MA, 1981-1999

**BOARD OF DIRECTORS MEMBERSHIP**

*EMERA US Subsidiaries*, Member, Board of Directors, 2015 – present

*PowerOptions*, Board of Directors (Audit and Strategic Planning Committees), 2013 – present

*GreenerU, Inc.*, Member, Board of Directors, 2011 – 2013

*National Grid USA*, Member, Board of Directors, 2000 – 2013

## SELECT TESTIMONY

| Sponsor  | Date    | Applicant(s)   | Docket/Case        | Subject                               |
|--|---------|--|--------------------|---------------------------------------|
| New Hampshire Public Utilities Commission  |         |  |                    |                                       |
| National Grid USA  | 08/2006 | National Grid USA;<br>EnergyNorth<br>Natural Gas   | DG-06-107          | Merger                                |
| Granite State Electric Company   | 11/1992 | Granite State Electric Company   | DF 92-219          | Financing                             |
| Massachusetts Department of Public Utilities   |         |  |                    |                                       |
| New England Electric System  | 05/1995 | New England Electric System;<br>Nantucket Electric Company   | DPU 95-67          | Merger                                |
| New England Power Company  | 10/1997 | USGen New England, Inc;<br>New England Power Company;<br>Massachusetts Electric Company;<br>Nantucket Electric Company | DPU 97-94          | Financing                             |
| New York Department of Public Service  |         |  |                    |                                       |
| National Grid plc  | 10/2006 | National Grid plc;<br>KeySpan Corporation  | PSC Case 06-M-0878 | Merger                                |
| Federal Energy Regulatory Commission   |         |  |                    |                                       |
| New England Power Company;<br>Massachusetts Electric Company; The Narragansett Electric Company; | 09/1997 | New England Power Company;<br>Massachusetts Electric Company; The Narragansett Electric Company;                       | OA96-74-000        | Capital Structure and Cost of Capital |

|  |         |  |                 |                                       |
|--|---------|--|-----------------|---------------------------------------|
| Granite State Electric Company   |         | Granite State Electric Company   |                 |                                       |
| New England Power Company  | 01/1997 | New England Power Company  | ER-97-1115      | Financing                             |
| NEES Transmission Services, Inc.; New England Power Company; Massachusetts Electric Company; The Narragansett Electric Company; Granite State Electric Company | 03/1996 | NEES Transmission Services, Inc.; New England Power Company; Massachusetts Electric Company; The Narragansett Electric Company; Granite State Electric Company | ER96-1309-000   | Capital Structure and Cost of Capital |
| New England Power Company  | 09/1995 | Tennessee Gas Pipeline Co  | RP95-112-000    | Return on Equity                      |
| New England Power Company  | 12/1994 | New England Power Company  | Docket ER95-267 | Capital Structure and Cost of Capital |

### Summary of Results

| Constant Growth DCF - Earnings Growth |         |          |          |
|---------------------------------------|---------|----------|----------|
| Mean                                  | Low ROE | Mean ROE | High ROE |
| 30-Day Average                        | 8.03%   | 8.82%    | 9.75%    |
| 90-Day Average                        | 8.10%   | 8.89%    | 9.83%    |
| 180-Day Average                       | 8.15%   | 8.93%    | 9.87%    |
| Average                               | 8.09%   | 8.88%    | 9.82%    |

| Multi-Stage Growth DCF |       |       |       |
|------------------------|-------|-------|-------|
| 30-Day Average         | 8.84% | 9.02% | 9.24% |
| 90-Day Average         | 8.91% | 9.09% | 9.32% |
| 180-Day Average        | 8.96% | 9.14% | 9.37% |
| Average                | 8.91% | 9.08% | 9.31% |

| CAPM |        |
|------|--------|
|      | ROE    |
| CAPM | 10.66% |

|                           |       |
|---------------------------|-------|
| Flotation Cost Adjustment | 0.10% |
|---------------------------|-------|

| Zone of Reasonableness |         |          |          |
|------------------------|---------|----------|----------|
| Method                 | Low ROE | Mean ROE | High ROE |
| Constant Growth DCF    | 8.09%   | 8.88%    | 9.82%    |
| Multi-Stage DCF        | 8.91%   | 9.08%    | 9.31%    |
| CAPM                   | 10.66%  | 10.66%   | 10.66%   |
| Mean                   | 9.22%   | 9.54%    | 9.93%    |
| With Flotation Costs   | 9.32%   | 9.64%    | 10.03%   |

Proxy Group Selection Criteria

|                                   |              | [1]                                   | [2]                            | [3]  | [4]   | [5]                                | [6]    |
|-----------------------------------|--------------|---------------------------------------|--------------------------------|--|---|------------------------------------|--------|
|                                   |              | Positive Earnings<br>Growth Estimates |                                |  | Percent of Operating<br>Revenue From Regulated<br>Electric Operations |                                    |        |
| Company Name                      | Stock Ticker | Consistently Paid<br>Dividends?       | From At Least Two<br>Analysts? | Party to Merger or Other<br>Significant Transaction? | S&P Long-Term<br>Issuer Rating  | Moody's Long-Term<br>Issuer Rating |        |
| Ameren Corp                       | AEE          | Yes                                   | Yes                            | No   | BBB+  | Baa1                               | 85.4%  |
| American Electric Power           | AEP          | Yes                                   | Yes                            | No   | A-  |                                    | 85.7%  |
| Avangrid, Inc.                    | AGR          | Yes                                   | Yes                            | No   | BBB+  | Baa1                               | 60.0%  |
| ALLETE, Inc.                      | ALE          | Yes                                   | Yes                            | No   | BBB+  | A3                                 | 73.4%  |
| Avista Corporation                | AVA          | Yes                                   | Yes                            | No   | BBB   | Baa2                               | 72.1%  |
| CMS Energy Corporation            | CMS          | Yes                                   | Yes                            | No   | BBB+  |                                    | 67.5%  |
| Duke Energy Corporation           | DUK          | Yes                                   | Yes                            | No   | A-  | Baa1                               | 91.7%  |
| Consolidated Edison, Inc.         | ED           | Yes                                   | Yes                            | No   | A-  | Baa1                               | 71.3%  |
| El Paso Electric Company          | EE           | Yes                                   | Yes                            | No   | BBB   | Baa1                               | 100.0% |
| Edison International              | EIX          | Yes                                   | Yes                            | No   | BBB   | Baa1                               | 99.6%  |
| Eversource Energy                 | ES           | Yes                                   | Yes                            | No   | A+  | Baa1                               | 87.7%  |
| Eergy, Inc.                       | EVRG         | Yes                                   | Yes                            | No   | A-  |                                    | 101.7% |
| Hawaiian Electric                 | HE           | Yes                                   | Yes                            | No   | BBB-  | Baa2                               | 88.5%  |
| IDACORP, Inc.                     | IDA          | Yes                                   | Yes                            | No   | BBB   | Baa1                               | 99.7%  |
| Alliant Energy Corporation        | LNT          | Yes                                   | Yes                            | No   | A-  | Baa1                               | 85.7%  |
| MGE Energy, Inc.                  | MGEE         | Yes                                   | Yes                            | No   | A   | Baa2                               | 73.6%  |
| NextEra Energy, Inc.              | NEE          | Yes                                   | Yes                            | No   | A-  | Baa1                               | 69.4%  |
| Northwestern Corporation          | NWE          | Yes                                   | Yes                            | No   | BBB   |                                    | 79.1%  |
| Otter Tail Corporation            | OTTR         | Yes                                   | Yes                            | No   | BBB   | Baa2                               | 51.1%  |
| PNM Resources, Inc.               | PNM          | Yes                                   | Yes                            | No   | BBB+  | Baa3                               | 100.0% |
| Pinnacle West Capital Corporation | PNW          | Yes                                   | Yes                            | No   | A-  | A3                                 | 100.0% |
| Portland General Electric         | POR          | Yes                                   | Yes                            | No   | BBB+  | A3                                 | 100.0% |
| PPL Corporation                   | PPL          | Yes                                   | Yes                            | No   | A-  | Baa2                               | 99.8%  |
| Southern Company                  | SO           | Yes                                   | Yes                            | No   | A-  |                                    | 79.3%  |
| Unitil Corp                       | UTL          | Yes                                   | Yes                            | No   | BBB+  | Baa2                               | 50.7%  |
| WEC Energy Group, Inc.            | WEC          | Yes                                   | Yes                            | No   | A-  | Baa1                               | 59.8%  |
| Xcel Energy, Inc.                 | XEL          | Yes                                   | Yes                            | No   | A-  | A3                                 | 84.9%  |

[1] Source: Value Line

[2] Source: Value Line, Zack's, Yahoo Finance

[3] Source: Company 10Ks

[4] Source: S&P Global Market Intelligence

[5] Source: S&P Global Market Intelligence

[6] Source: Company 10Ks

Constant Growth Discounted Cash Flow Model  
Earnings Growth  
30 Day Average Stock Price

|                                   |        | [1]                             | [2]                                 | [3]               | [4]                           | [5]                         | [6]                                    | [7]                              | [8]                           | [9]     | [10]        | [11]     |
|-----------------------------------|--------|---------------------------------|-------------------------------------|-------------------|-------------------------------|-----------------------------|--|----------------------------------|-------------------------------|---------|-------------|----------|
| Company                           | Ticker | Indicated<br>Annual<br>Dividend | Weighted-<br>Average Stock<br>Price | Dividend<br>Yield | Expected<br>Dividend<br>Yield | Zacks<br>Earnings<br>Growth | Yahoo<br>Finance<br>Earnings<br>Growth | Value Line<br>Earnings<br>Growth | Average<br>Earnings<br>Growth | Low ROE | Mean<br>ROE | High ROE |
| Ameren Corp                       | AEE    | \$1.93                          | \$70.03                             | 2.76%             | 2.86%                         | 6.80%                       | 7.70%                                  | 7.50%                            | 7.33%                         | 9.65%   | 10.19%      | 10.56%   |
| American Electric Power           | AEP    | \$2.72                          | \$79.82                             | 3.41%             | 3.50%                         | 5.70%                       | 5.74%                                  | 4.50%                            | 5.31%                         | 7.98%   | 8.81%       | 9.25%    |
| Avangrid, Inc.                    | AGR    | \$1.80                          | \$49.06                             | 3.67%             | 3.85%                         | 7.70%                       | 9.20%                                  | 13.00%                           | 9.97%                         | 11.51%  | 13.82%      | 16.91%   |
| ALLETE, Inc.                      | ALE    | \$2.34                          | \$79.11                             | 2.96%             | 3.03%                         | NA                          | 6.00%                                  | 3.50%                            | 4.75%                         | 6.51%   | 7.78%       | 9.05%    |
| Avista Corporation                | AVA    | \$1.55                          | \$40.93                             | 3.79%             | 3.89%                         | NA                          | 5.65%                                  | 5.50%                            | 5.58%                         | 9.39%   | 9.47%       | 9.54%    |
| CMS Energy Corporation            | CMS    | \$1.53                          | \$52.93                             | 2.89%             | 2.99%                         | 6.00%                       | 6.89%                                  | 7.00%                            | 6.63%                         | 8.98%   | 9.62%       | 9.99%    |
| Duke Energy Corporation           | DUK    | \$3.79                          | \$88.69                             | 4.27%             | 4.38%                         | 4.90%                       | 4.50%                                  | 5.50%                            | 4.97%                         | 8.87%   | 9.35%       | 9.89%    |
| Consolidated Edison, Inc.         | ED     | \$2.96                          | \$79.44                             | 3.73%             | 3.78%                         | 3.00%                       | 2.99%                                  | 3.00%                            | 3.00%                         | 6.77%   | 6.78%       | 6.78%    |
| El Paso Electric Company          | EE     | \$1.52                          | \$54.31                             | 2.80%             | 2.85%                         | 2.70%                       | 5.10%                                  | 3.00%                            | 3.60%                         | 5.54%   | 6.45%       | 7.97%    |
| Edison International              | EIX    | \$2.46                          | \$59.22                             | 4.15%             | 4.26%                         | 5.60%                       | 4.95%                                  | 4.50%                            | 5.02%                         | 8.75%   | 9.27%       | 9.87%    |
| Eversource Energy                 | ES     | \$2.11                          | \$69.46                             | 3.04%             | 3.12%                         | 5.70%                       | 5.88%                                  | 5.00%                            | 5.53%                         | 8.11%   | 8.65%       | 9.01%    |
| Eergy, Inc.                       | EVRG   | \$1.94                          | \$56.51                             | 3.43%             | 3.54%                         | 6.70%                       | 6.25%                                  | NA                               | 6.48%                         | 9.79%   | 10.02%      | 10.25%   |
| Hawaiian Electric                 | HE     | \$1.24                          | \$37.85                             | 3.28%             | 3.37%                         | 6.20%                       | 7.80%                                  | 3.50%                            | 5.83%                         | 6.83%   | 9.21%       | 11.20%   |
| IDACORP, Inc.                     | IDA    | \$2.56                          | \$97.80                             | 2.62%             | 2.66%                         | 2.60%                       | 2.60%                                  | 4.50%                            | 3.23%                         | 5.25%   | 5.89%       | 7.18%    |
| Alliant Energy Corporation        | LNT    | \$1.42                          | \$44.95                             | 3.16%             | 3.26%                         | 6.00%                       | 7.25%                                  | 6.50%                            | 6.58%                         | 9.25%   | 9.85%       | 10.52%   |
| MGE Energy, Inc.                  | MGEE   | \$1.38                          | \$64.43                             | 2.14%             | 2.20%                         | NA                          | 4.00%                                  | 7.50%                            | 5.75%                         | 6.18%   | 7.95%       | 9.72%    |
| NextEra Energy, Inc.              | NEE    | \$5.00                          | \$182.48                            | 2.74%             | 2.85%                         | 7.70%                       | 7.46%                                  | 9.00%                            | 8.05%                         | 10.30%  | 10.90%      | 11.86%   |
| Northwestern Corporation          | NWE    | \$2.30                          | \$66.28                             | 3.47%             | 3.52%                         | 3.10%                       | 2.59%                                  | 2.50%                            | 2.73%                         | 6.01%   | 6.25%       | 6.62%    |
| Otter Tail Corporation            | OTTR   | \$1.38                          | \$49.36                             | 2.80%             | 2.92%                         | NA                          | 9.00%                                  | 9.00%                            | 9.00%                         | 11.92%  | 11.92%      | 11.92%   |
| PNM Resources, Inc.               | PNM    | \$1.16                          | \$43.58                             | 2.66%             | 2.73%                         | 4.60%                       | 4.10%                                  | 7.50%                            | 5.40%                         | 6.82%   | 8.13%       | 10.26%   |
| Pinnacle West Capital Corporation | PNW    | \$3.04                          | \$90.45                             | 3.36%             | 3.45%                         | 4.80%                       | 4.56%                                  | 6.00%                            | 5.12%                         | 8.00%   | 8.57%       | 9.46%    |
| Portland General Electric         | POR    | \$1.52                          | \$49.17                             | 3.09%             | 3.16%                         | 4.00%                       | 4.90%                                  | 4.00%                            | 4.30%                         | 7.15%   | 7.46%       | 8.07%    |
| PPL Corporation                   | PPL    | \$1.68                          | \$31.32                             | 5.36%             | 5.46%                         | 5.00%                       | 3.59%                                  | 2.00%                            | 3.53%                         | 7.42%   | 8.99%       | 10.50%   |
| Southern Company                  | SO     | \$2.46                          | \$49.26                             | 4.99%             | 5.07%                         | 4.50%                       | 2.16%                                  | 3.00%                            | 3.22%                         | 7.21%   | 8.29%       | 9.61%    |
| Unitil Corp                       | UTL    | \$1.46                          | \$52.97                             | 2.76%             | 2.81%                         | 4.60%                       | 3.70%                                  | 3.70%                            | 4.00%                         | 6.51%   | 6.81%       | 7.42%    |
| WEC Energy Group, Inc.            | WEC    | \$2.36                          | \$74.51                             | 3.17%             | 3.25%                         | 4.40%                       | 4.59%                                  | 7.00%                            | 5.33%                         | 7.64%   | 8.58%       | 10.28%   |
| Xcel Energy, Inc.                 | XEL    | \$1.60                          | \$53.57                             | 2.99%             | 3.08%                         | 5.90%                       | 6.60%                                  | 5.50%                            | 6.00%                         | 8.57%   | 9.08%       | 9.69%    |
| Mean                              |        |                                 |                                     | 3.31%             | 3.40%                         | 5.14%                       | 5.40%                                  | 5.51%                            | 5.42%                         | 8.03%   | 8.82%       | 9.75%    |
| Median                            |        |                                 |                                     | 3.16%             | 3.25%                         | 5.00%                       | 5.10%                                  | 5.25%                            | 5.33%                         | 7.98%   | 8.81%       | 9.72%    |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Equals [1] / [2]

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

[5] Source: Zacks

[6] Source: Yahoo Finance

[7] Source: Value Line

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

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

[10] Equals [4] + [8]

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



Constant Growth Discounted Cash Flow Model  
Earnings Growth  
90 Day Average Stock Price

|                                   |        | [1]                             | [2]                                 | [3]               | [4]                           | [5]                         | [6]                                    | [7]                              | [8]                           | [9]     | [10]        | [11]     |
|-----------------------------------|--------|---------------------------------|-------------------------------------|-------------------|-------------------------------|-----------------------------|--|----------------------------------|-------------------------------|---------|-------------|----------|
| Company                           | Ticker | Indicated<br>Annual<br>Dividend | Weighted-<br>Average Stock<br>Price | Dividend<br>Yield | Expected<br>Dividend<br>Yield | Zacks<br>Earnings<br>Growth | Yahoo<br>Finance<br>Earnings<br>Growth | Value Line<br>Earnings<br>Growth | Average<br>Earnings<br>Growth | Low ROE | Mean<br>ROE | High ROE |
| Ameren Corp                       | AEE    | \$1.93                          | \$67.98                             | 2.84%             | 2.94%                         | 6.80%                       | 7.70%                                  | 7.50%                            | 7.33%                         | 9.74%   | 10.28%      | 10.65%   |
| American Electric Power           | AEP    | \$2.72                          | \$77.09                             | 3.53%             | 3.62%                         | 5.70%                       | 5.74%                                  | 4.50%                            | 5.31%                         | 8.11%   | 8.94%       | 9.37%    |
| Avangrid, Inc.                    | AGR    | \$1.80                          | \$49.45                             | 3.64%             | 3.82%                         | 7.70%                       | 9.20%                                  | 13.00%                           | 9.97%                         | 11.48%  | 13.79%      | 16.88%   |
| ALLETE, Inc.                      | ALE    | \$2.34                          | \$77.81                             | 3.01%             | 3.08%                         | NA                          | 6.00%                                  | 3.50%                            | 4.75%                         | 6.56%   | 7.83%       | 9.10%    |
| Avista Corporation                | AVA    | \$1.55                          | \$44.57                             | 3.48%             | 3.57%                         | NA                          | 5.65%                                  | 5.50%                            | 5.58%                         | 9.07%   | 9.15%       | 9.23%    |
| CMS Energy Corporation            | CMS    | \$1.53                          | \$51.18                             | 2.99%             | 3.09%                         | 6.00%                       | 6.89%                                  | 7.00%                            | 6.63%                         | 9.08%   | 9.72%       | 10.09%   |
| Duke Energy Corporation           | DUK    | \$3.79                          | \$87.17                             | 4.35%             | 4.46%                         | 4.90%                       | 4.50%                                  | 5.50%                            | 4.97%                         | 8.95%   | 9.42%       | 9.97%    |
| Consolidated Edison, Inc.         | ED     | \$2.96                          | \$78.53                             | 3.77%             | 3.83%                         | 3.00%                       | 2.99%                                  | 3.00%                            | 3.00%                         | 6.82%   | 6.82%       | 6.83%    |
| El Paso Electric Company          | EE     | \$1.52                          | \$53.88                             | 2.82%             | 2.87%                         | 2.70%                       | 5.10%                                  | 3.00%                            | 3.60%                         | 5.56%   | 6.47%       | 7.99%    |
| Edison International              | EIX    | \$2.46                          | \$57.54                             | 4.28%             | 4.38%                         | 5.60%                       | 4.95%                                  | 4.50%                            | 5.02%                         | 8.87%   | 9.40%       | 9.99%    |
| Eversource Energy                 | ES     | \$2.11                          | \$67.54                             | 3.12%             | 3.21%                         | 5.70%                       | 5.88%                                  | 5.00%                            | 5.53%                         | 8.20%   | 8.74%       | 9.10%    |
| Eergy, Inc.                       | EVRG   | \$1.94                          | \$57.41                             | 3.38%             | 3.49%                         | 6.70%                       | 6.25%                                  | NA                               | 6.48%                         | 9.73%   | 9.96%       | 10.19%   |
| Hawaiian Electric                 | HE     | \$1.24                          | \$37.46                             | 3.31%             | 3.41%                         | 6.20%                       | 7.80%                                  | 3.50%                            | 5.83%                         | 6.87%   | 9.24%       | 11.24%   |
| IDACORP, Inc.                     | IDA    | \$2.56                          | \$96.61                             | 2.65%             | 2.69%                         | 2.60%                       | 2.60%                                  | 4.50%                            | 3.23%                         | 5.28%   | 5.93%       | 7.21%    |
| Alliant Energy Corporation        | LNT    | \$1.42                          | \$44.02                             | 3.23%             | 3.33%                         | 6.00%                       | 7.25%                                  | 6.50%                            | 6.58%                         | 9.32%   | 9.92%       | 10.59%   |
| MGE Energy, Inc.                  | MGEE   | \$1.38                          | \$63.22                             | 2.18%             | 2.25%                         | NA                          | 4.00%                                  | 7.50%                            | 5.75%                         | 6.23%   | 8.00%       | 9.76%    |
| NextEra Energy, Inc.              | NEE    | \$5.00                          | \$178.08                            | 2.81%             | 2.92%                         | 7.70%                       | 7.46%                                  | 9.00%                            | 8.05%                         | 10.37%  | 10.97%      | 11.93%   |
| Northwestern Corporation          | NWE    | \$2.30                          | \$62.88                             | 3.66%             | 3.71%                         | 3.10%                       | 2.59%                                  | 2.50%                            | 2.73%                         | 6.20%   | 6.44%       | 6.81%    |
| Otter Tail Corporation            | OTTR   | \$1.38                          | \$48.70                             | 2.83%             | 2.96%                         | NA                          | 9.00%                                  | 9.00%                            | 9.00%                         | 11.96%  | 11.96%      | 11.96%   |
| PNM Resources, Inc.               | PNM    | \$1.16                          | \$42.24                             | 2.75%             | 2.82%                         | 4.60%                       | 4.10%                                  | 7.50%                            | 5.40%                         | 6.90%   | 8.22%       | 10.35%   |
| Pinnacle West Capital Corporation | PNW    | \$3.04                          | \$87.95                             | 3.46%             | 3.55%                         | 4.80%                       | 4.56%                                  | 6.00%                            | 5.12%                         | 8.10%   | 8.67%       | 9.56%    |
| Portland General Electric         | POR    | \$1.52                          | \$47.47                             | 3.20%             | 3.27%                         | 4.00%                       | 4.90%                                  | 4.00%                            | 4.30%                         | 7.27%   | 7.57%       | 8.18%    |
| PPL Corporation                   | PPL    | \$1.68                          | \$30.35                             | 5.53%             | 5.63%                         | 5.00%                       | 3.59%                                  | 2.00%                            | 3.53%                         | 7.59%   | 9.16%       | 10.67%   |
| Southern Company                  | SO     | \$2.46                          | \$46.94                             | 5.24%             | 5.33%                         | 4.50%                       | 2.16%                                  | 3.00%                            | 3.22%                         | 7.46%   | 8.55%       | 9.86%    |
| Unitil Corp                       | UTL    | \$1.46                          | \$50.85                             | 2.87%             | 2.93%                         | 4.60%                       | 3.70%                                  | 3.70%                            | 4.00%                         | 6.62%   | 6.93%       | 7.54%    |
| WEC Energy Group, Inc.            | WEC    | \$2.36                          | \$71.81                             | 3.29%             | 3.37%                         | 4.40%                       | 4.59%                                  | 7.00%                            | 5.33%                         | 7.76%   | 8.70%       | 10.40%   |
| Xcel Energy, Inc.                 | XEL    | \$1.60                          | \$51.37                             | 3.11%             | 3.21%                         | 5.90%                       | 6.60%                                  | 5.50%                            | 6.00%                         | 8.70%   | 9.21%       | 9.82%    |
| Mean                              |        |                                 |                                     | 3.38%             | 3.47%                         | 5.14%                       | 5.40%                                  | 5.51%                            | 5.42%                         | 8.10%   | 8.89%       | 9.83%    |
| Median                            |        |                                 |                                     | 3.23%             | 3.33%                         | 5.00%                       | 5.10%                                  | 5.25%                            | 5.33%                         | 8.10%   | 8.94%       | 9.86%    |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Equals [1] / [2]

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

[5] Source: Zacks

[6] Source: Yahoo Finance

[7] Source: Value Line

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

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

[10] Equals [4] + [8]

