

# Attachment H

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**LS POWER GRID NEW YORK  
CORPORATION I** )  
)

**