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

Constant Growth Discounted Cash Flow Model  
Earnings Growth  
180 Day Average Stock Price

|                                   |        | [1]                             | [2]                                 | [3]               | [4]                           | [5]                         | [6]                                    | [7]                              | [8]                           | [9]     | [10]        | [11]     |
|-----------------------------------|--------|---------------------------------|-------------------------------------|-------------------|-------------------------------|-----------------------------|--|----------------------------------|-------------------------------|---------|-------------|----------|
| Company                           | Ticker | Indicated<br>Annual<br>Dividend | Weighted-<br>Average Stock<br>Price | Dividend<br>Yield | Expected<br>Dividend<br>Yield | Zacks<br>Earnings<br>Growth | Yahoo<br>Finance<br>Earnings<br>Growth | Value Line<br>Earnings<br>Growth | Average<br>Earnings<br>Growth | Low ROE | Mean<br>ROE | High ROE |
| Ameren Corp                       | AEE    | \$1.93                          | \$65.60                             | 2.94%             | 3.05%                         | 6.80%                       | 7.70%                                  | 7.50%                            | 7.33%                         | 9.84%   | 10.38%      | 10.76%   |
| American Electric Power           | AEP    | \$2.72                          | \$74.08                             | 3.67%             | 3.77%                         | 5.70%                       | 5.74%                                  | 4.50%                            | 5.31%                         | 8.25%   | 9.08%       | 9.52%    |
| Avangrid, Inc.                    | AGR    | \$1.80                          | \$49.62                             | 3.63%             | 3.81%                         | 7.70%                       | 9.20%                                  | 13.00%                           | 9.97%                         | 11.47%  | 13.78%      | 16.86%   |
| ALLETE, Inc.                      | ALE    | \$2.34                          | \$77.17                             | 3.03%             | 3.10%                         | NA                          | 6.00%                                  | 3.50%                            | 4.75%                         | 6.59%   | 7.85%       | 9.12%    |
| Avista Corporation                | AVA    | \$1.55                          | \$46.92                             | 3.30%             | 3.40%                         | NA                          | 5.65%                                  | 5.50%                            | 5.58%                         | 8.89%   | 8.97%       | 9.05%    |
| CMS Energy Corporation            | CMS    | \$1.53                          | \$49.99                             | 3.06%             | 3.16%                         | 6.00%                       | 6.89%                                  | 7.00%                            | 6.63%                         | 9.15%   | 9.79%       | 10.17%   |
| Duke Energy Corporation           | DUK    | \$3.79                          | \$83.90                             | 4.52%             | 4.63%                         | 4.90%                       | 4.50%                                  | 5.50%                            | 4.97%                         | 9.12%   | 9.60%       | 10.14%   |
| Consolidated Edison, Inc.         | ED     | \$2.96                          | \$78.32                             | 3.78%             | 3.84%                         | 3.00%                       | 2.99%                                  | 3.00%                            | 3.00%                         | 6.83%   | 6.83%       | 6.84%    |
| El Paso Electric Company          | EE     | \$1.52                          | \$56.94                             | 2.67%             | 2.72%                         | 2.70%                       | 5.10%                                  | 3.00%                            | 3.60%                         | 5.41%   | 6.32%       | 7.84%    |
| Edison International              | EIX    | \$2.46                          | \$61.22                             | 4.02%             | 4.12%                         | 5.60%                       | 4.95%                                  | 4.50%                            | 5.02%                         | 8.61%   | 9.14%       | 9.73%    |
| Eversource Energy                 | ES     | \$2.11                          | \$64.44                             | 3.27%             | 3.36%                         | 5.70%                       | 5.88%                                  | 5.00%                            | 5.53%                         | 8.36%   | 8.89%       | 9.25%    |
| Eergy, Inc.                       | EVRG   | \$1.94                          | \$56.87                             | 3.41%             | 3.52%                         | 6.70%                       | 6.25%                                  | NA                               | 6.48%                         | 9.77%   | 10.00%      | 10.23%   |
| Hawaiian Electric                 | HE     | \$1.24                          | \$36.39                             | 3.41%             | 3.51%                         | 6.20%                       | 7.80%                                  | 3.50%                            | 5.83%                         | 6.97%   | 9.34%       | 11.34%   |
| IDACORP, Inc.                     | IDA    | \$2.56                          | \$96.40                             | 2.66%             | 2.70%                         | 2.60%                       | 2.60%                                  | 4.50%                            | 3.23%                         | 5.29%   | 5.93%       | 7.22%    |
| Alliant Energy Corporation        | LNT    | \$1.42                          | \$43.55                             | 3.26%             | 3.37%                         | 6.00%                       | 7.25%                                  | 6.50%                            | 6.58%                         | 9.36%   | 9.95%       | 10.63%   |
| MGE Energy, Inc.                  | MGEE   | \$1.38                          | \$63.55                             | 2.17%             | 2.23%                         | NA                          | 4.00%                                  | 7.50%                            | 5.75%                         | 6.21%   | 7.98%       | 9.75%    |
| NextEra Energy, Inc.              | NEE    | \$5.00                          | \$174.59                            | 2.86%             | 2.98%                         | 7.70%                       | 7.46%                                  | 9.00%                            | 8.05%                         | 10.43%  | 11.03%      | 11.99%   |
| Northwestern Corporation          | NWE    | \$2.30                          | \$61.05                             | 3.77%             | 3.82%                         | 3.10%                       | 2.59%                                  | 2.50%                            | 2.73%                         | 6.31%   | 6.55%       | 6.93%    |
| Otter Tail Corporation            | OTTR   | \$1.38                          | \$48.30                             | 2.86%             | 2.99%                         | NA                          | 9.00%                                  | 9.00%                            | 9.00%                         | 11.99%  | 11.99%      | 11.99%   |
| PNM Resources, Inc.               | PNM    | \$1.16                          | \$40.76                             | 2.85%             | 2.92%                         | 4.60%                       | 4.10%                                  | 7.50%                            | 5.40%                         | 7.00%   | 8.32%       | 10.45%   |
| Pinnacle West Capital Corporation | PNW    | \$3.04                          | \$84.80                             | 3.59%             | 3.68%                         | 4.80%                       | 4.56%                                  | 6.00%                            | 5.12%                         | 8.23%   | 8.80%       | 9.69%    |
| Portland General Electric         | POR    | \$1.52                          | \$46.43                             | 3.27%             | 3.34%                         | 4.00%                       | 4.90%                                  | 4.00%                            | 4.30%                         | 7.34%   | 7.64%       | 8.25%    |
| PPL Corporation                   | PPL    | \$1.68                          | \$29.88                             | 5.62%             | 5.72%                         | 5.00%                       | 3.59%                                  | 2.00%                            | 3.53%                         | 7.68%   | 9.25%       | 10.76%   |
| Southern Company                  | SO     | \$2.46                          | \$46.14                             | 5.33%             | 5.42%                         | 4.50%                       | 2.16%                                  | 3.00%                            | 3.22%                         | 7.55%   | 8.64%       | 9.95%    |
| Unitil Corp                       | UTL    | \$1.46                          | \$50.81                             | 2.87%             | 2.93%                         | 4.60%                       | 3.70%                                  | 3.70%                            | 4.00%                         | 6.63%   | 6.93%       | 7.54%    |
| WEC Energy Group, Inc.            | WEC    | \$2.36                          | \$69.37                             | 3.40%             | 3.49%                         | 4.40%                       | 4.59%                                  | 7.00%                            | 5.33%                         | 7.88%   | 8.82%       | 10.52%   |
| Xcel Energy, Inc.                 | XEL    | \$1.60                          | \$49.63                             | 3.22%             | 3.32%                         | 5.90%                       | 6.60%                                  | 5.50%                            | 6.00%                         | 8.81%   | 9.32%       | 9.93%    |
| Mean                              |        |                                 |                                     | 3.42%             | 3.51%                         | 5.14%                       | 5.40%                                  | 5.51%                            | 5.42%                         | 8.15%   | 8.93%       | 9.87%    |
| Median                            |        |                                 |                                     | 3.27%             | 3.37%                         | 5.00%                       | 5.10%                                  | 5.25%                            | 5.33%                         | 8.23%   | 8.97%       | 9.93%    |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Equals [1] / [2]

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

[5] Source: Zacks

[6] Source: Yahoo Finance

[7] Source: Value Line

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

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

[10] Equals [4] + [8]

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

Multi-Stage Discounted Cash Flow Model  
30 Day Average Stock Price  
Low Growth Rate

|                                   |        | [1]                       | [2]                          | [3]                   | [4]                           | [5]                        | [6]                | [7]    | [8]    | [9]    | [10]   | [11]    | [12]               | [13]   |
|-----------------------------------|--------|---------------------------|------------------------------|-----------------------|-------------------------------|----------------------------|--------------------|--------|--------|--------|--------|---------|--------------------|--------|
|                                   |        | Second Stage Growth       |                              |                       |                               |                            |                    |        |        |        |        |         |                    | ROE    |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | First Stage Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage Growth |        |
| Ameren Corp                       | AEE    | \$1.93                    | \$70.03                      | 6.80%                 | 7.70%                         | 7.50%                      | 6.80%              | 6.57%  | 6.33%  | 6.10%  | 5.87%  | 5.64%   | 5.40%              | 8.67%  |
| American Electric Power           | AEP    | \$2.72                    | \$79.82                      | 5.70%                 | 5.74%                         | 4.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 8.91%  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.06                      | 7.70%                 | 9.20%                         | 13.00%                     | 7.70%              | 7.32%  | 6.93%  | 6.55%  | 6.17%  | 5.79%   | 5.40%              | 10.03% |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$79.11                      | NA                    | 6.00%                         | 3.50%                      | 3.50%              | 3.82%  | 4.13%  | 4.45%  | 4.77%  | 5.09%   | 5.40%              | 8.24%  |
| Avista Corporation                | AVA    | \$1.55                    | \$40.93                      | NA                    | 5.65%                         | 5.50%                      | 5.50%              | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%              | 9.58%  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$52.93                      | 6.00%                 | 6.89%                         | 7.00%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 8.66%  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$88.69                      | 4.90%                 | 4.50%                         | 5.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 9.85%  |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$79.44                      | 3.00%                 | 2.99%                         | 3.00%                      | 2.99%              | 3.39%  | 3.79%  | 4.20%  | 4.60%  | 5.00%   | 5.40%              | 8.90%  |
| El Paso Electric Company          | EE     | \$1.52                    | \$54.31                      | 2.70%                 | 5.10%                         | 3.00%                      | 2.70%              | 3.15%  | 3.60%  | 4.05%  | 4.50%  | 4.95%   | 5.40%              | 7.94%  |
| Edison International              | EIX    | \$2.46                    | \$59.22                      | 5.60%                 | 4.95%                         | 4.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 9.72%  |
| Eversource Energy                 | ES     | \$2.11                    | \$69.46                      | 5.70%                 | 5.88%                         | 5.00%                      | 5.00%              | 5.07%  | 5.13%  | 5.20%  | 5.27%  | 5.34%   | 5.40%              | 8.62%  |
| Evergy, Inc.                      | EVERG  | \$1.94                    | \$56.51                      | 6.70%                 | 6.25%                         | NA                         | 6.25%              | 6.11%  | 5.97%  | 5.83%  | 5.69%  | 5.54%   | 5.40%              | 9.36%  |
| Hawaiian Electric                 | HE     | \$1.24                    | \$37.85                      | 6.20%                 | 7.80%                         | 3.50%                      | 3.50%              | 3.82%  | 4.13%  | 4.45%  | 4.77%  | 5.09%   | 5.40%              | 8.56%  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$97.80                      | 2.60%                 | 2.60%                         | 4.50%                      | 2.60%              | 3.07%  | 3.53%  | 4.00%  | 4.47%  | 4.94%   | 5.40%              | 7.75%  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$44.95                      | 6.00%                 | 7.25%                         | 6.50%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 8.97%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$64.43                      | NA                    | 4.00%                         | 7.50%                      | 4.00%              | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%              | 7.50%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$182.48                     | 7.70%                 | 7.46%                         | 9.00%                      | 7.46%              | 7.12%  | 6.77%  | 6.43%  | 6.09%  | 5.75%   | 5.40%              | 8.79%  |
| Northwestern Corporation          | NWE    | \$2.30                    | \$66.28                      | 3.10%                 | 2.59%                         | 2.50%                      | 2.50%              | 2.98%  | 3.47%  | 3.95%  | 4.44%  | 4.92%   | 5.40%              | 8.54%  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$49.36                      | NA                    | 9.00%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.20%  |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$43.58                      | 4.60%                 | 4.10%                         | 7.50%                      | 4.10%              | 4.32%  | 4.53%  | 4.75%  | 4.97%  | 5.19%   | 5.40%              | 8.05%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$90.45                      | 4.80%                 | 4.56%                         | 6.00%                      | 4.56%              | 4.70%  | 4.84%  | 4.98%  | 5.12%  | 5.26%   | 5.40%              | 8.88%  |
| Portland General Electric         | POR    | \$1.52                    | \$49.17                      | 4.00%                 | 4.90%                         | 4.00%                      | 4.00%              | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%              | 8.47%  |
| PPL Corporation                   | PPL    | \$1.68                    | \$31.32                      | 5.00%                 | 3.59%                         | 2.00%                      | 2.00%              | 2.57%  | 3.13%  | 3.70%  | 4.27%  | 4.84%   | 5.40%              | 10.25% |
| Southern Company                  | SO     | \$2.46                    | \$49.26                      | 4.50%                 | 2.16%                         | 3.00%                      | 2.16%              | 2.70%  | 3.24%  | 3.78%  | 4.32%  | 4.86%   | 5.40%              | 9.93%  |
| Unitil Corp                       | UTL    | \$1.46                    | \$52.97                      | 4.60%                 | 3.70%                         | 3.70%                      | 3.70%              | 3.98%  | 4.27%  | 4.55%  | 4.84%  | 5.12%   | 5.40%              | 8.07%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$74.51                      | 4.40%                 | 4.59%                         | 7.00%                      | 4.40%              | 4.57%  | 4.73%  | 4.90%  | 5.07%  | 5.24%   | 5.40%              | 8.64%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$53.57                      | 5.90%                 | 6.60%                         | 5.50%                      | 5.50%              | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%              | 8.67%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Mean               | 8.84%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Median             | 8.67%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Max                | 10.25% |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Min                | 7.50%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals minimum ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

[9] Equals  $[6] + ([12] - [6]) / 6$

[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

Multi-Stage Discounted Cash Flow Model  
30 Day Average Stock Price  
Average Growth Rate

|                                   |        | [1]                       | [2]                          | [3]                   | [4]                           | [5]                        | [6]                | [7]    | [8]    | [9]    | [10]   | [11]    | [12]               | [13]   |
|-----------------------------------|--------|---------------------------|------------------------------|-----------------------|-------------------------------|----------------------------|--------------------|--------|--------|--------|--------|---------|--------------------|--------|
|                                   |        | Second Stage Growth       |                              |                       |                               |                            |                    |        |        |        |        |         |                    | ROE    |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | First Stage Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage Growth |        |
| Ameren Corp                       | AEE    | \$1.93                    | \$70.03                      | 6.80%                 | 7.70%                         | 7.50%                      | 7.33%              | 7.01%  | 6.69%  | 6.37%  | 6.05%  | 5.73%   | 5.40%              | 8.78%  |
| American Electric Power           | AEP    | \$2.72                    | \$79.82                      | 5.70%                 | 5.74%                         | 4.50%                      | 5.31%              | 5.33%  | 5.34%  | 5.36%  | 5.37%  | 5.39%   | 5.40%              | 9.10%  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.06                      | 7.70%                 | 9.20%                         | 13.00%                     | 9.97%              | 9.21%  | 8.45%  | 7.69%  | 6.92%  | 6.16%   | 5.40%              | 10.69% |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$79.11                      | NA                    | 6.00%                         | 3.50%                      | 4.75%              | 4.86%  | 4.97%  | 5.08%  | 5.19%  | 5.29%   | 5.40%              | 8.48%  |
| Avista Corporation                | AVA    | \$1.55                    | \$40.93                      | NA                    | 5.65%                         | 5.50%                      | 5.58%              | 5.55%  | 5.52%  | 5.49%  | 5.46%  | 5.43%   | 5.40%              | 9.60%  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$52.93                      | 6.00%                 | 6.89%                         | 7.00%                      | 6.63%              | 6.43%  | 6.22%  | 6.02%  | 5.81%  | 5.61%   | 5.40%              | 8.80%  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$88.69                      | 4.90%                 | 4.50%                         | 5.50%                      | 4.97%              | 5.04%  | 5.11%  | 5.19%  | 5.26%  | 5.33%   | 5.40%              | 9.98%  |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$79.44                      | 3.00%                 | 2.99%                         | 3.00%                      | 3.00%              | 3.40%  | 3.80%  | 4.20%  | 4.60%  | 5.00%   | 5.40%              | 8.90%  |
| El Paso Electric Company          | EE     | \$1.52                    | \$54.31                      | 2.70%                 | 5.10%                         | 3.00%                      | 3.60%              | 3.90%  | 4.20%  | 4.50%  | 4.80%  | 5.10%   | 5.40%              | 8.10%  |
| Edison International              | EIX    | \$2.46                    | \$59.22                      | 5.60%                 | 4.95%                         | 4.50%                      | 5.02%              | 5.08%  | 5.15%  | 5.21%  | 5.27%  | 5.34%   | 5.40%              | 9.86%  |
| Eversource Energy                 | ES     | \$2.11                    | \$69.46                      | 5.70%                 | 5.88%                         | 5.00%                      | 5.53%              | 5.51%  | 5.49%  | 5.47%  | 5.44%  | 5.42%   | 5.40%              | 8.73%  |
| Evergy, Inc.                      | EVERG  | \$1.94                    | \$56.51                      | 6.70%                 | 6.25%                         | NA                         | 6.48%              | 6.30%  | 6.12%  | 5.94%  | 5.76%  | 5.58%   | 5.40%              | 9.41%  |
| Hawaiian Electric                 | HE     | \$1.24                    | \$37.85                      | 6.20%                 | 7.80%                         | 3.50%                      | 5.83%              | 5.76%  | 5.69%  | 5.62%  | 5.55%  | 5.48%   | 5.40%              | 9.07%  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$97.80                      | 2.60%                 | 2.60%                         | 4.50%                      | 3.23%              | 3.60%  | 3.96%  | 4.32%  | 4.68%  | 5.04%   | 5.40%              | 7.86%  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$44.95                      | 6.00%                 | 7.25%                         | 6.50%                      | 6.58%              | 6.39%  | 6.19%  | 5.99%  | 5.80%  | 5.60%   | 5.40%              | 9.11%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$64.43                      | NA                    | 4.00%                         | 7.50%                      | 5.75%              | 5.69%  | 5.63%  | 5.58%  | 5.52%  | 5.46%   | 5.40%              | 7.76%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$182.48                     | 7.70%                 | 7.46%                         | 9.00%                      | 8.05%              | 7.61%  | 7.17%  | 6.73%  | 6.29%  | 5.85%   | 5.40%              | 8.92%  |
| Northwestern Corporation          | NWE    | \$2.30                    | \$66.28                      | 3.10%                 | 2.59%                         | 2.50%                      | 2.73%              | 3.18%  | 3.62%  | 4.07%  | 4.51%  | 4.96%   | 5.40%              | 8.59%  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$49.36                      | NA                    | 9.00%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.20%  |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$43.58                      | 4.60%                 | 4.10%                         | 7.50%                      | 5.40%              | 5.40%  | 5.40%  | 5.40%  | 5.40%  | 5.40%   | 5.40%              | 8.29%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$90.45                      | 4.80%                 | 4.56%                         | 6.00%                      | 5.12%              | 5.17%  | 5.21%  | 5.26%  | 5.31%  | 5.36%   | 5.40%              | 9.00%  |
| Portland General Electric         | POR    | \$1.52                    | \$49.17                      | 4.00%                 | 4.90%                         | 4.00%                      | 4.30%              | 4.48%  | 4.67%  | 4.85%  | 5.04%  | 5.22%   | 5.40%              | 8.53%  |
| PPL Corporation                   | PPL    | \$1.68                    | \$31.32                      | 5.00%                 | 3.59%                         | 2.00%                      | 3.53%              | 3.84%  | 4.15%  | 4.47%  | 4.78%  | 5.09%   | 5.40%              | 10.74% |
| Southern Company                  | SO     | \$2.46                    | \$49.26                      | 4.50%                 | 2.16%                         | 3.00%                      | 3.22%              | 3.58%  | 3.95%  | 4.31%  | 4.68%  | 5.04%   | 5.40%              | 10.25% |
| Unitil Corp                       | UTL    | \$1.46                    | \$52.97                      | 4.60%                 | 3.70%                         | 3.70%                      | 4.00%              | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%              | 8.13%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$74.51                      | 4.40%                 | 4.59%                         | 7.00%                      | 5.33%              | 5.34%  | 5.35%  | 5.37%  | 5.38%  | 5.39%   | 5.40%              | 8.84%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$53.57                      | 5.90%                 | 6.60%                         | 5.50%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 8.77%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Mean               | 9.02%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Median             | 8.90%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Max                | 10.74% |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Min                | 7.76%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals average ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

[9] Equals  $[6] + ([12] - [6]) / 6$

[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

Multi-Stage Discounted Cash Flow Model  
30 Day Average Stock Price  
High Growth Rate

|                                   |        | [1]                       | [2]                          | [3]                   | [4]                           | [5]                        | [6]                | [7]    | [8]    | [9]    | [10]   | [11]    | [12]               | [13]   |
|-----------------------------------|--------|---------------------------|------------------------------|-----------------------|-------------------------------|----------------------------|--------------------|--------|--------|--------|--------|---------|--------------------|--------|
|                                   |        | Second Stage Growth       |                              |                       |                               |                            |                    |        |        |        |        |         |                    | ROE    |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | First Stage Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage Growth |        |
| Ameren Corp                       | AEE    | \$1.93                    | \$70.03                      | 6.80%                 | 7.70%                         | 7.50%                      | 7.70%              | 7.32%  | 6.93%  | 6.55%  | 6.17%  | 5.79%   | 5.40%              | 8.86%  |
| American Electric Power           | AEP    | \$2.72                    | \$79.82                      | 5.70%                 | 5.74%                         | 4.50%                      | 5.74%              | 5.68%  | 5.63%  | 5.57%  | 5.52%  | 5.46%   | 5.40%              | 9.20%  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.06                      | 7.70%                 | 9.20%                         | 13.00%                     | 13.00%             | 11.73% | 10.47% | 9.20%  | 7.94%  | 6.67%   | 5.40%              | 11.66% |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$79.11                      | NA                    | 6.00%                         | 3.50%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 8.74%  |
| Avista Corporation                | AVA    | \$1.55                    | \$40.93                      | NA                    | 5.65%                         | 5.50%                      | 5.65%              | 5.61%  | 5.57%  | 5.53%  | 5.49%  | 5.44%   | 5.40%              | 9.62%  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$52.93                      | 6.00%                 | 6.89%                         | 7.00%                      | 7.00%              | 6.73%  | 6.47%  | 6.20%  | 5.94%  | 5.67%   | 5.40%              | 8.88%  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$88.69                      | 4.90%                 | 4.50%                         | 5.50%                      | 5.50%              | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%              | 10.14% |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$79.44                      | 3.00%                 | 2.99%                         | 3.00%                      | 3.00%              | 3.40%  | 3.80%  | 4.20%  | 4.60%  | 5.00%   | 5.40%              | 8.90%  |
| El Paso Electric Company          | EE     | \$1.52                    | \$54.31                      | 2.70%                 | 5.10%                         | 3.00%                      | 5.10%              | 5.15%  | 5.20%  | 5.25%  | 5.30%  | 5.35%   | 5.40%              | 8.38%  |
| Edison International              | EIX    | \$2.46                    | \$59.22                      | 5.60%                 | 4.95%                         | 4.50%                      | 5.60%              | 5.57%  | 5.53%  | 5.50%  | 5.47%  | 5.44%   | 5.40%              | 10.03% |
| Eversource Energy                 | ES     | \$2.11                    | \$69.46                      | 5.70%                 | 5.88%                         | 5.00%                      | 5.88%              | 5.80%  | 5.72%  | 5.64%  | 5.56%  | 5.48%   | 5.40%              | 8.81%  |
| Evergy, Inc.                      | EVERG  | \$1.94                    | \$56.51                      | 6.70%                 | 6.25%                         | NA                         | 6.70%              | 6.48%  | 6.27%  | 6.05%  | 5.84%  | 5.62%   | 5.40%              | 9.47%  |
| Hawaiian Electric                 | HE     | \$1.24                    | \$37.85                      | 6.20%                 | 7.80%                         | 3.50%                      | 7.80%              | 7.40%  | 7.00%  | 6.60%  | 6.20%  | 5.80%   | 5.40%              | 9.55%  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$97.80                      | 2.60%                 | 2.60%                         | 4.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 8.07%  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$44.95                      | 6.00%                 | 7.25%                         | 6.50%                      | 7.25%              | 6.94%  | 6.63%  | 6.33%  | 6.02%  | 5.71%   | 5.40%              | 9.27%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$64.43                      | NA                    | 4.00%                         | 7.50%                      | 7.50%              | 7.15%  | 6.80%  | 6.45%  | 6.10%  | 5.75%   | 5.40%              | 8.05%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$182.48                     | 7.70%                 | 7.46%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.13%  |
| Northwestern Corporation          | NWE    | \$2.30                    | \$66.28                      | 3.10%                 | 2.59%                         | 2.50%                      | 3.10%              | 3.48%  | 3.87%  | 4.25%  | 4.64%  | 5.02%   | 5.40%              | 8.67%  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$49.36                      | NA                    | 9.00%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.20%  |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$43.58                      | 4.60%                 | 4.10%                         | 7.50%                      | 7.50%              | 7.15%  | 6.80%  | 6.45%  | 6.10%  | 5.75%   | 5.40%              | 8.70%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$90.45                      | 4.80%                 | 4.56%                         | 6.00%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 9.21%  |
| Portland General Electric         | POR    | \$1.52                    | \$49.17                      | 4.00%                 | 4.90%                         | 4.00%                      | 4.90%              | 4.98%  | 5.07%  | 5.15%  | 5.24%  | 5.32%   | 5.40%              | 8.66%  |
| PPL Corporation                   | PPL    | \$1.68                    | \$31.32                      | 5.00%                 | 3.59%                         | 2.00%                      | 5.00%              | 5.07%  | 5.13%  | 5.20%  | 5.27%  | 5.34%   | 5.40%              | 11.24% |
| Southern Company                  | SO     | \$2.46                    | \$49.26                      | 4.50%                 | 2.16%                         | 3.00%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 10.65% |
| Unitil Corp                       | UTL    | \$1.46                    | \$52.97                      | 4.60%                 | 3.70%                         | 3.70%                      | 4.60%              | 4.73%  | 4.87%  | 5.00%  | 5.14%  | 5.27%   | 5.40%              | 8.24%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$74.51                      | 4.40%                 | 4.59%                         | 7.00%                      | 7.00%              | 6.73%  | 6.47%  | 6.20%  | 5.94%  | 5.67%   | 5.40%              | 9.22%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$53.57                      | 5.90%                 | 6.60%                         | 5.50%                      | 6.60%              | 6.40%  | 6.20%  | 6.00%  | 5.80%  | 5.60%   | 5.40%              | 8.91%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Mean               | 9.24%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Median             | 9.13%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Max                | 11.66% |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Min                | 8.05%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals maximum ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

[9] Equals  $[6] + ([12] - [6]) / 6$

[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

Multi-Stage Discounted Cash Flow Model  
90 Day Average Stock Price  
Low Growth Rate

|                                   |        | [1]                             | [2]                                 | [3]                         | [4]                                    | [5]                              | [6]                   | [7]    | [8]    | [9]    | [10]   | [11]    | [12]                  | [13]   |
|-----------------------------------|--------|---------------------------------|-------------------------------------|-----------------------------|--|----------------------------------|-----------------------|--------|--------|--------|--------|---------|-----------------------|--------|
|                                   |        | Second Stage Growth             |                                     |                             |  |                                  |                       |        |        |        |        |         |                       | ROE    |
| Company                           | Ticker | Indicated<br>Annual<br>Dividend | Weighted-<br>Average<br>Stock Price | Zacks<br>Earnings<br>Growth | Yahoo<br>Finance<br>Earnings<br>Growth | Value Line<br>Earnings<br>Growth | First Stage<br>Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage<br>Growth |        |
| Ameren Corp                       | AEE    | \$1.93                          | \$67.98                             | 6.80%                       | 7.70%                                  | 7.50%                            | 6.80%                 | 6.57%  | 6.33%  | 6.10%  | 5.87%  | 5.64%   | 5.40%                 | 8.77%  |
| American Electric Power           | AEP    | \$2.72                          | \$77.09                             | 5.70%                       | 5.74%                                  | 4.50%                            | 4.50%                 | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%                 | 9.04%  |
| Avangrid, Inc.                    | AGR    | \$1.80                          | \$49.45                             | 7.70%                       | 9.20%                                  | 13.00%                           | 7.70%                 | 7.32%  | 6.93%  | 6.55%  | 6.17%  | 5.79%   | 5.40%                 | 9.99%  |
| ALLETE, Inc.                      | ALE    | \$2.34                          | \$77.81                             | NA                          | 6.00%                                  | 3.50%                            | 3.50%                 | 3.82%  | 4.13%  | 4.45%  | 4.77%  | 5.09%   | 5.40%                 | 8.29%  |
| Avista Corporation                | AVA    | \$1.55                          | \$44.57                             | NA                          | 5.65%                                  | 5.50%                            | 5.50%                 | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%                 | 9.22%  |
| CMS Energy Corporation            | CMS    | \$1.53                          | \$51.18                             | 6.00%                       | 6.89%                                  | 7.00%                            | 6.00%                 | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%                 | 8.78%  |
| Duke Energy Corporation           | DUK    | \$3.79                          | \$87.17                             | 4.90%                       | 4.50%                                  | 5.50%                            | 4.50%                 | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%                 | 9.93%  |
| Consolidated Edison, Inc.         | ED     | \$2.96                          | \$78.53                             | 3.00%                       | 2.99%                                  | 3.00%                            | 2.99%                 | 3.39%  | 3.79%  | 4.20%  | 4.60%  | 5.00%   | 5.40%                 | 8.94%  |
| El Paso Electric Company          | EE     | \$1.52                          | \$53.88                             | 2.70%                       | 5.10%                                  | 3.00%                            | 2.70%                 | 3.15%  | 3.60%  | 4.05%  | 4.50%  | 4.95%   | 5.40%                 | 7.96%  |
| Edison International              | EIX    | \$2.46                          | \$57.54                             | 5.60%                       | 4.95%                                  | 4.50%                            | 4.50%                 | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%                 | 9.85%  |
| Eversource Energy                 | ES     | \$2.11                          | \$67.54                             | 5.70%                       | 5.88%                                  | 5.00%                            | 5.00%                 | 5.07%  | 5.13%  | 5.20%  | 5.27%  | 5.34%   | 5.40%                 | 8.72%  |
| Evergy, Inc.                      | EVERG  | \$1.94                          | \$57.41                             | 6.70%                       | 6.25%                                  | NA                               | 6.25%                 | 6.11%  | 5.97%  | 5.83%  | 5.69%  | 5.54%   | 5.40%                 | 9.29%  |
| Hawaiian Electric                 | HE     | \$1.24                          | \$37.46                             | 6.20%                       | 7.80%                                  | 3.50%                            | 3.50%                 | 3.82%  | 4.13%  | 4.45%  | 4.77%  | 5.09%   | 5.40%                 | 8.59%  |
| IDACORP, Inc.                     | IDA    | \$2.56                          | \$96.61                             | 2.60%                       | 2.60%                                  | 4.50%                            | 2.60%                 | 3.07%  | 3.53%  | 4.00%  | 4.47%  | 4.94%   | 5.40%                 | 7.78%  |
| Alliant Energy Corporation        | LNT    | \$1.42                          | \$44.02                             | 6.00%                       | 7.25%                                  | 6.50%                            | 6.00%                 | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%                 | 9.05%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                          | \$63.22                             | NA                          | 4.00%                                  | 7.50%                            | 4.00%                 | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%                 | 7.55%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                          | \$178.08                            | 7.70%                       | 7.46%                                  | 9.00%                            | 7.46%                 | 7.12%  | 6.77%  | 6.43%  | 6.09%  | 5.75%   | 5.40%                 | 8.87%  |
| Northwestern Corporation          | NWE    | \$2.30                          | \$62.88                             | 3.10%                       | 2.59%                                  | 2.50%                            | 2.50%                 | 2.98%  | 3.47%  | 3.95%  | 4.44%  | 4.92%   | 5.40%                 | 8.72%  |
| Otter Tail Corporation            | OTTR   | \$1.38                          | \$48.70                             | NA                          | 9.00%                                  | 9.00%                            | 9.00%                 | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%                 | 9.25%  |
| PNM Resources, Inc.               | PNM    | \$1.16                          | \$42.24                             | 4.60%                       | 4.10%                                  | 7.50%                            | 4.10%                 | 4.32%  | 4.53%  | 4.75%  | 4.97%  | 5.19%   | 5.40%                 | 8.14%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                          | \$87.95                             | 4.80%                       | 4.56%                                  | 6.00%                            | 4.56%                 | 4.70%  | 4.84%  | 4.98%  | 5.12%  | 5.26%   | 5.40%                 | 8.98%  |
| Portland General Electric         | POR    | \$1.52                          | \$47.47                             | 4.00%                       | 4.90%                                  | 4.00%                            | 4.00%                 | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%                 | 8.59%  |
| PPL Corporation                   | PPL    | \$1.68                          | \$30.35                             | 5.00%                       | 3.59%                                  | 2.00%                            | 2.00%                 | 2.57%  | 3.13%  | 3.70%  | 4.27%  | 4.84%   | 5.40%                 | 10.42% |
| Southern Company                  | SO     | \$2.46                          | \$46.94                             | 4.50%                       | 2.16%                                  | 3.00%                            | 2.16%                 | 2.70%  | 3.24%  | 3.78%  | 4.32%  | 4.86%   | 5.40%                 | 10.18% |
| Unitil Corp                       | UTL    | \$1.46                          | \$50.85                             | 4.60%                       | 3.70%                                  | 3.70%                            | 3.70%                 | 3.98%  | 4.27%  | 4.55%  | 4.84%  | 5.12%   | 5.40%                 | 8.19%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                          | \$71.81                             | 4.40%                       | 4.59%                                  | 7.00%                            | 4.40%                 | 4.57%  | 4.73%  | 4.90%  | 5.07%  | 5.24%   | 5.40%                 | 8.76%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                          | \$51.37                             | 5.90%                       | 6.60%                                  | 5.50%                            | 5.50%                 | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%                 | 8.81%  |
|                                   |        |                                 |                                     |                             |  |                                  |                       |        |        |        |        |         | Mean                  | 8.91%  |
|                                   |        |                                 |                                     |                             |  |                                  |                       |        |        |        |        |         | Median                | 8.81%  |
|                                   |        |                                 |                                     |                             |  |                                  |                       |        |        |        |        |         | Max                   | 10.42% |
|                                   |        |                                 |                                     |                             |  |                                  |                       |        |        |        |        |         | Min                   | 7.55%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals minimum ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

[9] Equals  $[6] + ([12] - [6]) / 6$

[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

|                                   |        | [1]                 | [2]                 | [3]             | [4]                     | [5]             | [6]         | [7]    | [8]    | [9]    | [10]   | [11]   | [12]    | [13]        |        |
|-----------------------------------|--------|---------------------|---------------------|-----------------|-------------------------|-----------------|-------------|--------|--------|--------|--------|--------|---------|-------------|--------|
|                                   |        | Second Stage Growth |                     |                 |                         |                 |             |        |        |        |        |        |         |             |        |
|                                   |        | Indicated           | Weighted-           | Zacks           | Yahoo                   | Value Line      | First Stage |        |        |        |        |        |         | Third Stage |        |
| Company                           | Ticker | Annual Dividend     | Average Stock Price | Earnings Growth | Finance Earnings Growth | Earnings Growth | Growth      | Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Growth      | ROE    |
| Ameren Corp                       | AEE    | \$1.93              | \$67.98             | 6.80%           | 7.70%                   | 7.50%           | 7.33%       | 7.01%  | 6.69%  | 6.37%  | 6.05%  | 5.73%  | 5.40%   |             | 8.89%  |
| American Electric Power           | AEP    | \$2.72              | \$77.09             | 5.70%           | 5.74%                   | 4.50%           | 5.31%       | 5.33%  | 5.34%  | 5.36%  | 5.37%  | 5.39%  | 5.40%   |             | 9.24%  |
| Avangrid, Inc.                    | AGR    | \$1.80              | \$49.45             | 7.70%           | 9.20%                   | 13.00%          | 9.97%       | 9.21%  | 8.45%  | 7.69%  | 6.92%  | 6.16%  | 5.40%   |             | 10.64% |
| ALLETE, Inc.                      | ALE    | \$2.34              | \$77.81             | NA              | 6.00%                   | 3.50%           | 4.75%       | 4.86%  | 4.97%  | 5.08%  | 5.19%  | 5.29%  | 5.40%   |             | 8.54%  |
| Avista Corporation                | AVA    | \$1.55              | \$44.57             | NA              | 5.65%                   | 5.50%           | 5.58%       | 5.55%  | 5.52%  | 5.49%  | 5.46%  | 5.43%  | 5.40%   |             | 9.24%  |
| CMS Energy Corporation            | CMS    | \$1.53              | \$51.18             | 6.00%           | 6.89%                   | 7.00%           | 6.63%       | 6.43%  | 6.22%  | 6.02%  | 5.81%  | 5.61%  | 5.40%   |             | 8.92%  |
| Duke Energy Corporation           | DUK    | \$3.79              | \$87.17             | 4.90%           | 4.50%                   | 5.50%           | 4.97%       | 5.04%  | 5.11%  | 5.19%  | 5.26%  | 5.33%  | 5.40%   |             | 10.07% |
| Consolidated Edison, Inc.         | ED     | \$2.96              | \$78.53             | 3.00%           | 2.99%                   | 3.00%           | 3.00%       | 3.40%  | 3.80%  | 4.20%  | 4.60%  | 5.00%  | 5.40%   |             | 8.94%  |
| El Paso Electric Company          | EE     | \$1.52              | \$53.88             | 2.70%           | 5.10%                   | 3.00%           | 3.60%       | 3.90%  | 4.20%  | 4.50%  | 4.80%  | 5.10%  | 5.40%   |             | 8.12%  |
| Edison International              | EIX    | \$2.46              | \$57.54             | 5.60%           | 4.95%                   | 4.50%           | 5.02%       | 5.08%  | 5.15%  | 5.21%  | 5.27%  | 5.34%  | 5.40%   |             | 10.00% |
| Eversource Energy                 | ES     | \$2.11              | \$67.54             | 5.70%           | 5.88%                   | 5.00%           | 5.53%       | 5.51%  | 5.49%  | 5.47%  | 5.44%  | 5.42%  | 5.40%   |             | 8.83%  |
| Evergy, Inc.                      | EVERG  | \$1.94              | \$57.41             | 6.70%           | 6.25%                   | NA              | 6.48%       | 6.30%  | 6.12%  | 5.94%  | 5.76%  | 5.58%  | 5.40%   |             | 9.35%  |
| Hawaiian Electric                 | HE     | \$1.24              | \$37.46             | 6.20%           | 7.80%                   | 3.50%           | 5.83%       | 5.76%  | 5.69%  | 5.62%  | 5.55%  | 5.48%  | 5.40%   |             | 9.11%  |
| IDACORP, Inc.                     | IDA    | \$2.56              | \$96.61             | 2.60%           | 2.60%                   | 4.50%           | 3.23%       | 3.60%  | 3.96%  | 4.32%  | 4.68%  | 5.04%  | 5.40%   |             | 7.89%  |
| Alliant Energy Corporation        | LNT    | \$1.42              | \$44.02             | 6.00%           | 7.25%                   | 6.50%           | 6.58%       | 6.39%  | 6.19%  | 5.99%  | 5.80%  | 5.60%  | 5.40%   |             | 9.19%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38              | \$63.22             | NA              | 4.00%                   | 7.50%           | 5.75%       | 5.69%  | 5.63%  | 5.58%  | 5.52%  | 5.46%  | 5.40%   |             | 7.81%  |
| NextEra Energy, Inc.              | NEE    | \$5.00              | \$178.08            | 7.70%           | 7.46%                   | 9.00%           | 8.05%       | 7.61%  | 7.17%  | 6.73%  | 6.29%  | 5.85%  | 5.40%   |             | 9.00%  |
| Northwestern Corporation          | NWE    | \$2.30              | \$62.88             | 3.10%           | 2.59%                   | 2.50%           | 2.73%       | 3.18%  | 3.62%  | 4.07%  | 4.51%  | 4.96%  | 5.40%   |             | 8.77%  |
| Otter Tail Corporation            | OTTR   | \$1.38              | \$48.70             | NA              | 9.00%                   | 9.00%           | 9.00%       | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%  | 5.40%   |             | 9.25%  |
| PNM Resources, Inc.               | PNM    | \$1.16              | \$42.24             | 4.60%           | 4.10%                   | 7.50%           | 5.40%       | 5.40%  | 5.40%  | 5.40%  | 5.40%  | 5.40%  | 5.40%   |             | 8.38%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04              | \$87.95             | 4.80%           | 4.56%                   | 6.00%           | 5.12%       | 5.17%  | 5.21%  | 5.26%  | 5.31%  | 5.36%  | 5.40%   |             | 9.11%  |
| Portland General Electric         | POR    | \$1.52              | \$47.47             | 4.00%           | 4.90%                   | 4.00%           | 4.30%       | 4.48%  | 4.67%  | 4.85%  | 5.04%  | 5.22%  | 5.40%   |             | 8.65%  |
| PPL Corporation                   | PPL    | \$1.68              | \$30.35             | 5.00%           | 3.59%                   | 2.00%           | 3.53%       | 3.84%  | 4.15%  | 4.47%  | 4.78%  | 5.09%  | 5.40%   |             | 10.92% |
| Southern Company                  | SO     | \$2.46              | \$46.94             | 4.50%           | 2.16%                   | 3.00%           | 3.22%       | 3.58%  | 3.95%  | 4.31%  | 4.68%  | 5.04%  | 5.40%   |             | 10.51% |
| Unitil Corp                       | UTL    | \$1.46              | \$50.85             | 4.60%           | 3.70%                   | 3.70%           | 4.00%       | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%  | 5.40%   |             | 8.25%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36              | \$71.81             | 4.40%           | 4.59%                   | 7.00%           | 5.33%       | 5.34%  | 5.35%  | 5.37%  | 5.38%  | 5.39%  | 5.40%   |             | 8.97%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60              | \$51.37             | 5.90%           | 6.60%                   | 5.50%           | 6.00%       | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%  | 5.4     |             |        |

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

|                                   |        | [1]             | [2]                 | [3]             | [4]             | [5]             | [6]                | [7]                 | [8]    | [9]    | [10]   | [11]    | [12]        | [13]   |
|-----------------------------------|--------|-----------------|---------------------|-----------------|-----------------|-----------------|--------------------|---------------------|--------|--------|--------|---------|-------------|--------|
|                                   |        |                 |                     |                 | Yahoo           |                 |                    | Second Stage Growth |        |        |        |         |             |        |
|                                   |        | Indicated       | Weighted-           | Zacks           | Finance         | Value Line      |                    |                     |        |        |        |         | Third Stage |        |
| Company                           | Ticker | Annual Dividend | Average Stock Price | Earnings Growth | Earnings Growth | Earnings Growth | First Stage Growth | Year 6              | Year 7 | Year 8 | Year 9 | Year 10 | Growth      | ROE    |
| Ameren Corp                       | AEE    | \$1.93          | \$67.98             | 6.80%           | 7.70%           | 7.50%           | 7.70%              | 7.32%               | 6.93%  | 6.55%  | 6.17%  | 5.79%   | 5.40%       | 8.97%  |
| American Electric Power           | AEP    | \$2.72          | \$77.09             | 5.70%           | 5.74%           | 4.50%           | 5.74%              | 5.68%               | 5.63%  | 5.57%  | 5.52%  | 5.46%   | 5.40%       | 9.34%  |
| Avangrid, Inc.                    | AGR    | \$1.80          | \$49.45             | 7.70%           | 9.20%           | 13.00%          | 13.00%             | 11.73%              | 10.47% | 9.20%  | 7.94%  | 6.67%   | 5.40%       | 11.61% |
| ALLETE, Inc.                      | ALE    | \$2.34          | \$77.81             | NA              | 6.00%           | 3.50%           | 6.00%              | 5.90%               | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%       | 8.80%  |
| Avista Corporation                | AVA    | \$1.55          | \$44.57             | NA              | 5.65%           | 5.50%           | 5.65%              | 5.61%               | 5.57%  | 5.53%  | 5.49%  | 5.44%   | 5.40%       | 9.26%  |
| CMS Energy Corporation            | CMS    | \$1.53          | \$51.18             | 6.00%           | 6.89%           | 7.00%           | 7.00%              | 6.73%               | 6.47%  | 6.20%  | 5.94%  | 5.67%   | 5.40%       | 9.00%  |
| Duke Energy Corporation           | DUK    | \$3.79          | \$87.17             | 4.90%           | 4.50%           | 5.50%           | 5.50%              | 5.48%               | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%       | 10.22% |
| Consolidated Edison, Inc.         | ED     | \$2.96          | \$78.53             | 3.00%           | 2.99%           | 3.00%           | 3.00%              | 3.40%               | 3.80%  | 4.20%  | 4.60%  | 5.00%   | 5.40%       | 8.94%  |
| El Paso Electric Company          | EE     | \$1.52          | \$53.88             | 2.70%           | 5.10%           | 3.00%           | 5.10%              | 5.15%               | 5.20%  | 5.25%  | 5.30%  | 5.35%   | 5.40%       | 8.40%  |
| Edison International              | EIX    | \$2.46          | \$57.54             | 5.60%           | 4.95%           | 4.50%           | 5.60%              | 5.57%               | 5.53%  | 5.50%  | 5.47%  | 5.44%   | 5.40%       | 10.17% |
| Eversource Energy                 | ES     | \$2.11          | \$67.54             | 5.70%           | 5.88%           | 5.00%           | 5.88%              | 5.80%               | 5.72%  | 5.64%  | 5.56%  | 5.48%   | 5.40%       | 8.91%  |
| Evergy, Inc.                      | EVRG   | \$1.94          | \$57.41             | 6.70%           | 6.25%           | NA              | 6.70%              | 6.48%               | 6.27%  | 6.05%  | 5.84%  | 5.62%   | 5.40%       | 9.40%  |
| Hawaiian Electric                 | HE     | \$1.24          | \$37.46             | 6.20%           | 7.80%           | 3.50%           | 7.80%              | 7.40%               | 7.00%  | 6.60%  | 6.20%  | 5.80%   | 5.40%       | 9.59%  |
| IDACORP, Inc.                     | IDA    | \$2.56          | \$96.61             | 2.60%           | 2.60%           | 4.50%           | 4.50%              | 4.65%               | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%       | 8.11%  |
| Alliant Energy Corporation        | LNT    | \$1.42          | \$44.02             | 6.00%           | 7.25%           | 6.50%           | 7.25%              | 6.94%               | 6.63%  | 6.33%  | 6.02%  | 5.71%   | 5.40%       | 9.35%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38          | \$63.22             | NA              | 4.00%           | 7.50%           | 7.50%              | 7.15%               | 6.80%  | 6.45%  | 6.10%  | 5.75%   | 5.40%       | 8.10%  |
| NextEra Energy, Inc.              | NEE    | \$5.00          | \$178.08            | 7.70%           | 7.46%           | 9.00%           | 9.00%              | 8.40%               | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%       | 9.22%  |
| Northwestern Corporation          | NWE    | \$2.30          | \$62.88             | 3.10%           | 2.59%           | 2.50%           | 3.10%              | 3.48%               | 3.87%  | 4.25%  | 4.64%  | 5.02%   | 5.40%       | 8.86%  |
| Otter Tail Corporation            | OTTR   | \$1.38          | \$48.70             | NA              | 9.00%           | 9.00%           | 9.00%              | 8.40%               | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%       | 9.25%  |
| PNM Resources, Inc.               | PNM    | \$1.16          | \$42.24             | 4.60%           | 4.10%           | 7.50%           | 7.50%              | 7.15%               | 6.80%  | 6.45%  | 6.10%  | 5.75%   | 5.40%       | 8.81%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04          | \$87.95             | 4.80%           | 4.56%           | 6.00%           | 6.00%              | 5.90%               | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%       | 9.32%  |
| Portland General Electric         | POR    | \$1.52          | \$47.47             | 4.00%           | 4.90%           | 4.00%           | 4.90%              | 4.98%               | 5.07%  | 5.15%  | 5.24%  | 5.32%   | 5.40%       | 8.78%  |
| PPL Corporation                   | PPL    | \$1.68          | \$30.35             | 5.00%           | 3.59%           | 2.00%           | 5.00%              | 5.07%               | 5.13%  | 5.20%  | 5.27%  | 5.34%   | 5.40%       | 11.43% |
| Southern Company                  | SO     | \$2.46          | \$46.94             | 4.50%           | 2.16%           | 3.00%           | 4.50%              | 4.65%               | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%       | 10.92% |
| Unitil Corp                       | UTL    | \$1.46          | \$50.85             | 4.60%           | 3.70%           | 3.70%           | 4.60%              | 4.73%               | 4.87%  | 5.00%  | 5.14%  | 5.27%   | 5.40%       | 8.36%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36          | \$71.81             | 4.40%           | 4.59%           | 7.00%           | 7.00%              | 6.73%               | 6.47%  | 6.20%  | 5.94%  | 5.67%   | 5.40%       | 9.36%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60          | \$51.37             | 5.90%           | 6.60%           | 5.50%           | 6.60%              | 6.40%               | 6.20%  | 6.00%  | 5.80%  | 5.60%   | 5.40%       | 9.06%  |
|                                   |        |                 |                     |                 |                 |                 |                    |                     |        |        |        |         |             |        |

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function



Multi-Stage Discounted Cash Flow Model  
180 Day Average Stock Price  
Low Growth Rate

|                                   |        | [1]                       | [2]                          | [3]                   | [4]                           | [5]                        | [6]                | [7]    | [8]    | [9]    | [10]   | [11]    | [12]               | [13]   |
|-----------------------------------|--------|---------------------------|------------------------------|-----------------------|-------------------------------|----------------------------|--------------------|--------|--------|--------|--------|---------|--------------------|--------|
|                                   |        | Second Stage Growth       |                              |                       |                               |                            |                    |        |        |        |        |         |                    | ROE    |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | First Stage Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage Growth |        |
| Ameren Corp                       | AEE    | \$1.93                    | \$65.60                      | 6.80%                 | 7.70%                         | 7.50%                      | 6.80%              | 6.57%  | 6.33%  | 6.10%  | 5.87%  | 5.64%   | 5.40%              | 8.90%  |
| American Electric Power           | AEP    | \$2.72                    | \$74.08                      | 5.70%                 | 5.74%                         | 4.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 9.20%  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.62                      | 7.70%                 | 9.20%                         | 13.00%                     | 7.70%              | 7.32%  | 6.93%  | 6.55%  | 6.17%  | 5.79%   | 5.40%              | 9.97%  |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$77.17                      | NA                    | 6.00%                         | 3.50%                      | 3.50%              | 3.82%  | 4.13%  | 4.45%  | 4.77%  | 5.09%   | 5.40%              | 8.31%  |
| Avista Corporation                | AVA    | \$1.55                    | \$46.92                      | NA                    | 5.65%                         | 5.50%                      | 5.50%              | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%              | 9.03%  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$49.99                      | 6.00%                 | 6.89%                         | 7.00%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 8.86%  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$83.90                      | 4.90%                 | 4.50%                         | 5.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 10.12% |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$78.32                      | 3.00%                 | 2.99%                         | 3.00%                      | 2.99%              | 3.39%  | 3.79%  | 4.20%  | 4.60%  | 5.00%   | 5.40%              | 8.95%  |
| El Paso Electric Company          | EE     | \$1.52                    | \$56.94                      | 2.70%                 | 5.10%                         | 3.00%                      | 2.70%              | 3.15%  | 3.60%  | 4.05%  | 4.50%  | 4.95%   | 5.40%              | 7.82%  |
| Edison International              | EIX    | \$2.46                    | \$61.22                      | 5.60%                 | 4.95%                         | 4.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 9.57%  |
| Eversource Energy                 | ES     | \$2.11                    | \$64.44                      | 5.70%                 | 5.88%                         | 5.00%                      | 5.00%              | 5.07%  | 5.13%  | 5.20%  | 5.27%  | 5.34%   | 5.40%              | 8.88%  |
| Evergy, Inc.                      | EVERG  | \$1.94                    | \$56.87                      | 6.70%                 | 6.25%                         | NA                         | 6.25%              | 6.11%  | 5.97%  | 5.83%  | 5.69%  | 5.54%   | 5.40%              | 9.33%  |
| Hawaiian Electric                 | HE     | \$1.24                    | \$36.39                      | 6.20%                 | 7.80%                         | 3.50%                      | 3.50%              | 3.82%  | 4.13%  | 4.45%  | 4.77%  | 5.09%   | 5.40%              | 8.69%  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$96.40                      | 2.60%                 | 2.60%                         | 4.50%                      | 2.60%              | 3.07%  | 3.53%  | 4.00%  | 4.47%  | 4.94%   | 5.40%              | 7.79%  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$43.55                      | 6.00%                 | 7.25%                         | 6.50%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 9.09%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$63.55                      | NA                    | 4.00%                         | 7.50%                      | 4.00%              | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%              | 7.53%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$174.59                     | 7.70%                 | 7.46%                         | 9.00%                      | 7.46%              | 7.12%  | 6.77%  | 6.43%  | 6.09%  | 5.75%   | 5.40%              | 8.94%  |
| Northwestern Corporation          | NWE    | \$2.30                    | \$61.05                      | 3.10%                 | 2.59%                         | 2.50%                      | 2.50%              | 2.98%  | 3.47%  | 3.95%  | 4.44%  | 4.92%   | 5.40%              | 8.83%  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$48.30                      | NA                    | 9.00%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.29%  |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$40.76                      | 4.60%                 | 4.10%                         | 7.50%                      | 4.10%              | 4.32%  | 4.53%  | 4.75%  | 4.97%  | 5.19%   | 5.40%              | 8.24%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$84.80                      | 4.80%                 | 4.56%                         | 6.00%                      | 4.56%              | 4.70%  | 4.84%  | 4.98%  | 5.12%  | 5.26%   | 5.40%              | 9.12%  |
| Portland General Electric         | POR    | \$1.52                    | \$46.43                      | 4.00%                 | 4.90%                         | 4.00%                      | 4.00%              | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%              | 8.66%  |
| PPL Corporation                   | PPL    | \$1.68                    | \$29.88                      | 5.00%                 | 3.59%                         | 2.00%                      | 2.00%              | 2.57%  | 3.13%  | 3.70%  | 4.27%  | 4.84%   | 5.40%              | 10.50% |
| Southern Company                  | SO     | \$2.46                    | \$46.14                      | 4.50%                 | 2.16%                         | 3.00%                      | 2.16%              | 2.70%  | 3.24%  | 3.78%  | 4.32%  | 4.86%   | 5.40%              | 10.27% |
| Unitil Corp                       | UTL    | \$1.46                    | \$50.81                      | 4.60%                 | 3.70%                         | 3.70%                      | 3.70%              | 3.98%  | 4.27%  | 4.55%  | 4.84%  | 5.12%   | 5.40%              | 8.19%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$69.37                      | 4.40%                 | 4.59%                         | 7.00%                      | 4.40%              | 4.57%  | 4.73%  | 4.90%  | 5.07%  | 5.24%   | 5.40%              | 8.89%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$49.63                      | 5.90%                 | 6.60%                         | 5.50%                      | 5.50%              | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%              | 8.94%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Mean               | 8.96%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Median             | 8.94%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Max                | 10.50% |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Min                | 7.53%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals minimum ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

[9] Equals  $[6] + ([12] - [6]) / 6$

[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

Multi-Stage Discounted Cash Flow Model  
180 Day Average Stock Price  
Average Growth Rate

|                                   |        | [1]                       | [2]                          | [3]                   | [4]                           | [5]                        | [6]                | [7]    | [8]    | [9]    | [10]   | [11]    | [12]               | [13]   |
|-----------------------------------|--------|---------------------------|------------------------------|-----------------------|-------------------------------|----------------------------|--------------------|--------|--------|--------|--------|---------|--------------------|--------|
|                                   |        | Second Stage Growth       |                              |                       |                               |                            |                    |        |        |        |        |         |                    | ROE    |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | First Stage Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage Growth |        |
| Ameren Corp                       | AEE    | \$1.93                    | \$65.60                      | 6.80%                 | 7.70%                         | 7.50%                      | 7.33%              | 7.01%  | 6.69%  | 6.37%  | 6.05%  | 5.73%   | 5.40%              | 9.01%  |
| American Electric Power           | AEP    | \$2.72                    | \$74.08                      | 5.70%                 | 5.74%                         | 4.50%                      | 5.31%              | 5.33%  | 5.34%  | 5.36%  | 5.37%  | 5.39%   | 5.40%              | 9.40%  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.62                      | 7.70%                 | 9.20%                         | 13.00%                     | 9.97%              | 9.21%  | 8.45%  | 7.69%  | 6.92%  | 6.16%   | 5.40%              | 10.63% |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$77.17                      | NA                    | 6.00%                         | 3.50%                      | 4.75%              | 4.86%  | 4.97%  | 5.08%  | 5.19%  | 5.29%   | 5.40%              | 8.56%  |
| Avista Corporation                | AVA    | \$1.55                    | \$46.92                      | NA                    | 5.65%                         | 5.50%                      | 5.58%              | 5.55%  | 5.52%  | 5.49%  | 5.46%  | 5.43%   | 5.40%              | 9.04%  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$49.99                      | 6.00%                 | 6.89%                         | 7.00%                      | 6.63%              | 6.43%  | 6.22%  | 6.02%  | 5.81%  | 5.61%   | 5.40%              | 9.00%  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$83.90                      | 4.90%                 | 4.50%                         | 5.50%                      | 4.97%              | 5.04%  | 5.11%  | 5.19%  | 5.26%  | 5.33%   | 5.40%              | 10.26% |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$78.32                      | 3.00%                 | 2.99%                         | 3.00%                      | 3.00%              | 3.40%  | 3.80%  | 4.20%  | 4.60%  | 5.00%   | 5.40%              | 8.95%  |
| El Paso Electric Company          | EE     | \$1.52                    | \$56.94                      | 2.70%                 | 5.10%                         | 3.00%                      | 3.60%              | 3.90%  | 4.20%  | 4.50%  | 4.80%  | 5.10%   | 5.40%              | 7.97%  |
| Edison International              | EIX    | \$2.46                    | \$61.22                      | 5.60%                 | 4.95%                         | 4.50%                      | 5.02%              | 5.08%  | 5.15%  | 5.21%  | 5.27%  | 5.34%   | 5.40%              | 9.71%  |
| Eversource Energy                 | ES     | \$2.11                    | \$64.44                      | 5.70%                 | 5.88%                         | 5.00%                      | 5.53%              | 5.51%  | 5.49%  | 5.47%  | 5.44%  | 5.42%   | 5.40%              | 9.00%  |
| Evergy, Inc.                      | EVERG  | \$1.94                    | \$56.87                      | 6.70%                 | 6.25%                         | NA                         | 6.48%              | 6.30%  | 6.12%  | 5.94%  | 5.76%  | 5.58%   | 5.40%              | 9.39%  |
| Hawaiian Electric                 | HE     | \$1.24                    | \$36.39                      | 6.20%                 | 7.80%                         | 3.50%                      | 5.83%              | 5.76%  | 5.69%  | 5.62%  | 5.55%  | 5.48%   | 5.40%              | 9.22%  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$96.40                      | 2.60%                 | 2.60%                         | 4.50%                      | 3.23%              | 3.60%  | 3.96%  | 4.32%  | 4.68%  | 5.04%   | 5.40%              | 7.89%  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$43.55                      | 6.00%                 | 7.25%                         | 6.50%                      | 6.58%              | 6.39%  | 6.19%  | 5.99%  | 5.80%  | 5.60%   | 5.40%              | 9.23%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$63.55                      | NA                    | 4.00%                         | 7.50%                      | 5.75%              | 5.69%  | 5.63%  | 5.58%  | 5.52%  | 5.46%   | 5.40%              | 7.80%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$174.59                     | 7.70%                 | 7.46%                         | 9.00%                      | 8.05%              | 7.61%  | 7.17%  | 6.73%  | 6.29%  | 5.85%   | 5.40%              | 9.08%  |
| Northwestern Corporation          | NWE    | \$2.30                    | \$61.05                      | 3.10%                 | 2.59%                         | 2.50%                      | 2.73%              | 3.18%  | 3.62%  | 4.07%  | 4.51%  | 4.96%   | 5.40%              | 8.88%  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$48.30                      | NA                    | 9.00%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.29%  |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$40.76                      | 4.60%                 | 4.10%                         | 7.50%                      | 5.40%              | 5.40%  | 5.40%  | 5.40%  | 5.40%  | 5.40%   | 5.40%              | 8.49%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$84.80                      | 4.80%                 | 4.56%                         | 6.00%                      | 5.12%              | 5.17%  | 5.21%  | 5.26%  | 5.31%  | 5.36%   | 5.40%              | 9.25%  |
| Portland General Electric         | POR    | \$1.52                    | \$46.43                      | 4.00%                 | 4.90%                         | 4.00%                      | 4.30%              | 4.48%  | 4.67%  | 4.85%  | 5.04%  | 5.22%   | 5.40%              | 8.73%  |
| PPL Corporation                   | PPL    | \$1.68                    | \$29.88                      | 5.00%                 | 3.59%                         | 2.00%                      | 3.53%              | 3.84%  | 4.15%  | 4.47%  | 4.78%  | 5.09%   | 5.40%              | 11.01% |
| Southern Company                  | SO     | \$2.46                    | \$46.14                      | 4.50%                 | 2.16%                         | 3.00%                      | 3.22%              | 3.58%  | 3.95%  | 4.31%  | 4.68%  | 5.04%   | 5.40%              | 10.60% |
| Unitil Corp                       | UTL    | \$1.46                    | \$50.81                      | 4.60%                 | 3.70%                         | 3.70%                      | 4.00%              | 4.23%  | 4.47%  | 4.70%  | 4.94%  | 5.17%   | 5.40%              | 8.25%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$69.37                      | 4.40%                 | 4.59%                         | 7.00%                      | 5.33%              | 5.34%  | 5.35%  | 5.37%  | 5.38%  | 5.39%   | 5.40%              | 9.10%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$49.63                      | 5.90%                 | 6.60%                         | 5.50%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 9.05%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Mean               | 9.14%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Median             | 9.05%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Max                | 11.01% |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Min                | 7.80%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals average ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

[9] Equals  $[6] + ([12] - [6]) / 6$

[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

Multi-Stage Discounted Cash Flow Model  
180 Day Average Stock Price  
High Growth Rate

|                                   |        | [1]                       | [2]                          | [3]                   | [4]                           | [5]                        | [6]                | [7]    | [8]    | [9]    | [10]   | [11]    | [12]               | [13]   |
|-----------------------------------|--------|---------------------------|------------------------------|-----------------------|-------------------------------|----------------------------|--------------------|--------|--------|--------|--------|---------|--------------------|--------|
|                                   |        | Second Stage Growth       |                              |                       |                               |                            |                    |        |        |        |        |         |                    |        |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | First Stage Growth | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Third Stage Growth | ROE    |
| Ameren Corp                       | AEE    | \$1.93                    | \$65.60                      | 6.80%                 | 7.70%                         | 7.50%                      | 7.70%              | 7.32%  | 6.93%  | 6.55%  | 6.17%  | 5.79%   | 5.40%              | 9.10%  |
| American Electric Power           | AEP    | \$2.72                    | \$74.08                      | 5.70%                 | 5.74%                         | 4.50%                      | 5.74%              | 5.68%  | 5.63%  | 5.57%  | 5.52%  | 5.46%   | 5.40%              | 9.51%  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.62                      | 7.70%                 | 9.20%                         | 13.00%                     | 13.00%             | 11.73% | 10.47% | 9.20%  | 7.94%  | 6.67%   | 5.40%              | 11.59% |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$77.17                      | NA                    | 6.00%                         | 3.50%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 8.83%  |
| Avista Corporation                | AVA    | \$1.55                    | \$46.92                      | NA                    | 5.65%                         | 5.50%                      | 5.65%              | 5.61%  | 5.57%  | 5.53%  | 5.49%  | 5.44%   | 5.40%              | 9.06%  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$49.99                      | 6.00%                 | 6.89%                         | 7.00%                      | 7.00%              | 6.73%  | 6.47%  | 6.20%  | 5.94%  | 5.67%   | 5.40%              | 9.09%  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$83.90                      | 4.90%                 | 4.50%                         | 5.50%                      | 5.50%              | 5.48%  | 5.47%  | 5.45%  | 5.44%  | 5.42%   | 5.40%              | 10.42% |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$78.32                      | 3.00%                 | 2.99%                         | 3.00%                      | 3.00%              | 3.40%  | 3.80%  | 4.20%  | 4.60%  | 5.00%   | 5.40%              | 8.95%  |
| El Paso Electric Company          | EE     | \$1.52                    | \$56.94                      | 2.70%                 | 5.10%                         | 3.00%                      | 5.10%              | 5.15%  | 5.20%  | 5.25%  | 5.30%  | 5.35%   | 5.40%              | 8.24%  |
| Edison International              | EIX    | \$2.46                    | \$61.22                      | 5.60%                 | 4.95%                         | 4.50%                      | 5.60%              | 5.57%  | 5.53%  | 5.50%  | 5.47%  | 5.44%   | 5.40%              | 9.87%  |
| Eversource Energy                 | ES     | \$2.11                    | \$64.44                      | 5.70%                 | 5.88%                         | 5.00%                      | 5.88%              | 5.80%  | 5.72%  | 5.64%  | 5.56%  | 5.48%   | 5.40%              | 9.08%  |
| Evergy, Inc.                      | EVERG  | \$1.94                    | \$56.87                      | 6.70%                 | 6.25%                         | NA                         | 6.70%              | 6.48%  | 6.27%  | 6.05%  | 5.84%  | 5.62%   | 5.40%              | 9.44%  |
| Hawaiian Electric                 | HE     | \$1.24                    | \$36.39                      | 6.20%                 | 7.80%                         | 3.50%                      | 7.80%              | 7.40%  | 7.00%  | 6.60%  | 6.20%  | 5.80%   | 5.40%              | 9.72%  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$96.40                      | 2.60%                 | 2.60%                         | 4.50%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 8.11%  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$43.55                      | 6.00%                 | 7.25%                         | 6.50%                      | 7.25%              | 6.94%  | 6.63%  | 6.33%  | 6.02%  | 5.71%   | 5.40%              | 9.39%  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$63.55                      | NA                    | 4.00%                         | 7.50%                      | 7.50%              | 7.15%  | 6.80%  | 6.45%  | 6.10%  | 5.75%   | 5.40%              | 8.08%  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$174.59                     | 7.70%                 | 7.46%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.30%  |
| Northwestern Corporation          | NWE    | \$2.30                    | \$61.05                      | 3.10%                 | 2.59%                         | 2.50%                      | 3.10%              | 3.48%  | 3.87%  | 4.25%  | 4.64%  | 5.02%   | 5.40%              | 8.96%  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$48.30                      | NA                    | 9.00%                         | 9.00%                      | 9.00%              | 8.40%  | 7.80%  | 7.20%  | 6.60%  | 6.00%   | 5.40%              | 9.29%  |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$40.76                      | 4.60%                 | 4.10%                         | 7.50%                      | 7.50%              | 7.15%  | 6.80%  | 6.45%  | 6.10%  | 5.75%   | 5.40%              | 8.93%  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$84.80                      | 4.80%                 | 4.56%                         | 6.00%                      | 6.00%              | 5.90%  | 5.80%  | 5.70%  | 5.60%  | 5.50%   | 5.40%              | 9.47%  |
| Portland General Electric         | POR    | \$1.52                    | \$46.43                      | 4.00%                 | 4.90%                         | 4.00%                      | 4.90%              | 4.98%  | 5.07%  | 5.15%  | 5.24%  | 5.32%   | 5.40%              | 8.86%  |
| PPL Corporation                   | PPL    | \$1.68                    | \$29.88                      | 5.00%                 | 3.59%                         | 2.00%                      | 5.00%              | 5.07%  | 5.13%  | 5.20%  | 5.27%  | 5.34%   | 5.40%              | 11.53% |
| Southern Company                  | SO     | \$2.46                    | \$46.14                      | 4.50%                 | 2.16%                         | 3.00%                      | 4.50%              | 4.65%  | 4.80%  | 4.95%  | 5.10%  | 5.25%   | 5.40%              | 11.03% |
| Unitil Corp                       | UTL    | \$1.46                    | \$50.81                      | 4.60%                 | 3.70%                         | 3.70%                      | 4.60%              | 4.73%  | 4.87%  | 5.00%  | 5.14%  | 5.27%   | 5.40%              | 8.36%  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$69.37                      | 4.40%                 | 4.59%                         | 7.00%                      | 7.00%              | 6.73%  | 6.47%  | 6.20%  | 5.94%  | 5.67%   | 5.40%              | 9.51%  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$49.63                      | 5.90%                 | 6.60%                         | 5.50%                      | 6.60%              | 6.40%  | 6.20%  | 6.00%  | 5.80%  | 5.60%   | 5.40%              | 9.19%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Mean               | 9.37%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Median             | 9.19%  |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Max                | 11.59% |
|                                   |        |                           |                              |                       |                               |                            |                    |        |        |        |        |         | Min                | 8.08%  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Source: Zacks

[4] Source: Yahoo Finance

[5] Source: Value Line

[6] Equals maximum ([3], [4], [5])

[7] Equals  $[6] + ([12] - [6]) / 6$

[8] Equals  $[6] + ([12] - [6]) / 6$

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[10] Equals  $[6] + ([12] - [6]) / 6$

[11] Equals  $[6] + ([12] - [6]) / 6$

[12] Source: Federal Reserve Bank of St. Louis; Energy Information Administration

[13] Equals internal rate of return of cash flows resulting from Excel's goal seek function

**Proxy Group Betas**

[1]

| <b>Company Name</b>               | <b>Stock Ticker</b> | <b>Beta</b> |
|-----------------------------------|---------------------|-------------|
| Ameren Corp                       | AEE                 | 0.55        |
| American Electric Power           | AEP                 | 0.55        |
| Avangrid, Inc.                    | AGR                 | 0.30        |
| ALLETE, Inc.                      | ALE                 | 0.65        |
| Avista Corporation                | AVA                 | 0.65        |
| CMS Energy Corporation            | CMS                 | 0.55        |
| Duke Energy Corporation           | DUK                 | 0.50        |
| Consolidated Edison, Inc.         | ED                  | 0.40        |
| El Paso Electric Company          | EE                  | 0.65        |
| Edison International              | EIX                 | 0.55        |
| Eversource Energy                 | ES                  | 0.60        |
| Evergy, Inc.                      | EVRG                | NA          |
| Hawaiian Electric                 | HE                  | 0.60        |
| IDACORP, Inc.                     | IDA                 | 0.55        |
| Alliant Energy Corporation        | LNT                 | 0.60        |
| MGE Energy, Inc.                  | MGEE                | 0.60        |
| NextEra Energy, Inc.              | NEE                 | 0.55        |
| Northwestern Corporation          | NWE                 | 0.55        |
| Otter Tail Corporation            | OTTR                | 0.75        |
| PNM Resources, Inc.               | PNM                 | 0.65        |
| Pinnacle West Capital Corporation | PNW                 | 0.55        |
| Portland General Electric         | POR                 | 0.60        |
| PPL Corporation                   | PPL                 | 0.70        |
| Southern Company                  | SO                  | 0.50        |
| Unitil Corp                       | UTL                 | 0.55        |
| WEC Energy Group, Inc.            | WEC                 | 0.50        |
| Xcel Energy, Inc.                 | XEL                 | 0.50        |
| <b>Mean</b>                       |                     | <b>0.57</b> |

[1] Source: Value Line

Market Risk Premium Derived from Value Line Long-Term Growth Estimates

|     |   |        |
|-----|---|--------|
| [1] | S&P 500 Estimated Required Market Return        | 16.53% |
| [2] | Current 30-Year Treasury Yield (30-Day Average) | 3.03%  |
| [3] | Implied Market Risk Premium                     | 13.49% |

S&P 500 Index

| Company                | Ticker | [4]<br>Market Capitalization | [5]<br>Weight in Index | [6]<br>Dividend Yield | [7]<br>Long-Term EPS Growth | [8]<br>DCF Result | [9]<br>Weighted DCF Result |
|------------------------|--------|------------------------------|------------------------|-----------------------|-----------------------------|-------------------|----------------------------|
| Agilent Technologies   | A      | 22,591.58                    | 0.10%                  | 0.93%                 | 12.00%                      | 12.99%            | 0.0123%                    |
| Amer. Airlines         | AAL    | 15,465.57                    | 0.07%                  | 1.19%                 | -0.50%                      | 0.69%             | 0.0004%                    |
| Advance Auto Parts     | AAP    | 12,120.81                    | 0.05%                  | 0.14%                 | 13.00%                      | 13.15%            | 0.0067%                    |
| Apple Inc.             | AAPL   | 741,112.06                   | 3.12%                  | 2.07%                 | 17.50%                      | 19.75%            | 0.6159%                    |
| AbbVie Inc.            | ABBV   | 131,162.75                   | 0.55%                  | 4.91%                 | 14.50%                      | 19.76%            | 0.1091%                    |
| AmerisourceBergen      | ABC    | 16,501.45                    | 0.07%                  | 2.10%                 | 8.50%                       | 10.69%            | 0.0074%                    |
| ABIOMED Inc.           | ABMD   | 14,876.95                    | 0.06%                  | 0.00%                 | 27.50%                      | 27.50%            | 0.0172%                    |
| Abbott Labs.           | ABT    | 123,856.61                   | 0.52%                  | 1.82%                 | 10.00%                      | 11.91%            | 0.0621%                    |
| Accenture Plc          | ACN    | 95,142.44                    | 0.40%                  | 2.05%                 | 9.50%                       | 11.65%            | 0.0466%                    |
| Adobe Systems          | ADBE   | 119,513.30                   | 0.50%                  | 0.00%                 | 27.00%                      | 27.00%            | 0.1358%                    |
| Analog Devices         | ADI    | 32,873.91                    | 0.14%                  | 2.16%                 | 10.50%                      | 12.78%            | 0.0177%                    |
| Archer Daniels Mid'l'd | ADM    | 24,309.60                    | 0.10%                  | 3.09%                 | 9.50%                       | 12.73%            | 0.0130%                    |
| Automatic Data Proc.   | ADP    | 58,254.31                    | 0.25%                  | 2.38%                 | 15.00%                      | 17.56%            | 0.0430%                    |
| Alliance Data Sys.     | ADS    | 9,265.07                     | 0.04%                  | 1.34%                 | 14.50%                      | 15.94%            | 0.0062%                    |
| Autodesk Inc.          | ADSK   | 29,894.73                    | 0.13%                  | 0.00%                 | 0.00%                       | 0.00%             | 0.0000%                    |
| Ameren Corp.           | AEE    | 16,376.05                    | 0.07%                  | 2.88%                 | 7.50%                       | 10.49%            | 0.0072%                    |
| Amer. Elec. Power      | AEP    | 37,475.37                    | 0.16%                  | 3.58%                 | 4.50%                       | 8.16%             | 0.0129%                    |
| AES Corp.              | AES    | 10,258.98                    | 0.04%                  | 3.55%                 | 0.00%                       | 3.55%             | 0.0015%                    |
| Aflac Inc.             | AFL    | 36,110.51                    | 0.15%                  | 2.37%                 | 8.50%                       | 10.97%            | 0.0167%                    |
| Allergan plc           | AGN    | 52,792.03                    | 0.22%                  | 1.84%                 | 4.50%                       | 6.38%             | 0.0142%                    |
| Amer. Int'l Group      | AIG    | 38,296.41                    | 0.16%                  | 2.96%                 | 52.00%                      | 55.73%            | 0.0898%                    |
| Apartment Investment   | AIV    | 7,715.77                     | 0.03%                  | 3.25%                 | 5.50%                       | 8.84%             | 0.0029%                    |
| Assurant Inc.          | AIZ    | 5,953.79                     | 0.03%                  | 2.51%                 | 7.50%                       | 10.11%            | 0.0025%                    |
| Gallagher (Arthur J.)  | AJG    | 13,577.27                    | 0.06%                  | 2.22%                 | 17.00%                      | 19.41%            | 0.0111%                    |
| Akamai Technologies    | AKAM   | 11,014.16                    | 0.05%                  | 0.00%                 | 17.50%                      | 17.50%            | 0.0081%                    |
| Albemarle Corp.        | ALB    | 7,994.82                     | 0.03%                  | 1.78%                 | 10.00%                      | 11.87%            | 0.0040%                    |
| Align Techn.           | ALGN   | 17,302.62                    | 0.07%                  | 0.00%                 | 27.50%                      | 27.50%            | 0.0200%                    |
| Alaska Air Group       | ALK    | 7,946.92                     | 0.03%                  | 1.99%                 | 1.50%                       | 3.50%             | 0.0012%                    |
| Allstate Corp.         | ALL    | 29,176.65                    | 0.12%                  | 2.18%                 | 12.00%                      | 14.31%            | 0.0176%                    |
| Allegion plc           | ALLE   | 7,771.45                     | 0.03%                  | 1.03%                 | 10.50%                      | 11.58%            | 0.0038%                    |
| Alexion Pharmac.       | ALXN   | 25,571.72                    | 0.11%                  | 0.00%                 | 24.50%                      | 24.50%            | 0.0264%                    |
| Applied Materials      | AMAT   | 33,400.18                    | 0.14%                  | 2.32%                 | 19.00%                      | 21.54%            | 0.0303%                    |
| Advanced Micro Dev.    | AMD    | 20,229.75                    | 0.09%                  | 0.00%                 | 0.00%                       | 0.00%             | 0.0000%                    |
| AMETEK Inc.            | AME    | 16,533.62                    | 0.07%                  | 0.79%                 | 10.50%                      | 11.33%            | 0.0079%                    |
| Affiliated Managers    | AMG    | 6,263.01                     | 0.03%                  | 1.49%                 | 6.50%                       | 8.04%             | 0.0021%                    |
| Amgen                  | AMGN   | 129,329.77                   | 0.54%                  | 2.87%                 | 8.50%                       | 11.49%            | 0.0626%                    |
| Ameriprise Fin'l       | AMP    | 16,581.25                    | 0.07%                  | 3.04%                 | 16.00%                      | 19.28%            | 0.0135%                    |
| Amer. Tower 'A'        | AMT    | 72,454.59                    | 0.30%                  | 2.09%                 | 11.50%                      | 13.71%            | 0.0418%                    |
| Amazon.com             | AMZN   | 827,984.56                   | 3.48%                  | 0.00%                 | 56.00%                      | 56.00%            | 1.9512%                    |
| Arista Networks        | ANET   | 16,664.12                    | 0.07%                  | 0.00%                 | 19.00%                      | 19.00%            | 0.0133%                    |
| ANSYS Inc.             | ANSS   | 13,301.52                    | 0.06%                  | 0.00%                 | 12.00%                      | 12.00%            | 0.0067%                    |
| Anthem Inc.            | ANTM   | 67,811.70                    | 0.29%                  | 1.15%                 | 18.00%                      | 19.25%            | 0.0549%                    |
| Aon plc                | AON    | 36,783.00                    | 0.15%                  | 1.05%                 | 9.50%                       | 10.60%            | 0.0164%                    |
| Smith (A.O.)           | AOS    | 7,899.32                     | 0.03%                  | 1.89%                 | 12.50%                      | 14.51%            | 0.0048%                    |
| Apache Corp.           | APA    | 12,091.89                    | 0.05%                  | 3.16%                 | 0.00%                       | 3.16%             | 0.0016%                    |
| Anadarko Petroleum     | APC    | 23,731.90                    | 0.10%                  | 2.50%                 | 0.00%                       | 2.50%             | 0.0025%                    |
| Air Products & Chem.   | APD    | 34,239.95                    | 0.14%                  | 2.82%                 | 8.00%                       | 10.93%            | 0.0158%                    |
| Amphenol Corp.         | APH    | 24,655.38                    | 0.10%                  | 1.12%                 | 10.00%                      | 11.18%            | 0.0116%                    |
| Aptiv PLC              | APTV   | 18,787.86                    | 0.08%                  | 1.24%                 | 10.00%                      | 11.30%            | 0.0089%                    |
| Alexandria Real Estate | ARE    | 12,248.49                    | 0.05%                  | 3.16%                 | 0.00%                       | 3.16%             | 0.0016%                    |
| Arconic Inc.           | ARNC   | 9,751.82                     | 0.04%                  | 1.19%                 | 0.00%                       | 1.19%             | 0.0005%                    |
| Activision Blizzard    | ATVI   | 36,150.42                    | 0.15%                  | 0.80%                 | 14.50%                      | 15.36%            | 0.0234%                    |
| AvalonBay Communities  | AVB    | 25,318.15                    | 0.11%                  | 3.33%                 | 5.50%                       | 8.92%             | 0.0095%                    |
| Broadcom Inc.          | AVGO   | 105,451.28                   | 0.44%                  | 4.15%                 | 47.50%                      | 52.64%            | 0.2336%                    |
| Avery Dennison         | AVY    | 8,250.57                     | 0.03%                  | 2.32%                 | 11.50%                      | 13.95%            | 0.0048%                    |
| Amer. Water Works      | AWK    | 16,715.96                    | 0.07%                  | 2.10%                 | 10.00%                      | 12.20%            | 0.0086%                    |
| Amer. Express          | AXP    | 84,964.47                    | 0.36%                  | 1.66%                 | 9.00%                       | 10.73%            | 0.0384%                    |
| AutoZone Inc.          | AZO    | 21,239.69                    | 0.09%                  | 0.00%                 | 12.50%                      | 12.50%            | 0.0112%                    |
| Boeing                 | BA     | 204,321.86                   | 0.86%                  | 2.29%                 | 18.00%                      | 20.50%            | 0.1762%                    |
| Bank of America        | BAC    | 285,790.78                   | 1.20%                  | 2.07%                 | 13.00%                      | 15.20%            | 0.1829%                    |
| Baxter Int'l Inc.      | BAX    | 36,860.38                    | 0.16%                  | 1.10%                 | 13.50%                      | 14.67%            | 0.0228%                    |

|                        |      |            |       |        |        |        |         |
|------------------------|------|------------|-------|--------|--------|--------|---------|
| BB&T Corp.             | BBT  | 37,205.53  | 0.16% | 3.40%  | 10.00% | 13.57% | 0.0212% |
| Best Buy Co.           | BBY  | 15,727.04  | 0.07% | 3.81%  | 12.00% | 16.03% | 0.0106% |
| Becton Dickinson       | BDX  | 63,330.36  | 0.27% | 1.32%  | 10.00% | 11.39% | 0.0303% |
| Franklin Resources     | BEN  | 16,439.32  | 0.07% | 3.35%  | 7.50%  | 10.97% | 0.0076% |
| Brown-Forman 'B'       | BF/B | 21,752.37  | 0.09% | 1.45%  | 15.50% | 17.06% | 0.0156% |
| Brighthouse Financial  | BHF  | 4,254.34   | 0.02% | 0.00%  | 9.16%  | 9.16%  | 0.0016% |
| Baker Hughes a GE co.  | BHGE | 9,743.80   | 0.04% | 3.04%  | 0.00%  | 3.04%  | 0.0012% |
| Biogen                 | BIIB | 68,169.77  | 0.29% | 0.00%  | 6.50%  | 6.50%  | 0.0186% |
| Bank of New York Mello | BK   | 50,951.68  | 0.21% | 2.17%  | 9.00%  | 11.27% | 0.0242% |
| Booking Holdings       | BKNG | 80,407.01  | 0.34% | 0.00%  | 13.50% | 13.50% | 0.0457% |
| BlackRock Inc.         | BLK  | 65,523.86  | 0.28% | 3.04%  | 11.00% | 14.20% | 0.0392% |
| Ball Corp.             | BLL  | 16,863.76  | 0.07% | 0.81%  | 22.00% | 22.90% | 0.0162% |
| Bristol-Myers Squibb   | BMJ  | 80,957.07  | 0.34% | 3.31%  | 13.50% | 17.03% | 0.0580% |
| Broadridge Fin'l       | BR   | 11,692.85  | 0.05% | 1.94%  | 12.00% | 14.05% | 0.0069% |
| Berkshire Hathaway 'B' | BRK/ | 0.00       | 0.00% | 0.00%  | 0.00%  | 0.00%  | 0.0000% |
| Boston Scientific      | BSX  | 50,934.18  | 0.21% | 0.00%  | 17.50% | 17.50% | 0.0375% |
| BorgWarner             | BWA  | 8,347.58   | 0.04% | 1.70%  | 8.50%  | 10.27% | 0.0036% |
| Boston Properties      | BXP  | 18,583.82  | 0.08% | 3.24%  | 3.50%  | 6.80%  | 0.0053% |
| Citigroup Inc.         | C    | 152,560.30 | 0.64% | 3.07%  | 8.50%  | 11.70% | 0.0751% |
| Conagra Brands         | CAG  | 10,315.04  | 0.04% | 4.00%  | 4.50%  | 8.59%  | 0.0037% |
| Cardinal Health        | CAH  | 14,451.00  | 0.06% | 3.99%  | 11.00% | 15.21% | 0.0092% |
| Caterpillar Inc.       | CAT  | 79,393.00  | 0.33% | 2.56%  | 19.00% | 21.80% | 0.0728% |
| Chubb Ltd.             | CB   | 61,261.87  | 0.26% | 2.20%  | 9.50%  | 11.80% | 0.0304% |
| Cboe Global Markets    | CBOE | 10,440.38  | 0.04% | 1.33%  | 17.00% | 18.44% | 0.0081% |
| CBRE Group             | CBRE | 14,913.50  | 0.06% | 0.00%  | 11.50% | 11.50% | 0.0072% |
| CBS Corp. 'B'          | CBS  | 18,288.75  | 0.08% | 1.48%  | 10.50% | 12.05% | 0.0093% |
| Crown Castle Int'l     | CCI  | 44,662.30  | 0.19% | 4.27%  | 12.00% | 16.53% | 0.0311% |
| Carnival Corp.         | CCL  | 37,478.00  | 0.16% | 3.74%  | 12.50% | 16.47% | 0.0260% |
| Cadence Design Sys.    | CDNS | 12,905.17  | 0.05% | 0.00%  | 12.50% | 12.50% | 0.0068% |
| Celanese Corp.         | CE   | 13,029.58  | 0.05% | 2.25%  | 10.00% | 12.36% | 0.0068% |
| Celgene Corp.          | CELG | 60,517.75  | 0.25% | 0.00%  | 14.50% | 14.50% | 0.0369% |
| Cerner Corp.           | CERN | 17,591.56  | 0.07% | 0.00%  | 9.00%  | 9.00%  | 0.0067% |
| CF Industries          | CF   | 10,152.36  | 0.04% | 2.97%  | 48.50% | 52.19% | 0.0223% |
| Citizens Fin'l Group   | CFG  | 16,072.70  | 0.07% | 3.78%  | 12.50% | 16.51% | 0.0112% |
| Church & Dwight        | CHD  | 16,579.29  | 0.07% | 1.29%  | 10.00% | 11.36% | 0.0079% |
| C.H. Robinson          | CHRW | 11,873.52  | 0.05% | 2.33%  | 10.00% | 12.44% | 0.0062% |
| Charter Communic.      | CHTR | 70,489.40  | 0.30% | 0.00%  | 19.50% | 19.50% | 0.0578% |
| Cigna Corp.            | CI   | 47,367.36  | 0.20% | 0.02%  | 13.00% | 13.02% | 0.0260% |
| Cincinnati Financial   | CINF | 12,719.88  | 0.05% | 2.71%  | 7.00%  | 9.81%  | 0.0052% |
| Colgate-Palmolive      | CL   | 53,773.84  | 0.23% | 2.71%  | 10.50% | 13.35% | 0.0302% |
| Clorox Co.             | CLX  | 19,393.41  | 0.08% | 2.53%  | 7.50%  | 10.12% | 0.0083% |
| Comerica Inc.          | CMA  | 13,225.50  | 0.06% | 3.01%  | 18.00% | 21.28% | 0.0118% |
| Comcast Corp.          | CMCS | 163,372.73 | 0.69% | 2.12%  | 13.00% | 15.25% | 0.1049% |
| CME Group              | CME  | 61,603.57  | 0.26% | 1.55%  | 4.50%  | 6.08%  | 0.0158% |
| Chipotle Mex. Grill    | CMG  | 14,386.81  | 0.06% | 0.00%  | 18.50% | 18.50% | 0.0112% |
| Cummins Inc.           | CMI  | 23,288.55  | 0.10% | 3.14%  | 9.50%  | 12.79% | 0.0125% |
| CMS Energy Corp.       | CMS  | 14,442.63  | 0.06% | 3.00%  | 7.00%  | 10.11% | 0.0061% |
| Centene Corp.          | CNC  | 25,724.70  | 0.11% | 0.00%  | 17.00% | 17.00% | 0.0184% |
| CenterPoint Energy     | CNP  | 12,748.13  | 0.05% | 3.89%  | 3.50%  | 7.46%  | 0.0040% |
| Capital One Fin'l      | COF  | 39,621.41  | 0.17% | 1.91%  | 10.00% | 12.01% | 0.0200% |
| Cabot Oil & Gas 'A'    | COG  | 10,963.07  | 0.05% | 1.11%  | 0.00%  | 1.11%  | 0.0005% |
| Cooper Cos.            | COO  | 13,134.25  | 0.06% | 0.02%  | 16.50% | 16.52% | 0.0091% |
| ConocoPhillips         | COP  | 77,202.29  | 0.32% | 1.82%  | 0.00%  | 1.82%  | 0.0059% |
| Costco Wholesale       | COST | 93,157.85  | 0.39% | 1.15%  | 9.00%  | 10.20% | 0.0400% |
| Coty Inc.              | COTY | 5,578.44   | 0.02% | 6.73%  | 11.00% | 18.10% | 0.0042% |
| Campbell Soup          | CPB  | 11,556.94  | 0.05% | 3.91%  | 0.00%  | 3.91%  | 0.0019% |
| Capri Holdings Ltd.    | CPRI | 6,169.66   | 0.03% | 0.00%  | 7.50%  | 7.50%  | 0.0019% |
| Copart Inc.            | CPRT | 11,639.56  | 0.05% | 0.00%  | 15.50% | 15.50% | 0.0076% |
| salesforce.com         | CRM  | 114,612.30 | 0.48% | 0.00%  | 65.00% | 65.00% | 0.3135% |
| Cisco Systems          | CSCO | 199,696.56 | 0.84% | 3.19%  | 8.00%  | 11.32% | 0.0951% |
| CSX Corp.              | CSX  | 54,963.30  | 0.23% | 1.35%  | 18.50% | 19.98% | 0.0462% |
| Cintas Corp.           | CTAS | 19,017.98  | 0.08% | 1.13%  | 15.00% | 16.22% | 0.0130% |
| CenturyLink Inc.       | CTL  | 16,575.99  | 0.07% | 14.08% | 2.50%  | 16.76% | 0.0117% |
| Cognizant Technology   | CTSH | 38,599.00  | 0.16% | 1.20%  | 11.50% | 12.77% | 0.0207% |
| Citrix Sys.            | CTXS | 14,417.94  | 0.06% | 1.31%  | 7.50%  | 8.86%  | 0.0054% |
| CVS Health             | CVS  | 64,574.03  | 0.27% | 3.16%  | 8.50%  | 11.79% | 0.0320% |
| Chevron Corp.          | CVX  | 213,930.27 | 0.90% | 4.07%  | 31.00% | 35.70% | 0.3214% |
| Concho Resources       | CXO  | 25,074.05  | 0.11% | 0.00%  | 34.50% | 34.50% | 0.0364% |
| Dominion Energy        | D    | 45,155.70  | 0.19% | 5.34%  | 6.50%  | 12.01% | 0.0228% |
| Delta Air Lines        | DAL  | 33,060.55  | 0.14% | 2.90%  | 10.50% | 13.56% | 0.0189% |
| Deere & Co.            | DE   | 51,490.36  | 0.22% | 1.90%  | 16.50% | 18.56% | 0.0402% |
| Discover Fin'l Svcs.   | DFS  | 21,809.36  | 0.09% | 2.48%  | 8.00%  | 10.58% | 0.0097% |
| Dollar General         | DG   | 29,513.99  | 0.12% | 1.03%  | 13.00% | 14.10% | 0.0175% |
| Quest Diagnostics      | DGX  | 11,573.60  | 0.05% | 2.49%  | 9.50%  | 12.11% | 0.0059% |
| Horton D.R.            | DHI  | 14,151.18  | 0.06% | 1.60%  | 8.00%  | 9.66%  | 0.0058% |
| Danaher Corp.          | DHR  | 73,983.46  | 0.31% | 0.61%  | 10.50% | 11.14% | 0.0347% |
| Disney (Walt)          | DIS  | 165,182.88 | 0.70% | 1.59%  | 9.00%  | 10.66% | 0.0741% |
| Discovery Inc.         | DISC | 14,291.55  | 0.06% | 0.00%  | 17.00% | 17.00% | 0.0102% |
| Discovery Commun. 'C   | DISC | 13,304.20  | 0.06% | 0.00%  | 0.00%  | 0.00%  | 0.0000% |

|                        |       |            |       |       |         |         |          |
|------------------------|-------|------------|-------|-------|---------|---------|----------|
| Dish Network 'A'       | DISH  | 13,721.50  | 0.06% | 0.00% | 1.00%   | 1.00%   | 0.0006%  |
| Digital Realty Trust   | DLR   | 21,907.21  | 0.09% | 4.03% | 6.50%   | 10.66%  | 0.0098%  |
| Dollar Tree Inc.       | DLTR  | 22,504.82  | 0.09% | 0.00% | 17.00%  | 17.00%  | 0.0161%  |
| Dover Corp.            | DOV   | 11,568.30  | 0.05% | 2.43% | 13.00%  | 15.59%  | 0.0076%  |
| Duke Realty Corp.      | DRE   | 10,045.82  | 0.04% | 3.12% | 7.00%   | 10.23%  | 0.0043%  |
| Darden Restaurants     | DRI   | 13,340.21  | 0.06% | 2.87% | 12.50%  | 15.55%  | 0.0087%  |
| DTE Energy             | DTE   | 20,592.09  | 0.09% | 3.39% | 7.50%   | 11.02%  | 0.0095%  |
| Duke Energy            | DUK   | 61,061.32  | 0.26% | 4.43% | 5.50%   | 10.05%  | 0.0258%  |
| DaVita Inc.            | DVA   | 9,414.61   | 0.04% | 0.00% | 10.00%  | 10.00%  | 0.0040%  |
| Devon Energy           | DVN   | 12,485.11  | 0.05% | 1.21% | 23.50%  | 24.86%  | 0.0131%  |
| DowDuPont Inc.         | DWDP  | 130,852.10 | 0.55% | 2.95% | 0.00%   | 2.95%   | 0.0162%  |
| DXC Technology         | DXC   | 17,491.73  | 0.07% | 1.23% | 14.00%  | 15.31%  | 0.0113%  |
| Electronic Arts        | EA    | 27,150.24  | 0.11% | 0.00% | 11.50%  | 11.50%  | 0.0131%  |
| eBay Inc.              | EBAY  | 29,255.94  | 0.12% | 0.00% | 17.50%  | 17.50%  | 0.0215%  |
| Ecolab Inc.            | ECL   | 44,058.91  | 0.19% | 1.21% | 9.50%   | 10.76%  | 0.0200%  |
| Consol. Edison         | ED    | 23,988.61  | 0.10% | 3.84% | 3.00%   | 6.90%   | 0.0070%  |
| Equifax Inc.           | EFX   | 12,186.63  | 0.05% | 1.54% | 7.50%   | 9.10%   | 0.0047%  |
| Edison Int'l           | EIX   | 17,434.15  | 0.07% | 4.60% | 4.50%   | 9.20%   | 0.0068%  |
| Lauder (Estee)         | EL    | 45,712.34  | 0.19% | 1.37% | 12.50%  | 13.96%  | 0.0268%  |
| Eastman Chemical       | EMN   | 11,076.09  | 0.05% | 3.13% | 9.50%   | 12.78%  | 0.0060%  |
| Emerson Electric       | EMR   | 39,010.40  | 0.16% | 3.18% | 14.00%  | 17.40%  | 0.0286%  |
| EOG Resources          | EOG   | 57,432.26  | 0.24% | 0.91% | 0.00%   | 0.91%   | 0.0022%  |
| Equinix Inc.           | EQIX  | 30,543.73  | 0.13% | 2.72% | 25.50%  | 28.57%  | 0.0367%  |
| Equity Residential     | EQR   | 25,728.14  | 0.11% | 3.09% | -15.00% | -12.14% | -0.0131% |
| Eversource Energy      | ES    | 21,320.09  | 0.09% | 3.14% | 5.00%   | 8.21%   | 0.0074%  |
| Essex Property Trust   | ESS   | 17,053.82  | 0.07% | 2.96% | 0.50%   | 3.47%   | 0.0025%  |
| E*Trade Fin'l          | ETFC  | 12,766.36  | 0.05% | 1.13% | 26.00%  | 27.27%  | 0.0147%  |
| Eaton Corp. plc        | ETN   | 30,758.40  | 0.13% | 3.72% | 10.00%  | 13.91%  | 0.0180%  |
| Entergy Corp.          | ETR   | 15,582.70  | 0.07% | 4.25% | 1.00%   | 5.28%   | 0.0035%  |
| Evergy Inc.            | EVERG | 0.00       | 0.00% | 3.43% | 0.00%   | 3.43%   | 0.0000%  |
| Edwards Lifesciences   | EW    | 33,269.90  | 0.14% | 0.00% | 16.00%  | 16.00%  | 0.0224%  |
| Exelon Corp.           | EXC   | 44,501.34  | 0.19% | 3.15% | 8.00%   | 11.28%  | 0.0211%  |
| Expeditors Int'l       | EXPD  | 11,724.00  | 0.05% | 1.33% | 9.50%   | 10.89%  | 0.0054%  |
| Expedia Group          | EXPE  | 17,415.47  | 0.07% | 1.10% | 20.50%  | 21.71%  | 0.0159%  |
| Extra Space Storage    | EXR   | 11,610.29  | 0.05% | 3.86% | 5.00%   | 8.96%   | 0.0044%  |
| Ford Motor             | F     | 33,255.27  | 0.14% | 7.18% | 1.50%   | 8.73%   | 0.0122%  |
| Diamondback Energy     | FANG  | 10,424.91  | 0.04% | 0.47% | 0.00%   | 0.47%   | 0.0002%  |
| Fastenal Co.           | FAST  | 16,459.85  | 0.07% | 2.79% | 11.50%  | 14.45%  | 0.0100%  |
| Facebook Inc.          | FB    | 426,065.88 | 1.79% | 0.00% | 26.00%  | 26.00%  | 0.4662%  |
| Fortune Brands Home    | FBHS  | 5,971.53   | 0.03% | 2.08% | 13.50%  | 15.72%  | 0.0040%  |
| Freep't-McMoRan Inc.   | FCX   | 17,576.37  | 0.07% | 1.98% | 0.00%   | 1.98%   | 0.0015%  |
| FedEx Corp.            | FDX   | 45,231.09  | 0.19% | 1.50% | 9.50%   | 11.07%  | 0.0211%  |
| FirstEnergy Corp.      | FE    | 19,798.04  | 0.08% | 3.93% | 3.00%   | 6.99%   | 0.0058%  |
| F5 Networks            | FFIV  | 9,418.83   | 0.04% | 0.00% | 10.50%  | 10.50%  | 0.0042%  |
| Fidelity Nat'l Info.   | FIS   | 34,180.88  | 0.14% | 1.23% | 15.50%  | 16.82%  | 0.0242%  |
| Fiserv Inc.            | FISV  | 29,874.50  | 0.13% | 0.00% | 11.00%  | 11.00%  | 0.0138%  |
| Fifth Third Bancorp    | FITB  | 17,314.82  | 0.07% | 3.33% | 7.00%   | 10.45%  | 0.0076%  |
| Foot Locker            | FL    | 6,530.19   | 0.03% | 2.40% | 8.00%   | 10.49%  | 0.0029%  |
| FLIR Systems           | FLIR  | 6,209.72   | 0.03% | 1.52% | 13.50%  | 15.12%  | 0.0040%  |
| Fluor Corp.            | FLR   | 5,256.98   | 0.02% | 2.25% | 8.50%   | 10.84%  | 0.0024%  |
| Flowerserve Corp.      | FLS   | 5,500.20   | 0.02% | 1.80% | 7.50%   | 9.37%   | 0.0022%  |
| FleetCor Technologies  | FLT   | 17,074.49  | 0.07% | 0.00% | 14.50%  | 14.50%  | 0.0104%  |
| FMC Corp.              | FMC   | 10,694.54  | 0.05% | 2.02% | 22.50%  | 24.74%  | 0.0111%  |
| Twenty-First Century F | FOX   | 89,033.70  | 0.37% | 0.75% | 0.00%   | 0.75%   | 0.0028%  |
| Twenty-First Century F | FOX   | 89,033.70  | 0.37% | 0.75% | 0.00%   | 0.75%   | 0.0028%  |
| First Republic Bank    | FRC   | 15,764.33  | 0.07% | 0.75% | 11.50%  | 12.30%  | 0.0082%  |
| Federal Rlty. Inv. Tru | FRT   | 9,180.23   | 0.04% | 3.26% | 3.50%   | 6.82%   | 0.0026%  |
| TechnipFMC             | FTI   | 10,538.98  | 0.04% | 2.24% | 7.48%   | 9.80%   | 0.0043%  |
| Fortinet Inc.          | FTNT  | 12,372.29  | 0.05% | 0.00% | 38.50%  | 38.50%  | 0.0200%  |
| Fortive Corp.          | FTV   | 24,968.73  | 0.11% | 0.39% | 0.00%   | 0.39%   | 0.0004%  |
| Gen'l Dynamics         | GD    | 49,077.81  | 0.21% | 2.25% | 9.00%   | 11.35%  | 0.0234%  |
| Gen'l Electric         | GE    | 79,500.77  | 0.33% | 0.44% | 0.00%   | 0.44%   | 0.0015%  |
| Gilead Sciences        | GILD  | 88,833.09  | 0.37% | 3.32% | -6.50%  | -3.29%  | -0.0123% |
| Gen'l Mills            | GIS   | 25,640.20  | 0.11% | 4.61% | 3.00%   | 7.68%   | 0.0083%  |
| Corning Inc.           | GLW   | 24,228.08  | 0.10% | 2.38% | 15.50%  | 18.06%  | 0.0184%  |
| Gen'l Motors           | GM    | 53,564.00  | 0.23% | 4.08% | 3.00%   | 7.14%   | 0.0161%  |
| Alphabet Inc. 'A'      | GOOG  | 764,928.25 | 3.22% | 0.00% | 18.06%  | 18.06%  | 0.5814%  |
| Alphabet Inc.          | GOOG  | 758,523.44 | 3.19% | 0.00% | 15.50%  | 15.50%  | 0.4948%  |
| Genuine Parts          | GPC   | 14,244.43  | 0.06% | 2.97% | 9.00%   | 12.10%  | 0.0073%  |
| Global Payments        | GPN   | 17,943.04  | 0.08% | 0.04% | 20.00%  | 20.04%  | 0.0151%  |
| Gap (The) Inc.         | GPS   | 9,775.38   | 0.04% | 3.79% | 7.00%   | 10.92%  | 0.0045%  |
| Garmin Ltd.            | GRMN  | 12,657.75  | 0.05% | 3.16% | 10.50%  | 13.83%  | 0.0074%  |
| Goldman Sachs          | GS    | 74,208.61  | 0.31% | 1.61% | 9.50%   | 11.18%  | 0.0349%  |
| Goodyear Tire          | GT    | 4,722.91   | 0.02% | 3.26% | 12.50%  | 15.96%  | 0.0032%  |
| Grainger (W.W.)        | GWW   | 16,855.45  | 0.07% | 1.82% | 9.50%   | 11.40%  | 0.0081%  |
| Halliburton Co.        | HAL   | 27,068.40  | 0.11% | 2.33% | 0.00%   | 2.33%   | 0.0027%  |
| Hasbro Inc.            | HAS   | 11,200.43  | 0.05% | 2.85% | 8.50%   | 11.47%  | 0.0054%  |
| Huntington Bancshs.    | HBAN  | 14,182.03  | 0.06% | 4.19% | 13.00%  | 17.46%  | 0.0104%  |
| Hanesbrands Inc.       | HBI   | 5,164.67   | 0.02% | 4.19% | 4.00%   | 8.27%   | 0.0018%  |

|                         |      |            |       |       |        |        |         |
|-------------------------|------|------------|-------|-------|--------|--------|---------|
| HCA Healthcare          | HCA  | 46,262.23  | 0.19% | 1.04% | 15.00% | 16.12% | 0.0314% |
| HCP Inc.                | HCP  | 13,993.89  | 0.06% | 5.10% | 35.50% | 41.50% | 0.0244% |
| Home Depot              | HD   | 197,777.97 | 0.83% | 2.63% | 12.50% | 15.30% | 0.1273% |
| Hess Corp.              | HES  | 15,357.75  | 0.06% | 1.93% | 0.00%  | 1.93%  | 0.0012% |
| HollyFrontier Corp.     | HFC  | 9,609.09   | 0.04% | 2.45% | 25.00% | 27.76% | 0.0112% |
| Hartford Fin'l Svcs.    | HIG  | 16,538.55  | 0.07% | 2.60% | 13.00% | 15.77% | 0.0110% |
| Huntington Ingalls      | HII  | 8,476.16   | 0.04% | 1.75% | 12.50% | 14.35% | 0.0051% |
| Hilton Worldwide Hldgs  | HLT  | 21,381.26  | 0.09% | 0.83% | 9.00%  | 9.87%  | 0.0089% |
| Harley-Davidson         | HOG  | 6,070.41   | 0.03% | 3.97% | 9.00%  | 13.15% | 0.0034% |
| Hologic Inc.            | HOLX | 11,717.51  | 0.05% | 0.00% | 24.00% | 24.00% | 0.0118% |
| Honeywell Int'l         | HON  | 103,551.49 | 0.44% | 2.35% | 9.00%  | 11.45% | 0.0499% |
| Helmerich & Payne       | HP   | 5,837.22   | 0.02% | 5.30% | 56.50% | 63.30% | 0.0155% |
| Hewlett Packard Ent.    | HPE  | 20,306.21  | 0.09% | 3.15% | 7.50%  | 10.77% | 0.0092% |
| HP Inc.                 | HPQ  | 33,118.80  | 0.14% | 3.02% | 9.50%  | 12.66% | 0.0176% |
| Block (H&R)             | HRB  | 5,187.50   | 0.02% | 4.12% | 8.50%  | 12.80% | 0.0028% |
| Hormel Foods            | HRL  | 23,154.75  | 0.10% | 1.94% | 9.00%  | 11.03% | 0.0107% |
| Harris Corp.            | HRS  | 16,306.90  | 0.07% | 1.98% | 13.50% | 15.61% | 0.0107% |
| Schein (Henry)          | HSIC | 11,932.85  | 0.05% | 0.00% | 9.00%  | 9.00%  | 0.0045% |
| Host Hotels & Resorts   | HST  | 12,956.42  | 0.05% | 4.74% | 0.00%  | 4.74%  | 0.0026% |
| Hershey Co.             | HSY  | 22,603.73  | 0.10% | 2.68% | 6.50%  | 9.27%  | 0.0088% |
| Humana Inc.             | HUM  | 39,923.87  | 0.17% | 0.70% | 14.00% | 14.75% | 0.0248% |
| Int'l Business Mach.    | IBM  | 111,045.54 | 0.47% | 5.34% | 0.00%  | 5.34%  | 0.0249% |
| Intercontinental Exch.  | ICE  | 42,739.35  | 0.18% | 1.28% | 12.50% | 13.86% | 0.0249% |
| IDEXX Labs.             | IDXX | 17,040.91  | 0.07% | 0.00% | 17.00% | 17.00% | 0.0122% |
| Int'l Flavors & Frag.   | IFF  | 12,427.65  | 0.05% | 2.20% | 9.50%  | 11.80% | 0.0062% |
| ILLUMINA Inc.           | ILMN | 45,577.35  | 0.19% | 0.00% | 15.00% | 15.00% | 0.0288% |
| Incyte Corp.            | INCY | 16,737.36  | 0.07% | 0.00% | 0.00%  | 0.00%  | 0.0000% |
| IHS Markit              | INFO | 20,261.88  | 0.09% | 0.00% | 20.00% | 20.00% | 0.0171% |
| Intel Corp.             | INTC | 221,217.09 | 0.93% | 2.48% | 12.50% | 15.13% | 0.1409% |
| Intuit Inc.             | INTU | 54,958.97  | 0.23% | 0.89% | 14.50% | 15.45% | 0.0357% |
| Int'l Paper             | IP   | 18,225.00  | 0.08% | 4.44% | 15.50% | 20.29% | 0.0156% |
| Interpublic Group       | IPG  | 8,737.17   | 0.04% | 3.76% | 11.50% | 15.48% | 0.0057% |
| IPG Photonics           | IPGP | 7,024.24   | 0.03% | 0.00% | 10.50% | 10.50% | 0.0031% |
| IQVIA Holdings          | IQV  | 25,103.41  | 0.11% | 0.00% | 14.50% | 14.50% | 0.0153% |
| Ingersoll-Rand          | IR   | 23,010.60  | 0.10% | 2.26% | 13.50% | 15.92% | 0.0154% |
| Iron Mountain           | IRM  | 10,140.81  | 0.04% | 6.89% | 8.50%  | 15.68% | 0.0067% |
| Intuitive Surgical      | ISRG | 61,014.78  | 0.26% | 0.00% | 15.00% | 15.00% | 0.0385% |
| Gartner Inc.            | IT   | 11,735.19  | 0.05% | 0.00% | 15.00% | 15.00% | 0.0074% |
| Illinois Tool Works     | ITW  | 44,019.91  | 0.19% | 3.02% | 11.00% | 14.18% | 0.0263% |
| Invesco Ltd.            | IVZ  | 7,592.60   | 0.03% | 6.50% | 7.00%  | 13.73% | 0.0044% |
| Hunt (J.B.)             | JBHT | 10,908.87  | 0.05% | 0.99% | 13.50% | 14.56% | 0.0067% |
| Johnson Ctrl's. Int'l p | JCI  | 29,840.73  | 0.13% | 3.22% | 6.00%  | 9.32%  | 0.0117% |
| Jacobs Engineering      | JEC  | 8,585.43   | 0.04% | 0.99% | 13.00% | 14.06% | 0.0051% |
| Jefferies Fin'l Group   | JEF  | 6,595.16   | 0.03% | 2.51% | 20.50% | 23.27% | 0.0065% |
| Henry (Jack) & Assoc.   | JKHY | 10,009.18  | 0.04% | 1.14% | 11.50% | 12.71% | 0.0054% |
| Johnson & Johnson       | JNJ  | 346,368.47 | 1.46% | 2.88% | 11.00% | 14.04% | 0.2047% |
| Juniper Networks        | JNPR | 9,645.54   | 0.04% | 2.72% | 4.50%  | 7.28%  | 0.0030% |
| JPMorgan Chase          | JPM  | 342,251.28 | 1.44% | 3.13% | 9.50%  | 12.78% | 0.1840% |
| Nordstrom Inc.          | JWN  | 7,749.13   | 0.03% | 3.23% | 7.00%  | 10.34% | 0.0034% |
| Kellogg                 | K    | 20,570.16  | 0.09% | 3.81% | 5.50%  | 9.42%  | 0.0082% |
| KeyCorp                 | KEY  | 16,889.91  | 0.07% | 4.16% | 13.00% | 17.43% | 0.0124% |
| Keysight Technologies   | KEYS | 12,964.91  | 0.05% | 0.00% | 7.00%  | 7.00%  | 0.0038% |
| Kraft Heinz Co.         | KHC  | 57,390.52  | 0.24% | 5.31% | 9.50%  | 15.06% | 0.0364% |
| Kimco Realty            | KIM  | 7,048.70   | 0.03% | 6.88% | -0.50% | 6.37%  | 0.0019% |
| KLAC-Tencor             | KLAC | 14,223.73  | 0.06% | 3.23% | 15.50% | 18.98% | 0.0114% |
| Kimberly-Clark          | KMB  | 39,606.45  | 0.17% | 3.50% | 10.50% | 14.18% | 0.0236% |
| Kinder Morgan Inc.      | KMI  | 39,081.41  | 0.16% | 4.52% | 57.00% | 62.80% | 0.1033% |
| CarMax Inc.             | KMX  | 11,090.44  | 0.05% | 0.00% | 11.50% | 11.50% | 0.0054% |
| Coca-Cola               | KO   | 200,287.34 | 0.84% | 3.53% | 6.50%  | 10.14% | 0.0855% |
| Kroger Co.              | KR   | 23,086.14  | 0.10% | 2.14% | 5.00%  | 7.20%  | 0.0070% |
| Kohl's Corp.            | KSS  | 11,358.60  | 0.05% | 3.81% | 11.00% | 15.02% | 0.0072% |
| Kansas City South'n     | KSU  | 10,590.73  | 0.04% | 1.38% | 12.50% | 13.97% | 0.0062% |
| Loews Corp.             | L    | 14,739.33  | 0.06% | 0.53% | 16.50% | 17.08% | 0.0106% |
| L Brands                | LB   | 7,425.00   | 0.03% | 4.44% | -4.50% | -0.16% | 0.0000% |
| Leggett & Platt         | LEG  | 5,069.35   | 0.02% | 3.91% | 9.00%  | 13.09% | 0.0028% |
| Lennar Corp.            | LEN  | 14,790.16  | 0.06% | 0.36% | 12.00% | 12.38% | 0.0077% |
| Laboratory Corp.        | LH   | 13,715.37  | 0.06% | 0.00% | 9.50%  | 9.50%  | 0.0055% |
| Linde plc               | LIN  | 45,268.24  | 0.19% | 2.10% | 13.00% | 15.23% | 0.0290% |
| LKQ Corp.               | LKQ  | 8,559.50   | 0.04% | 0.00% | 12.00% | 12.00% | 0.0043% |
| L3 Technologies         | LLL  | 13,990.44  | 0.06% | 1.80% | 11.00% | 12.90% | 0.0076% |
| Lilly (Eli)             | LLY  | 126,228.81 | 0.53% | 2.17% | 12.00% | 14.29% | 0.0759% |
| Lockheed Martin         | LMT  | 79,297.97  | 0.33% | 3.30% | 13.50% | 17.02% | 0.0568% |
| Lincoln Nat'l Corp.     | LNC  | 12,461.36  | 0.05% | 2.62% | 10.50% | 13.26% | 0.0070% |
| Alliant Energy          | LNT  | 10,034.36  | 0.04% | 3.34% | 6.50%  | 9.95%  | 0.0042% |
| Lowe's Cos.             | LOW  | 74,192.30  | 0.31% | 2.28% | 13.00% | 15.43% | 0.0482% |
| Lam Research            | LRCX | 21,743.72  | 0.09% | 3.10% | 13.00% | 16.31% | 0.0149% |
| Southwest Airlines      | LUV  | 28,447.11  | 0.12% | 1.27% | 9.50%  | 10.83% | 0.0130% |
| Lamb Weston Holdings    | LW   | 10,386.28  | 0.04% | 1.13% | 0.00%  | 1.13%  | 0.0005% |
| LyondellBasell Inds.    | LYB  | 33,239.23  | 0.14% | 4.66% | 6.50%  | 11.31% | 0.0158% |



|                        |      |            |       |       |        |        |          |
|------------------------|------|------------|-------|-------|--------|--------|----------|
| Macy's Inc.            | M    | 7,609.81   | 0.03% | 6.10% | 5.00%  | 11.25% | 0.0036%  |
| MasterCard Inc.        | MA   | 206,285.84 | 0.87% | 0.66% | 16.00% | 16.71% | 0.1451%  |
| Mid-America Apartment  | MAA  | 11,364.30  | 0.05% | 3.84% | -4.50% | -0.75% | -0.0004% |
| Macerich Comp. (The)   | MAC  | 6,477.26   | 0.03% | 6.57% | 8.00%  | 14.84% | 0.0040%  |
| Marriott Int'l         | MAR  | 37,002.37  | 0.16% | 1.51% | 12.50% | 14.11% | 0.0220%  |
| Masco Corp.            | MAS  | 9,580.99   | 0.04% | 1.52% | 14.50% | 16.13% | 0.0065%  |
| Mattel Inc.            | MAT  | 4,354.68   | 0.02% | 0.00% | 26.50% | 26.50% | 0.0049%  |
| McDonald's Corp.       | MCD  | 139,617.69 | 0.59% | 2.56% | 10.00% | 12.69% | 0.0746%  |
| Microchip Technology   | MCHP | 17,987.24  | 0.08% | 1.97% | 15.00% | 17.12% | 0.0130%  |
| McKesson Corp.         | MCK  | 24,256.05  | 0.10% | 1.25% | 10.50% | 11.82% | 0.0121%  |
| Moody's Corp.          | MCO  | 30,247.39  | 0.13% | 1.12% | 13.00% | 14.19% | 0.0181%  |
| Mondelez Int'l         | MDLZ | 62,712.94  | 0.26% | 2.51% | 9.50%  | 12.13% | 0.0320%  |
| Medtronic plc          | MDT  | 117,925.29 | 0.50% | 2.28% | 8.00%  | 10.37% | 0.0515%  |
| MetLife Inc.           | MET  | 44,448.32  | 0.19% | 3.86% | 7.00%  | 11.00% | 0.0206%  |
| MGM Resorts Int'l      | MGM  | 14,755.93  | 0.06% | 1.73% | 32.00% | 34.01% | 0.0211%  |
| Mohawk Inds.           | MHK  | 9,264.08   | 0.04% | 0.00% | 4.50%  | 4.50%  | 0.0018%  |
| McCormick & Co.        | MKC  | 18,496.30  | 0.08% | 1.62% | 10.00% | 11.70% | 0.0091%  |
| Martin Marietta        | MLM  | 11,114.45  | 0.05% | 1.10% | 13.00% | 14.17% | 0.0066%  |
| Marsh & McLennan       | MMC  | 41,481.21  | 0.17% | 2.02% | 9.00%  | 11.11% | 0.0194%  |
| 3M Company             | MMM  | 111,630.23 | 0.47% | 2.84% | 9.00%  | 11.97% | 0.0562%  |
| Monster Beverage       | MNST | 30,008.70  | 0.13% | 0.00% | 15.00% | 15.00% | 0.0189%  |
| Altria Group           | MO   | 88,475.99  | 0.37% | 6.80% | 10.50% | 17.66% | 0.0657%  |
| Mosaic Company         | MOS  | 12,319.62  | 0.05% | 0.63% | 12.00% | 12.66% | 0.0066%  |
| Marathon Petroleum     | MPC  | 29,671.29  | 0.12% | 3.19% | 14.50% | 17.92% | 0.0224%  |
| Merck & Co.            | MRK  | 201,000.69 | 0.85% | 2.91% | 5.50%  | 8.49%  | 0.0718%  |
| Marathon Oil Corp.     | MRO  | 13,232.02  | 0.06% | 1.39% | 0.00%  | 1.39%  | 0.0008%  |
| Morgan Stanley         | MS   | 73,397.93  | 0.31% | 2.82% | 11.00% | 13.98% | 0.0432%  |
| MSCI Inc.              | MSCI | 14,239.55  | 0.06% | 1.57% | 22.00% | 23.74% | 0.0142%  |
| Microsoft Corp.        | MSFT | 815,001.56 | 3.43% | 1.73% | 15.00% | 16.86% | 0.5784%  |
| Motorola Solutions     | MSI  | 18,598.13  | 0.08% | 2.00% | 13.00% | 15.13% | 0.0118%  |
| M&T Bank Corp.         | MTB  | 23,086.71  | 0.10% | 2.45% | 12.00% | 14.60% | 0.0142%  |
| Mettler-Toledo Int'l   | MTD  | 14,718.70  | 0.06% | 0.00% | 11.00% | 11.00% | 0.0068%  |
| Micron Technology      | MU   | 37,945.60  | 0.16% | 0.00% | 7.50%  | 7.50%  | 0.0120%  |
| Maxim Integrated       | MXIM | 14,603.99  | 0.06% | 3.49% | 11.50% | 15.19% | 0.0093%  |
| Mylan N.V.             | MYL  | 15,236.36  | 0.06% | 0.00% | 14.00% | 14.00% | 0.0090%  |
| Noble Energy           | NBL  | 11,126.54  | 0.05% | 1.90% | 0.00%  | 1.90%  | 0.0009%  |
| Norwegian Cruise Line  | NCLH | 10,369.74  | 0.04% | 0.00% | 16.50% | 16.50% | 0.0072%  |
| Nasdaq Inc.            | NDAQ | 13,515.96  | 0.06% | 2.14% | 9.50%  | 11.74% | 0.0067%  |
| NextEra Energy         | NEE  | 83,874.56  | 0.35% | 2.85% | 9.00%  | 11.98% | 0.0423%  |
| Newmont Mining         | NEM  | 16,842.71  | 0.07% | 1.77% | 5.00%  | 6.82%  | 0.0048%  |
| Netflix Inc.           | NFLX | 154,020.86 | 0.65% | 0.00% | 47.00% | 47.00% | 0.3046%  |
| Newfield Exploration   | NFX  | 3,666.09   | 0.02% | 0.00% | 25.00% | 25.00% | 0.0039%  |
| NiSource Inc.          | NI   | 9,707.45   | 0.04% | 2.92% | 18.00% | 21.18% | 0.0087%  |
| NIKE Inc. 'B'          | NKE  | 124,788.02 | 0.53% | 1.11% | 16.00% | 17.20% | 0.0903%  |
| Nektar Therapeutics    | NKTR | 7,860.25   | 0.03% | 0.00% | 0.00%  | 0.00%  | 0.0000%  |
| Nielsen Hldgs. plc     | NLSN | 8,970.42   | 0.04% | 5.54% | 3.00%  | 8.62%  | 0.0033%  |
| Northrop Grumman       | NOC  | 45,877.83  | 0.19% | 1.82% | 13.00% | 14.94% | 0.0288%  |
| National Oilwell Varco | NOV  | 11,419.85  | 0.05% | 0.67% | 41.50% | 42.31% | 0.0203%  |
| NRG Energy             | NRG  | 11,904.53  | 0.05% | 0.29% | 0.00%  | 0.29%  | 0.0001%  |
| Norfolk Southern       | NSC  | 44,959.04  | 0.19% | 1.94% | 13.50% | 15.57% | 0.0295%  |
| NetApp Inc.            | NTAP | 15,727.68  | 0.07% | 2.58% | 20.50% | 23.35% | 0.0155%  |
| Northern Trust Corp.   | NTRS | 19,744.00  | 0.08% | 2.47% | 11.00% | 13.60% | 0.0113%  |
| Nucor Corp.            | NUE  | 18,126.49  | 0.08% | 2.77% | 20.50% | 23.56% | 0.0180%  |
| NVIDIA Corp.           | NVDA | 92,549.20  | 0.39% | 0.42% | 23.00% | 23.47% | 0.0914%  |
| Newell Brands          | NWL  | 10,159.77  | 0.04% | 4.44% | 9.50%  | 14.15% | 0.0060%  |
| News Corp. 'B'         | NWS  | 7,345.99   | 0.03% | 1.59% | 0.00%  | 1.59%  | 0.0005%  |
| News Corp. 'A'         | NWSA | 7,275.32   | 0.03% | 1.61% | 0.00%  | 1.61%  | 0.0005%  |
| Realty Income Corp.    | O    | 18,419.91  | 0.08% | 4.18% | 4.50%  | 8.78%  | 0.0068%  |
| ONEOK Inc.             | OKE  | 25,463.12  | 0.11% | 5.65% | 20.50% | 26.73% | 0.0286%  |
| Omnicom Group          | OMC  | 16,662.21  | 0.07% | 3.23% | 7.00%  | 10.34% | 0.0073%  |
| Oracle Corp.           | ORCL | 176,442.56 | 0.74% | 1.56% | 8.50%  | 10.13% | 0.0752%  |
| O'Reilly Automotive    | ORLY | 27,978.08  | 0.12% | 0.00% | 13.00% | 13.00% | 0.0153%  |
| Occidental Petroleum   | OXY  | 49,635.03  | 0.21% | 4.77% | 0.00%  | 4.77%  | 0.0100%  |
| Paychex Inc.           | PAYX | 24,688.13  | 0.10% | 3.43% | 11.00% | 14.62% | 0.0152%  |
| People's United Fin'l  | PBCT | 5,477.76   | 0.02% | 4.44% | 11.00% | 15.68% | 0.0036%  |
| PACCAR Inc.            | PCAR | 21,456.73  | 0.09% | 5.35% | 7.50%  | 13.05% | 0.0118%  |
| PG&E Corp.             | PCG  | 3,288.77   | 0.01% | 0.00% | 5.00%  | 5.00%  | 0.0007%  |
| Public Serv. Enterpris | PEG  | 26,313.84  | 0.11% | 3.60% | 4.00%  | 7.67%  | 0.0085%  |
| PepsiCo Inc.           | PEP  | 154,218.64 | 0.65% | 3.40% | 7.50%  | 11.02% | 0.0715%  |
| Pfizer Inc.            | PFE  | 245,496.78 | 1.03% | 3.39% | 14.00% | 17.63% | 0.1821%  |
| Principal Fin'l Group  | PFG  | 13,899.24  | 0.06% | 4.41% | 6.50%  | 11.05% | 0.0065%  |
| Procter & Gamble       | PG   | 225,821.22 | 0.95% | 3.18% | 10.50% | 13.84% | 0.1316%  |
| Progressive Corp.      | PGR  | 36,881.07  | 0.16% | 1.82% | 15.50% | 17.46% | 0.0271%  |
| Parker-Hannifin        | PH   | 21,112.31  | 0.09% | 1.91% | 14.00% | 16.04% | 0.0143%  |
| PulteGroup Inc.        | PHM  | 7,573.50   | 0.03% | 1.64% | 15.50% | 17.27% | 0.0055%  |
| Packaging Corp.        | PKG  | 8,526.74   | 0.04% | 3.50% | 9.50%  | 13.17% | 0.0047%  |
| PerkinElmer Inc.       | PKI  | 9,367.97   | 0.04% | 0.33% | 12.50% | 12.85% | 0.0051%  |
| Prologis               | PLD  | 34,086.52  | 0.14% | 3.12% | 9.00%  | 12.26% | 0.0176%  |
| Philip Morris Int'l    | PM   | 112,733.80 | 0.47% | 6.29% | 7.50%  | 14.02% | 0.0665%  |

|                        |      |            |       |       |        |        |         |
|------------------------|------|------------|-------|-------|--------|--------|---------|
| PNC Financial Serv.    | PNC  | 56,313.18  | 0.24% | 3.12% | 9.50%  | 12.77% | 0.0303% |
| Pentair plc            | PNR  | 7,006.54   | 0.03% | 1.78% | 5.50%  | 7.33%  | 0.0022% |
| Pinnacle West Capital  | PNW  | 9,581.51   | 0.04% | 3.55% | 6.00%  | 9.66%  | 0.0039% |
| PPG Inds.              | PPG  | 25,754.05  | 0.11% | 1.79% | 4.50%  | 6.33%  | 0.0069% |
| PPL Corp.              | PPL  | 21,519.09  | 0.09% | 5.62% | 2.00%  | 7.68%  | 0.0070% |
| Perrigo Co. plc        | PRGO | 6,095.90   | 0.03% | 1.87% | 0.50%  | 2.38%  | 0.0006% |
| Prudential Fin'l       | PRU  | 37,780.03  | 0.16% | 3.95% | 6.50%  | 10.58% | 0.0168% |
| Public Storage         | PSA  | 35,629.43  | 0.15% | 4.25% | 7.00%  | 11.39% | 0.0171% |
| Phillips 66            | PSX  | 43,078.30  | 0.18% | 3.65% | 8.00%  | 11.80% | 0.0214% |
| PVH Corp.              | PVH  | 8,164.99   | 0.03% | 0.14% | 11.00% | 11.15% | 0.0038% |
| Quanta Services        | PWR  | 4,839.35   | 0.02% | 0.49% | 19.50% | 20.04% | 0.0041% |
| Pioneer Natural Res.   | PXD  | 24,422.09  | 0.10% | 0.35% | 77.00% | 77.48% | 0.0796% |
| PayPal Holdings        | PYPL | 106,491.20 | 0.45% | 0.00% | 18.50% | 18.50% | 0.0829% |
| Qualcomm Inc.          | QCOM | 66,764.63  | 0.28% | 4.80% | 10.50% | 15.55% | 0.0437% |
| Qorvo Inc.             | QRVO | 7,784.11   | 0.03% | 0.00% | 0.00%  | 0.00%  | 0.0000% |
| Royal Caribbean        | RCL  | 22,369.00  | 0.09% | 2.62% | 11.00% | 13.76% | 0.0130% |
| Everest Re Group Ltd.  | RE   | 8,752.52   | 0.04% | 2.65% | 10.00% | 12.78% | 0.0047% |
| Regency Centers Corp.  | REG  | 10,495.29  | 0.04% | 3.61% | 14.00% | 17.87% | 0.0079% |
| Regeneron Pharmac.     | REGN | 44,367.08  | 0.19% | 0.00% | 16.50% | 16.50% | 0.0308% |
| Regions Financial      | RF   | 17,115.73  | 0.07% | 3.72% | 13.50% | 17.47% | 0.0126% |
| Robert Half Int'l      | RHI  | 7,304.35   | 0.03% | 1.99% | 9.00%  | 11.08% | 0.0034% |
| Red Hat Inc.           | RHT  | 31,063.80  | 0.13% | 0.00% | 17.50% | 17.50% | 0.0229% |
| Raymond James Fin'l    | RJF  | 11,629.51  | 0.05% | 1.75% | 12.00% | 13.86% | 0.0068% |
| Ralph Lauren           | RL   | 8,684.34   | 0.04% | 2.32% | 7.00%  | 9.40%  | 0.0034% |
| ResMed Inc.            | RMD  | 16,730.22  | 0.07% | 1.26% | 11.00% | 12.33% | 0.0087% |
| Rockwell Automation    | ROK  | 19,407.49  | 0.08% | 2.46% | 10.50% | 13.09% | 0.0107% |
| Rollins Inc.           | ROL  | 12,405.35  | 0.05% | 0.98% | 15.50% | 16.55% | 0.0086% |
| Roper Tech.            | ROP  | 28,485.93  | 0.12% | 0.67% | 14.50% | 15.22% | 0.0182% |
| Ross Stores            | ROST | 33,692.07  | 0.14% | 1.06% | 11.50% | 12.62% | 0.0179% |
| Republic Services      | RSG  | 24,370.97  | 0.10% | 2.04% | 13.50% | 15.68% | 0.0161% |
| Raytheon Co.           | RTN  | 46,409.40  | 0.20% | 2.13% | 11.00% | 13.25% | 0.0259% |
| SBA Communications     | SBAC | 20,198.72  | 0.09% | 0.00% | 45.50% | 45.50% | 0.0387% |
| Starbucks Corp.        | SBUX | 87,825.77  | 0.37% | 2.37% | 15.00% | 17.54% | 0.0648% |
| Schwab (Charles)       | SCHW | 63,423.50  | 0.27% | 1.11% | 16.00% | 17.20% | 0.0459% |
| Sealed Air             | SEE  | 5,831.74   | 0.02% | 1.72% | 19.00% | 20.89% | 0.0051% |
| Sherwin-Williams       | SHW  | 36,938.27  | 0.16% | 0.88% | 13.00% | 13.94% | 0.0217% |
| SVB Fin'l Group        | SIVB | 12,000.95  | 0.05% | 0.00% | 21.50% | 21.50% | 0.0109% |
| Smucker (J.M.)         | SJM  | 11,855.68  | 0.05% | 3.32% | 4.50%  | 7.90%  | 0.0039% |
| Schlumberger Ltd.      | SLB  | 57,289.26  | 0.24% | 4.83% | 27.50% | 33.00% | 0.0796% |
| SL Green Realty        | SLG  | 8,350.55   | 0.04% | 3.88% | 6.50%  | 10.50% | 0.0037% |
| Snap-on Inc.           | SNA  | 9,337.97   | 0.04% | 2.29% | 8.00%  | 10.38% | 0.0041% |
| Synopsys Inc.          | SNPS | 12,466.94  | 0.05% | 0.00% | 10.50% | 10.50% | 0.0055% |
| Southern Co.           | SO   | 47,022.93  | 0.20% | 5.23% | 3.00%  | 8.30%  | 0.0164% |
| Simon Property Group   | SPG  | 53,914.52  | 0.23% | 4.91% | 3.00%  | 7.98%  | 0.0181% |
| S&P Global             | SPGI | 46,496.79  | 0.20% | 1.16% | 13.50% | 14.74% | 0.0288% |
| Sempra Energy          | SRE  | 30,786.64  | 0.13% | 3.45% | 9.50%  | 13.12% | 0.0170% |
| SunTrust Banks         | STI  | 26,076.50  | 0.11% | 3.62% | 13.50% | 17.36% | 0.0191% |
| State Street Corp.     | STT  | 26,962.77  | 0.11% | 2.77% | 9.00%  | 11.90% | 0.0135% |
| Seagate Technology     | STX  | 11,081.70  | 0.05% | 6.51% | 9.00%  | 15.80% | 0.0074% |
| Constellation Brands   | STZ  | 30,445.95  | 0.13% | 2.00% | 11.00% | 13.11% | 0.0168% |
| Stanley Black & Decker | SWK  | 20,038.11  | 0.08% | 2.04% | 10.00% | 12.14% | 0.0102% |
| Skyworks Solutions     | SWKS | 12,245.92  | 0.05% | 2.20% | 11.00% | 13.32% | 0.0069% |
| Synchrony Financial    | SYF  | 18,938.01  | 0.08% | 3.19% | 10.50% | 13.86% | 0.0110% |
| Stryker Corp.          | SYK  | 61,520.09  | 0.26% | 1.27% | 13.50% | 14.85% | 0.0384% |
| Symantec Corp.         | SYMC | 12,646.32  | 0.05% | 1.50% | 7.50%  | 9.06%  | 0.0048% |
| Sysco Corp.            | SYU  | 32,374.13  | 0.14% | 2.51% | 13.00% | 15.67% | 0.0213% |
| AT&T Inc.              | T    | 222,761.47 | 0.94% | 6.66% | 7.00%  | 13.89% | 0.1302% |
| Molson Coors Brewing   | TAP  | 13,332.12  | 0.06% | 2.66% | 11.00% | 13.80% | 0.0077% |
| TransDigm Group        | TDG  | 18,406.80  | 0.08% | 0.00% | 8.00%  | 8.00%  | 0.0062% |
| TE Connectivity        | TEL  | 28,042.16  | 0.12% | 2.21% | 9.50%  | 11.81% | 0.0139% |
| Target Corp.           | TGT  | 36,198.03  | 0.15% | 3.69% | 7.00%  | 10.82% | 0.0165% |
| Tiffany & Co.          | TIF  | 10,393.19  | 0.04% | 2.76% | 12.00% | 14.92% | 0.0065% |
| TJX Companies          | TJX  | 59,190.96  | 0.25% | 1.67% | 13.00% | 14.78% | 0.0368% |
| Torchmark Corp.        | TMK  | 9,164.13   | 0.04% | 0.78% | 10.00% | 10.82% | 0.0042% |
| Thermo Fisher Sci.     | TMO  | 95,881.53  | 0.40% | 0.29% | 10.00% | 10.30% | 0.0416% |
| Tapestry Inc.          | TPR  | 10,467.58  | 0.04% | 3.74% | 13.00% | 16.98% | 0.0075% |
| TripAdvisor Inc.       | TRIP | 8,043.48   | 0.03% | 0.00% | 8.50%  | 8.50%  | 0.0029% |
| Price (T. Rowe) Group  | TROW | 22,983.83  | 0.10% | 3.05% | 11.50% | 14.73% | 0.0142% |
| Travelers Cos.         | TRV  | 32,554.51  | 0.14% | 2.51% | 5.50%  | 8.07%  | 0.0111% |
| Tractor Supply         | TSCO | 10,807.62  | 0.05% | 1.54% | 10.50% | 12.12% | 0.0055% |
| Tyson Foods 'A'        | TSN  | 21,736.74  | 0.09% | 2.53% | 7.00%  | 9.61%  | 0.0088% |
| Total System Svcs.     | TSS  | 15,728.24  | 0.07% | 0.60% | 10.50% | 11.13% | 0.0074% |
| Take-Two Interactive   | TTWO | 11,991.53  | 0.05% | 0.00% | 29.50% | 29.50% | 0.0149% |
| Twitter Inc.           | TWTR | 24,979.24  | 0.11% | 0.00% | 0.00%  | 0.00%  | 0.0000% |
| Texas Instruments      | TXN  | 94,112.73  | 0.40% | 3.16% | 12.50% | 15.86% | 0.0628% |
| Textron Inc.           | TXT  | 11,809.41  | 0.05% | 0.17% | 15.00% | 15.18% | 0.0075% |
| Under Armour 'C'       | UA   | 8,074.63   | 0.03% | 0.00% | 0.00%  | 0.00%  | 0.0000% |
| Under Armour 'A'       | UAA  | 8,979.95   | 0.04% | 0.00% | 11.50% | 11.50% | 0.0043% |
| United Cont'l Hldgs.   | UAL  | 23,633.53  | 0.10% | 0.00% | 6.00%  | 6.00%  | 0.0060% |

|                        |      |            |       |       |        |        |          |
|------------------------|------|------------|-------|-------|--------|--------|----------|
| UDR Inc.               | UDR  | 11,122.65  | 0.05% | 3.11% | -2.50% | 0.57%  | 0.0003%  |
| Universal Health 'B'   | UHS  | 12,074.67  | 0.05% | 0.31% | 11.00% | 11.32% | 0.0058%  |
| Ulta Beauty            | ULTA | 16,880.98  | 0.07% | 0.00% | 20.00% | 20.00% | 0.0142%  |
| UnitedHealth Group     | UNH  | 249,898.77 | 1.05% | 1.39% | 15.00% | 16.49% | 0.1734%  |
| Unum Group             | UNM  | 7,353.47   | 0.03% | 3.09% | 9.50%  | 12.74% | 0.0039%  |
| Union Pacific          | UNP  | 114,049.80 | 0.48% | 2.07% | 13.50% | 15.71% | 0.0754%  |
| United Parcel Serv.    | UPS  | 85,539.22  | 0.36% | 3.90% | 8.50%  | 12.56% | 0.0452%  |
| United Rentals         | URI  | 9,733.89   | 0.04% | 0.00% | 17.00% | 17.00% | 0.0070%  |
| U.S. Bancorp           | USB  | 80,746.89  | 0.34% | 3.10% | 7.50%  | 10.71% | 0.0364%  |
| United Technologies    | UTX  | 90,326.97  | 0.38% | 2.61% | 9.50%  | 12.23% | 0.0465%  |
| Visa Inc.              | V    | 279,364.81 | 1.18% | 0.73% | 14.50% | 15.28% | 0.1796%  |
| Varian Medical Sys.    | VAR  | 11,533.58  | 0.05% | 0.00% | 9.50%  | 9.50%  | 0.0046%  |
| V.F. Corp.             | VFC  | 29,096.01  | 0.12% | 2.79% | 12.00% | 14.95% | 0.0183%  |
| Viacom Inc. 'B'        | VIAB | 12,008.35  | 0.05% | 2.69% | 4.00%  | 6.74%  | 0.0034%  |
| Valero Energy          | VLO  | 34,179.76  | 0.14% | 4.22% | 10.00% | 14.44% | 0.0208%  |
| Vulcan Materials       | VMC  | 13,361.63  | 0.06% | 1.11% | 18.00% | 19.21% | 0.0108%  |
| Vornado R'lty Trust    | VNO  | 12,440.90  | 0.05% | 4.04% | -5.50% | -1.57% | -0.0008% |
| Verisk Analytics       | VRSK | 18,650.01  | 0.08% | 0.00% | 9.00%  | 9.00%  | 0.0071%  |
| VeriSign Inc.          | VRSN | 19,799.64  | 0.08% | 0.00% | 12.00% | 12.00% | 0.0100%  |
| Vertex Pharmac.        | VRTX | 48,699.00  | 0.20% | 0.00% | 0.00%  | 0.00%  | 0.0000%  |
| Ventas Inc.            | VTR  | 21,499.47  | 0.09% | 5.35% | 3.50%  | 8.95%  | 0.0081%  |
| Verizon Communic.      | VZ   | 234,822.42 | 0.99% | 4.24% | 4.50%  | 8.84%  | 0.0873%  |
| Waters Corp.           | WAT  | 15,323.21  | 0.06% | 0.00% | 9.50%  | 9.50%  | 0.0061%  |
| Walgreens Boots        | WBA  | 67,918.61  | 0.29% | 2.45% | 11.00% | 13.58% | 0.0388%  |
| WeillCare Health Plans | WCG  | 12,950.32  | 0.05% | 0.00% | 22.50% | 22.50% | 0.0123%  |
| Western Digital        | WDC  | 10,539.83  | 0.04% | 5.48% | 1.50%  | 7.03%  | 0.0031%  |
| WEC Energy Group       | WEC  | 22,380.26  | 0.09% | 3.33% | 7.00%  | 10.44% | 0.0098%  |
| Welltower Inc.         | WELL | 27,028.49  | 0.11% | 4.90% | 8.50%  | 13.60% | 0.0155%  |
| Wells Fargo            | WFC  | 231,950.16 | 0.98% | 3.53% | 6.00%  | 9.64%  | 0.0941%  |
| Whirlpool Corp.        | WHR  | 8,033.28   | 0.03% | 3.67% | 8.00%  | 11.81% | 0.0040%  |
| Willis Towers Watson p | WLTW | 20,382.04  | 0.09% | 1.53% | 0.00%  | 1.53%  | 0.0013%  |
| Waste Management       | WM   | 39,859.31  | 0.17% | 1.99% | 10.50% | 12.60% | 0.0211%  |
| Williams Cos.          | WMB  | 31,667.78  | 0.13% | 5.20% | 22.50% | 28.28% | 0.0377%  |
| Walmart Inc.           | WMT  | 281,054.88 | 1.18% | 2.19% | 7.00%  | 9.27%  | 0.1096%  |
| WestRock Co.           | WRK  | 10,284.50  | 0.04% | 4.49% | 14.50% | 19.31% | 0.0084%  |
| Western Union          | WU   | 7,955.54   | 0.03% | 4.24% | 7.00%  | 11.39% | 0.0038%  |
| Weyerhaeuser Co.       | WY   | 18,460.26  | 0.08% | 5.52% | 17.50% | 23.50% | 0.0183%  |
| Wynn Resorts           | WYNN | 12,424.69  | 0.05% | 2.63% | 23.00% | 25.93% | 0.0136%  |
| Cimarex Energy         | XEC  | 7,002.92   | 0.03% | 0.98% | 39.00% | 40.17% | 0.0118%  |
| Xcel Energy Inc.       | XEL  | 26,019.13  | 0.11% | 3.16% | 5.50%  | 8.74%  | 0.0096%  |
| Xilinx Inc.            | XLNX | 23,340.69  | 0.10% | 1.56% | 11.00% | 12.65% | 0.0124%  |
| Exxon Mobil Corp.      | XOM  | 305,398.44 | 1.29% | 4.63% | 18.00% | 23.05% | 0.2962%  |
| Dentsply Sirona        | XRAY | 8,955.63   | 0.04% | 0.87% | 2.50%  | 3.38%  | 0.0013%  |
| Xerox Corp.            | XRX  | 5,668.15   | 0.02% | 4.33% | 2.50%  | 6.88%  | 0.0016%  |
| Xylem Inc.             | XYL  | 12,605.95  | 0.05% | 1.20% | 15.50% | 16.79% | 0.0089%  |
| Yum! Brands            | YUM  | 28,389.10  | 0.12% | 1.76% | 10.00% | 11.85% | 0.0142%  |
| Zimmer Biomet Hldgs.   | ZBH  | 21,668.88  | 0.09% | 0.94% | 5.00%  | 5.96%  | 0.0054%  |
| Zions Bancorp.         | ZION | 8,953.15   | 0.04% | 2.58% | 15.00% | 17.77% | 0.0067%  |
| Zoetis Inc.            | ZTS  | 40,522.57  | 0.17% | 0.78% | 13.50% | 14.34% | 0.0244%  |

- [1] Sum of [9]  
[2] Source: US Treasury Department  
[3] Equals [1] - [2]  
[4] Source: Value Line  
[5] Weight based on market capitalization  
[6] Source: Value Line  
[7] Source: Value Line  
[8] Equals [6] x (1 + (0.5 x [7])) + [7]  
[9] Equals [5] x [8]

**Capital Asset Pricing Model**

|     |                     |               |
|-----|---------------------|---------------|
| [1] | Risk-Free Rate      | 3.03%         |
| [2] | Beta                | 0.57          |
| [3] | Market Risk Premium | 13.49%        |
| [4] | ROE                 | <b>10.66%</b> |

[1] Source: US Treasury Department

[2] Source: Attachment JC-6

[3] Source: Attachment JC-7

[4] Equals [1] + ([2] x [3])

Flotation Cost Adjustment

|                                       |        |                    | [1]              | [2]            | [3]      | [4]                 | [5]                       | [6]                | [7]                          | [8]                     | [9]                          |
|---------------------------------------|--------|--------------------|------------------|----------------|----------|---------------------|---------------------------|--------------------|------------------------------|-------------------------|------------------------------|
|                                       |        |                    | Shares<br>Issued |                |          | Offering<br>Expense |                           | Flotation<br>Costs | Gross Equity<br>Issue Before |                         |                              |
| Company                               | Ticker | Completion<br>Date | (000)            | Offering Price | Discount | (\$000)             | Net Proceeds<br>Per Share | (\$000)            | Costs<br>(\$000)             | Net Proceeds<br>(\$000) | Flotation Cost<br>Percentage |
| Algonquin Power & Utilities Corp.     | AQN    | 11/10/2017         | 43,470           | \$10.44        | \$0.42   | \$393.89            | \$10.01                   | \$18,543.49        | 453,740                      | 435,196                 | 4.09%                        |
| Algonquin Power & Utilities Corp.     | AQN    | 12/2/2015          | 16,508           | \$7.83         | \$0.31   | \$374.64            | \$7.49                    | \$5,545.07         | 129,261                      | 123,716                 | 4.29%                        |
| Ameren Corporation                    | AEE    | 9/9/2009           | 21,850           | \$25.25        | \$0.76   | \$450.00            | \$24.47                   | \$17,001.38        | 551,713                      | 534,711                 | 3.08%                        |
| Ameren Corporation                    | AEE    | 7/2/2004           | 10,925           | \$42.00        | \$1.26   | \$400.00            | \$40.70                   | \$14,165.50        | 458,850                      | 444,685                 | 3.09%                        |
| American Electric Power Company, Inc. | AEP    | 4/1/2009           | 69,000           | \$24.50        | \$0.74   | \$400.00            | \$23.76                   | \$51,115.00        | 1,690,500                    | 1,639,385               | 3.02%                        |
| American Electric Power Company, Inc. | AEP    | 2/27/2003          | 57,500           | \$20.95        | \$0.63   | \$550.00            | \$20.31                   | \$36,688.75        | 1,204,625                    | 1,167,936               | 3.05%                        |
| ALLETE, Inc.                          | ALE    | 2/26/2014          | 3,220            | \$49.75        | \$1.74   | \$450.00            | \$47.87                   | \$6,056.99         | 160,195                      | 154,138                 | 3.78%                        |
| ALLETE, Inc.                          | ALE    | 5/24/2001          | 7,475            | \$23.68        | \$0.95   | \$350.00            | \$22.69                   | \$7,430.32         | 177,008                      | 169,578                 | 4.20%                        |
| Avista Corporation                    | AVA    | 12/12/2006         | 3,163            | \$25.05        | \$0.48   | \$300.00            | \$24.48                   | \$1,818.00         | 79,221                       | 77,403                  | 2.29%                        |
| CMS Energy Corporation                | CMS    | 3/30/2005          | 23,000           | \$12.25        | \$0.43   | \$325.00            | \$11.81                   | \$10,187.40        | 281,750                      | 271,563                 | 3.62%                        |
| CMS Energy Corporation                | CMS    | 10/7/2004          | 32,775           | \$9.10         | \$0.32   | \$325.00            | \$8.77                    | \$10,763.84        | 298,253                      | 287,489                 | 3.61%                        |
| Consolidated Edison, Inc.             | ED     | 11/14/2018         | 15,130           | \$77.00        | \$1.46   | \$640.00            | \$75.49                   | \$22,775.00        | 1,165,000                    | 1,142,225               | 1.95%                        |
| Consolidated Edison, Inc.             | ED     | 5/10/2016          | 10,120           | \$71.50        | \$2.15   | \$550.00            | \$69.30                   | \$22,257.40        | 723,580                      | 701,323                 | 3.08%                        |
| Eversource Energy                     | ES     | 3/16/2009          | 18,975           | \$20.20        | \$0.66   | \$335.00            | \$19.53                   | \$12,792.09        | 383,295                      | 370,503                 | 3.34%                        |
| Eversource Energy                     | ES     | 12/6/2005          | 23,000           | \$19.09        | \$0.62   | \$340.00            | \$18.45                   | \$14,609.20        | 439,070                      | 424,461                 | 3.33%                        |
| Hawaiian Electric Industries, Inc.    | HE     | 3/19/2013          | 7,000            | \$26.75        | \$1.00   | \$450.00            | \$25.68                   | \$7,471.70         | 187,250                      | 179,778                 | 3.99%                        |
| IDACORP, Inc.                         | IDA    | 12/9/2004          | 4,025            | \$30.00        | \$1.20   | \$300.00            | \$28.73                   | \$5,130.00         | 120,750                      | 115,620                 | 4.25%                        |
| Alliant Energy Corporation            | LNT    | 12/13/2018         | 8,359            | \$44.85        | \$0.52   | \$1,000.00          | \$44.21                   | \$5,346.67         | 374,900                      | 369,553                 | 1.43%                        |
| Alliant Energy Corporation            | LNT    | 7/1/2003           | 17,250           | \$19.25        | \$0.77   | \$370.00            | \$18.46                   | \$13,652.50        | 332,063                      | 318,410                 | 4.11%                        |
| MGE Energy, Inc.                      | MGEE   | 9/10/2004          | 1,265            | \$31.85        | \$1.04   | \$125.00            | \$30.72                   | \$1,434.28         | 40,290                       | 38,856                  | 3.56%                        |
| NorthWestern Corporation              | NWE    | 11/4/2014          | 7,767            | \$51.50        | \$1.80   | \$1,000.00          | \$49.57                   | \$15,000.00        | 400,000                      | 385,000                 | 3.75%                        |
| PNM Resources, Inc.                   | PNM    | 12/6/2006          | 5,750            | \$30.79        | \$1.08   | \$250.00            | \$29.67                   | \$6,448.50         | 177,043                      | 170,594                 | 3.64%                        |
| PNM Resources, Inc.                   | PNM    | 3/23/2005          | 3,910            | \$26.76        | \$0.87   | \$200.00            | \$25.84                   | \$3,600.53         | 104,632                      | 101,031                 | 3.44%                        |
| Pinnacle West Capital Corporation     | PNW    | 4/8/2010           | 6,900            | \$38.00        | \$1.33   | \$190.00            | \$36.64                   | \$9,367.00         | 262,200                      | 252,833                 | 3.57%                        |
| Pinnacle West Capital Corporation     | PNW    | 4/27/2005          | 6,095            | \$42.00        | \$1.37   | \$250.00            | \$40.59                   | \$8,569.68         | 255,990                      | 247,420                 | 3.35%                        |
| Portland General Electric Company     | POR    | 6/11/2013          | 12,765           | \$29.50        | \$0.96   | \$600.00            | \$28.49                   | \$12,839.08        | 376,568                      | 363,728                 | 3.41%                        |
| Portland General Electric Company     | POR    | 3/5/2009           | 12,478           | \$14.10        | \$0.49   | \$375.00            | \$13.58                   | \$6,532.65         | 175,933                      | 169,400                 | 3.71%                        |
| PPL Corporation                       | PPL    | 5/8/2018           | 63,250           | \$27.00        | \$0.29   | \$1,000.00          | \$26.69                   | \$19,614.48        | 1,707,750                    | 1,688,136               | 1.15%                        |
| PPL Corporation                       | PPL    | 4/10/2012          | 11,385           | \$27.70        | \$0.68   | \$750.00            | \$26.95                   | \$8,491.80         | 315,365                      | 306,873                 | 2.69%                        |
| Unitil Corporation                    | UTL    | 12/12/2017         | 690              | \$48.30        | \$1.93   | \$400.00            | \$45.79                   | \$1,733.08         | 33,327                       | 31,594                  | 5.20%                        |
| Unitil Corporation                    | UTL    | 5/10/2012          | 2,760            | \$25.25        | \$1.26   | \$544.46            | \$23.79                   | \$4,028.96         | 69,690                       | 65,661                  | 5.78%                        |
| Xcel Energy Inc.                      | XEL    | 11/7/2018          | 9,359            | \$49.15        | \$0.15   | \$650.00            | \$48.93                   | \$2,053.87         | 460,000                      | 457,946                 | 0.45%                        |
| Xcel Energy Inc.                      | XEL    | 8/3/2010           | 21,850           | \$21.50        | \$0.65   | \$600.00            | \$20.83                   | \$14,693.25        | 469,775                      | 455,082                 | 3.13%                        |
| Mean                                  |        |                    |                  |                |          |                     |                           | \$12,053.25        | \$426,047.96                 |                         |                              |

- [1] Source: S&P Global; Company Prospectus Supplements  
 [2] Source: S&P Global; Company Prospectus Supplements  
 [3] Source: S&P Global; Company Prospectus Supplements  
 [4] Source: Company Prospectus Supplements  
 [5] Equals:  $([1] \times ([2] - [3]) - [4]) / [1]$   
 [6] Equals  $([1] \times [3]) + [4]$   
 [7] Equals  $[1] \times [2]$   
 [8] Equals  $[1] \times [5]$   
 [9] Equals  $[6] / [7]$

|                                  |        |
|----------------------------------|--------|
| Weighted Average Flotation Costs | 2.829% |
|----------------------------------|--------|

Constant Growth Discounted Cash Flow Model Adjusted for Flotation Costs  
Earnings Growth  
30 Day Average Stock Price

|                                   |        | [1]                       | [2]                          | [3]            | [4]     | [5]                          | [6]                   | [7]                           | [8]                        | [9]                     | [10]     | [11]                   |
|-----------------------------------|--------|---------------------------|------------------------------|----------------|---------|------------------------------|-----------------------|-------------------------------|----------------------------|-------------------------|----------|------------------------|
|                                   |        | Expected Dividend Yield   |                              |                |         |                              |                       |                               |                            |                         |          |                        |
| Company                           | Ticker | Indicated Annual Dividend | Weighted-Average Stock Price | Dividend Yield | Current | Adjusted for Flotation Costs | Zacks Earnings Growth | Yahoo Finance Earnings Growth | Value Line Earnings Growth | Average Earnings Growth | Mean ROE | Flotation-Adjusted ROE |
| Ameren Corp                       | AEE    | \$1.93                    | \$70.03                      | 2.76%          | 2.86%   | 2.94%                        | 6.80%                 | 7.70%                         | 7.50%                      | 7.33%                   | 10.19%   | 10.27%                 |
| American Electric Power           | AEP    | \$2.72                    | \$79.82                      | 3.41%          | 3.50%   | 3.60%                        | 5.70%                 | 5.74%                         | 4.50%                      | 5.31%                   | 8.81%    | 8.91%                  |
| Avangrid, Inc.                    | AGR    | \$1.80                    | \$49.06                      | 3.67%          | 3.85%   | 3.96%                        | 7.70%                 | 9.20%                         | 13.00%                     | 9.97%                   | 13.82%   | 13.93%                 |
| ALLETE, Inc.                      | ALE    | \$2.34                    | \$79.11                      | 2.96%          | 3.03%   | 3.12%                        | NA                    | 6.00%                         | 3.50%                      | 4.75%                   | 7.78%    | 7.87%                  |
| Avista Corporation                | AVA    | \$1.55                    | \$40.93                      | 3.79%          | 3.89%   | 4.01%                        | NA                    | 5.65%                         | 5.50%                      | 5.58%                   | 9.47%    | 9.58%                  |
| CMS Energy Corporation            | CMS    | \$1.53                    | \$52.93                      | 2.89%          | 2.99%   | 3.07%                        | 6.00%                 | 6.89%                         | 7.00%                      | 6.63%                   | 9.62%    | 9.70%                  |
| Duke Energy Corporation           | DUK    | \$3.79                    | \$88.69                      | 4.27%          | 4.38%   | 4.51%                        | 4.90%                 | 4.50%                         | 5.50%                      | 4.97%                   | 9.35%    | 9.47%                  |
| Consolidated Edison, Inc.         | ED     | \$2.96                    | \$79.44                      | 3.73%          | 3.78%   | 3.89%                        | 3.00%                 | 2.99%                         | 3.00%                      | 3.00%                   | 6.78%    | 6.89%                  |
| El Paso Electric Company          | EE     | \$1.52                    | \$54.31                      | 2.80%          | 2.85%   | 2.93%                        | 2.70%                 | 5.10%                         | 3.00%                      | 3.60%                   | 6.45%    | 6.53%                  |
| Edison International              | EIX    | \$2.46                    | \$59.22                      | 4.15%          | 4.26%   | 4.38%                        | 5.60%                 | 4.95%                         | 4.50%                      | 5.02%                   | 9.27%    | 9.40%                  |
| Eversource Energy                 | ES     | \$2.11                    | \$69.46                      | 3.04%          | 3.12%   | 3.21%                        | 5.70%                 | 5.88%                         | 5.00%                      | 5.53%                   | 8.65%    | 8.74%                  |
| Evergy, Inc.                      | EVRG   | \$1.94                    | \$56.51                      | 3.43%          | 3.54%   | 3.65%                        | 6.70%                 | 6.25%                         | NA                         | 6.48%                   | 10.02%   | 10.12%                 |
| Hawaiian Electric                 | HE     | \$1.24                    | \$37.85                      | 3.28%          | 3.37%   | 3.47%                        | 6.20%                 | 7.80%                         | 3.50%                      | 5.83%                   | 9.21%    | 9.30%                  |
| IDACORP, Inc.                     | IDA    | \$2.56                    | \$97.80                      | 2.62%          | 2.66%   | 2.74%                        | 2.60%                 | 2.60%                         | 4.50%                      | 3.23%                   | 5.89%    | 5.97%                  |
| Alliant Energy Corporation        | LNT    | \$1.42                    | \$44.95                      | 3.16%          | 3.26%   | 3.36%                        | 6.00%                 | 7.25%                         | 6.50%                      | 6.58%                   | 9.85%    | 9.94%                  |
| MGE Energy, Inc.                  | MGEE   | \$1.38                    | \$64.43                      | 2.14%          | 2.20%   | 2.27%                        | NA                    | 4.00%                         | 7.50%                      | 5.75%                   | 7.95%    | 8.02%                  |
| NextEra Energy, Inc.              | NEE    | \$5.00                    | \$182.48                     | 2.74%          | 2.85%   | 2.93%                        | 7.70%                 | 7.46%                         | 9.00%                      | 8.05%                   | 10.90%   | 10.99%                 |
| Northwestern Corporation          | NWE    | \$2.30                    | \$66.28                      | 3.47%          | 3.52%   | 3.62%                        | 3.10%                 | 2.59%                         | 2.50%                      | 2.73%                   | 6.25%    | 6.35%                  |
| Otter Tail Corporation            | OTTR   | \$1.38                    | \$49.36                      | 2.80%          | 2.92%   | 3.01%                        | NA                    | 9.00%                         | 9.00%                      | 9.00%                   | 11.92%   | 12.01%                 |
| PNM Resources, Inc.               | PNM    | \$1.16                    | \$43.58                      | 2.66%          | 2.73%   | 2.81%                        | 4.60%                 | 4.10%                         | 7.50%                      | 5.40%                   | 8.13%    | 8.21%                  |
| Pinnacle West Capital Corporation | PNW    | \$3.04                    | \$90.45                      | 3.36%          | 3.45%   | 3.55%                        | 4.80%                 | 4.56%                         | 6.00%                      | 5.12%                   | 8.57%    | 8.67%                  |
| Portland General Electric         | POR    | \$1.52                    | \$49.17                      | 3.09%          | 3.16%   | 3.25%                        | 4.00%                 | 4.90%                         | 4.00%                      | 4.30%                   | 7.46%    | 7.55%                  |
| PPL Corporation                   | PPL    | \$1.68                    | \$31.32                      | 5.36%          | 5.46%   | 5.62%                        | 5.00%                 | 3.59%                         | 2.00%                      | 3.53%                   | 8.99%    | 9.15%                  |
| Southern Company                  | SO     | \$2.46                    | \$49.26                      | 4.99%          | 5.07%   | 5.22%                        | 4.50%                 | 2.16%                         | 3.00%                      | 3.22%                   | 8.29%    | 8.44%                  |
| Unitil Corp                       | UTL    | \$1.46                    | \$52.97                      | 2.76%          | 2.81%   | 2.89%                        | 4.60%                 | 3.70%                         | 3.70%                      | 4.00%                   | 6.81%    | 6.89%                  |
| WEC Energy Group, Inc.            | WEC    | \$2.36                    | \$74.51                      | 3.17%          | 3.25%   | 3.35%                        | 4.40%                 | 4.59%                         | 7.00%                      | 5.33%                   | 8.58%    | 8.68%                  |
| Xcel Energy, Inc.                 | XEL    | \$1.60                    | \$53.57                      | 2.99%          | 3.08%   | 3.17%                        | 5.90%                 | 6.60%                         | 5.50%                      | 6.00%                   | 9.08%    | 9.17%                  |
| Mean                              |        |                           |                              | 3.31%          | 3.40%   | 3.50%                        | 5.14%                 | 5.40%                         | 5.51%                      | 5.42%                   | 8.82%    | 8.92%                  |

[1] Source: Value Line

[2] Source: Yahoo Finance, as of March 11, 2019

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.5 x [9])

[5] Equals [4] / (1 - 0.0283)

[6] Source: Zacks

[7] Source: Yahoo Finance

[8] Source: Value Line

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

[10] Equals [4] + [9]

[11] Equals [5] + [9]

[12] Average of [11] - Average of [10]

[12]

|                                  |       |
|----------------------------------|-------|
| Weighted Average Flotation Costs | 2.83% |
| Flotation-Adjusted ROE           | 8.92% |
| Unadjusted ROE                   | 8.82% |
| Flotation Cost Adjustment        | 0.10% |

Small Size Premium

|     |   |         |
|-----|---|---------|
|     | Granite State Electric                      |         |
| [1] | Customers (000s)                            | 44      |
| [2] | Implied Equity (\$ Millions)                | \$66.1  |
| [3] | Implied Market Capitalization (\$ Millions) | \$139.5 |

|                                   |        | Proxy Group      |                          |                      |
|-----------------------------------|--------|------------------|--------------------------|----------------------|
|                                   |        | [4]              | [5]                      | [6]                  |
| Company Name                      | Ticker | Customers (000s) | Market Cap (\$ Millions) | Market-to-Book Ratio |
| Ameren Corp                       | AEE    | 2,400            | \$16,376.1               | 2.49                 |
| American Electric Power           | AEP    | 5,400            | \$37,475.4               | 2.22                 |
| Avangrid, Inc.                    | AGR    | 2,244            | \$15,237.0               | 1                    |
| ALLETE, Inc.                      | ALE    | 160              | \$3,870.4                | 2.06                 |
| Avista Corporation                | AVA    | 402              | \$2,713.6                | 1.55                 |
| CMS Energy Corporation            | CMS    | 1,831            | \$14,442.6               | 3.51                 |
| Duke Energy Corporation           | DUK    | 7,709            | \$61,061.3               | 1.51                 |
| Consolidated Edison, Inc.         | ED     | 3,800            | \$23,988.6               | 1.69                 |
| El Paso Electric Company          | EE     | 425              | \$2,047.1                | 2.11                 |
| Edison International              | EIX    | 5,127            | \$17,434.1               | 2.16                 |
| Eversource Energy                 | ES     | 3,203            | \$21,320.1               | 2.03                 |
| Evergy, Inc.                      | EVERG  | 1,588            | \$14,669.0               | NA                   |
| Hawaiian Electric                 | HE     | 463              | \$3,955.6                | 2.1                  |
| IDACORP, Inc.                     | IDA    | 558              | \$4,787.3                | 2.27                 |
| Alliant Energy Corporation        | LNT    | 963              | \$10,034.4               | 2.85                 |
| MGE Energy, Inc.                  | MGEE   | 153              | \$2,075.9                | 2.91                 |
| NextEra Energy, Inc.              | NEE    | 5,000            | \$83,874.6               | 3.16                 |
| Northwestern Corporation          | NWE    | 437              | \$3,333.0                | 1.93                 |
| Otter Tail Corporation            | OTTR   | 132              | \$1,910.7                | 2.92                 |
| PNM Resources, Inc.               | PNM    | 782              | \$3,309.6                | 2.22                 |
| Pinnacle West Capital Corporation | PNW    | 1,246            | \$9,581.5                | 2.1                  |
| Portland General Electric         | POR    | 885              | \$4,089.2                | 1.91                 |
| PPL Corporation                   | PPL    | 2,369            | \$21,519.1               | 2.08                 |
| Southern Company                  | SO     | 4,685            | \$47,022.9               | 2.17                 |
| Unitil Corp                       | UTL    | 106              | \$737.2                  | 2.43                 |
| WEC Energy Group, Inc.            | WEC    | 1,618            | \$22,380.3               | 2.58                 |
| Xcel Energy, Inc.                 | XEL    | 3,625            | \$26,019.1               | 2.48                 |
| Mean                              |        | 2,123            | \$17,602.4               | 2.25                 |
| Median                            |        | 1,588            | \$14,442.6               | 2.17                 |

[1] Source: Company Data  
[2] Source: Company Data; Equals Rate Base x Equity Ratio as of Q4 2018  
[3] Equals [2] x Median of [6]  
[4] Source: S&P Global, Annual Reports, and Company websites  
[5] Source: Value Line, as of March 11, 2019  
[6] Source: Value Line  
[7] Source: Duff & Phelps Cost of Capital Navigator

Duff & Phelps Size Premia [7]

| Market Capitalization (\$ Millions) |                  |                   |              | Market Capitalization (\$ Millions) |                    |                     |              |
|-------------------------------------|------------------|-------------------|--------------|-------------------------------------|--------------------|---------------------|--------------|
| Decile                              | Lowest in Decile | Highest in Decile | Size Premium | Category                            | Lowest in Category | Highest in Category | Size Premium |
| 1                                   | \$29,428.9       | \$1,073,390.6     | -0.30%       | Mid Cap                             | \$2,996.0          | \$13,455.8          | 0.89%        |
| 2                                   | \$13,513.0       | \$29,022.9        | 0.52%        | Low Cap                             | \$730.0            | \$2,992.3           | 1.58%        |
| 3                                   | \$7,276.0        | \$13,455.8        | 0.81%        | Micro Cap                           | \$2.5              | \$727.8             | 3.39%        |
| 4                                   | \$4,504.1        | \$7,254.2         | 0.85%        |                                     |                    |                     |              |
| 5                                   | \$2,996.0        | \$4,503.5         | 1.28%        |                                     |                    |                     |              |
| 6                                   | \$1,961.8        | \$2,992.3         | 1.50%        |                                     |                    |                     |              |
| 7                                   | \$1,292.8        | \$1,960.2         | 1.58%        |                                     |                    |                     |              |
| 8                                   | \$730.0          | \$1,292.2         | 1.80%        |                                     |                    |                     |              |
| 9                                   | \$325.4          | \$727.8           | 2.46%        |                                     |                    |                     |              |
| 10                                  | \$2.5            | \$321.6           | 5.22%        |                                     |                    |                     |              |

Proxy Group Capital Structure

Common Equity Ratio

| Company Name             | Ticker | 2014          | 2015          | 2016          | 2017          | 2018          | Average       |
|--------------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|
| ALLETE                   | ALE    | 55.80%        | 53.70%        | 58.00%        | 59.00%        | 60.10%        | 57.32%        |
| Alliant Energy           | LNT    | 47.50%        | 51.40%        | 47.20%        | 48.60%        | 46.70%        | 48.28%        |
| American Electric Power  | AEP    | 51.00%        | 50.20%        | 50.00%        | 48.50%        | 46.80%        | 49.30%        |
| Ameren Corp.             | AEE    | 51.70%        | 49.70%        | 51.30%        | 49.80%        | 48.80%        | 50.26%        |
| AVANGRID, Inc.           | AGR    | 83.20%        | 76.90%        | 77.00%        | 74.40%        | 71.50%        | 76.60%        |
| Avista Corp.             | AVA    | 49.00%        | 50.00%        | 48.80%        | 52.80%        | 50.50%        | 50.22%        |
| CMS Energy Corp.         | CMS    | 31.00%        | 31.40%        | 32.60%        | 32.40%        | 30.70%        | 31.62%        |
| Consolidated Edison      | ED     | 52.00%        | 52.10%        | 49.20%        | 51.10%        | 48.50%        | 50.58%        |
| Duke Energy              | DUK    | 52.30%        | 51.40%        | 47.40%        | 46.00%        | 46.00%        | 48.62%        |
| Edison International     | EIX    | 47.20%        | 46.70%        | 49.20%        | 45.80%        | 44.00%        | 46.58%        |
| El Paso Electric Company | EE     | 46.50%        | 47.30%        | 47.30%        | 48.80%        | 46.00%        | 47.18%        |
| Eversource Energy        | ES     | 53.20%        | 53.60%        | 54.40%        | 48.20%        | 47.00%        | 51.28%        |
| Hawaiian Elec.           | HE     | 53.80%        | 55.50%        | 57.50%        | 55.70%        | 54.50%        | 55.40%        |
| IDACORP, Inc.            | IDA    | 54.70%        | 54.40%        | 55.20%        | 56.30%        | 56.00%        | 55.32%        |
| MGE Energy               | MGEE   | 62.50%        | 63.80%        | 65.40%        | 66.20%        | 62.30%        | 64.04%        |
| NextEra Energy           | NEE    | 45.00%        | 45.80%        | 46.70%        | 47.30%        | 56.00%        | 48.16%        |
| NorthWestern Corporation | NWE    | 46.60%        | 46.90%        | 48.00%        | 49.80%        | 50.50%        | 48.36%        |
| OGE Energy               | OGE    | 54.10%        | 55.70%        | 58.90%        | 58.30%        | 58.00%        | 57.00%        |
| Otter Tail Corporation   | OTTR   | 53.50%        | 57.60%        | 57.00%        | 58.70%        | 55.30%        | 56.42%        |
| Pinnacle West Capital    | PNW    | 59.00%        | 57.00%        | 54.40%        | 51.10%        | 52.00%        | 54.70%        |
| PNM Resources            | PNM    | 51.90%        | 45.50%        | 44.00%        | 43.60%        | 40.00%        | 45.00%        |
| Portland General         | POR    | 47.30%        | 52.20%        | 51.60%        | 49.90%        | 53.00%        | 50.80%        |
| PPL Corporation          | PPL    | 42.00%        | 34.80%        | 35.70%        | 35.20%        | 37.50%        | 37.04%        |
| Southern Company         | SO     | 47.30%        | 44.00%        | 35.70%        | 35.00%        | 36.50%        | 39.70%        |
| WEC Energy Group         | WEC    | 51.20%        | 48.60%        | 49.30%        | 51.90%        | 49.40%        | 50.08%        |
| Xcel Energy Inc.         | XEL    | 47.00%        | 45.90%        | 43.70%        | 44.10%        | 43.00%        | 44.74%        |
| <b>Average</b>           |        | <b>51.40%</b> | <b>50.85%</b> | <b>50.60%</b> | <b>50.33%</b> | <b>50.02%</b> | <b>50.91%</b> |

Long-Term Debt Ratio

| Company Name             | Ticker | 2014          | 2015          | 2016          | 2017          | 2018          | Average       |
|--------------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|
| ALLETE                   | ALE    | 44.20%        | 46.30%        | 42.00%        | 41.00%        | 39.90%        | 42.68%        |
| Alliant Energy           | LNT    | 49.70%        | 48.60%        | 52.80%        | 49.00%        | 53.30%        | 50.68%        |
| American Electric Power  | AEP    | 49.00%        | 49.80%        | 50.00%        | 51.50%        | 53.20%        | 50.70%        |
| Ameren Corp.             | AEE    | 47.20%        | 49.30%        | 47.70%        | 49.20%        | 50.30%        | 48.74%        |
| AVANGRID, Inc.           | AGR    | 16.80%        | 23.10%        | 23.00%        | 25.60%        | 28.50%        | 23.40%        |
| Avista Corp.             | AVA    | 51.00%        | 50.00%        | 51.20%        | 47.20%        | 49.50%        | 49.78%        |
| CMS Energy Corp.         | CMS    | 68.70%        | 68.30%        | 67.10%        | 67.30%        | 69.00%        | 68.08%        |
| Consolidated Edison      | ED     | 48.00%        | 47.90%        | 50.80%        | 48.90%        | 51.50%        | 49.42%        |
| Duke Energy              | DUK    | 47.70%        | 48.60%        | 52.60%        | 54.00%        | 54.00%        | 51.38%        |
| Edison International     | EIX    | 44.10%        | 45.00%        | 41.80%        | 45.60%        | 48.00%        | 44.90%        |
| El Paso Electric Company | EE     | 53.50%        | 52.70%        | 52.70%        | 51.20%        | 54.00%        | 52.82%        |
| Eversource Energy        | ES     | 45.90%        | 45.60%        | 44.80%        | 51.20%        | 52.00%        | 47.90%        |
| Hawaiian Elec.           | HE     | 45.20%        | 43.50%        | 41.60%        | 43.40%        | 45.00%        | 43.74%        |
| IDACORP, Inc.            | IDA    | 45.30%        | 45.60%        | 44.80%        | 43.70%        | 44.00%        | 44.68%        |
| MGE Energy               | MGEE   | 37.50%        | 36.20%        | 34.60%        | 33.80%        | 37.70%        | 35.96%        |
| NextEra Energy           | NEE    | 55.00%        | 54.20%        | 53.30%        | 52.70%        | 44.00%        | 51.84%        |
| NorthWestern Corporation | NWE    | 53.40%        | 53.10%        | 52.00%        | 50.20%        | 29.50%        | 47.64%        |
| OGE Energy               | OGE    | 45.90%        | 44.30%        | 41.10%        | 41.70%        | 42.00%        | 43.00%        |
| Otter Tail Corporation   | OTTR   | 46.50%        | 42.40%        | 43.00%        | 41.30%        | 44.70%        | 43.58%        |
| Pinnacle West Capital    | PNW    | 41.00%        | 43.00%        | 45.60%        | 48.90%        | 48.00%        | 45.30%        |
| PNM Resources            | PNM    | 47.80%        | 54.10%        | 55.70%        | 56.10%        | 60.00%        | 54.74%        |
| Portland General         | POR    | 52.70%        | 47.80%        | 48.40%        | 50.10%        | 47.00%        | 49.20%        |
| PPL Corporation          | PPL    | 58.00%        | 65.20%        | 64.30%        | 64.80%        | 62.50%        | 62.96%        |
| Southern Company         | SO     | 49.50%        | 52.80%        | 61.50%        | 64.50%        | 63.00%        | 58.26%        |
| WEC Energy Group         | WEC    | 48.50%        | 51.20%        | 50.50%        | 48.00%        | 50.40%        | 49.72%        |
| Xcel Energy Inc.         | XEL    | 53.00%        | 54.10%        | 56.30%        | 55.90%        | 57.00%        | 55.26%        |
| <b>Average</b>           |        | <b>47.89%</b> | <b>48.57%</b> | <b>48.82%</b> | <b>49.11%</b> | <b>48.81%</b> | <b>48.38%</b> |

Source: Value Line

Note: Unutil capital structure not reported by Value Line. Eversource was not formed until 2018.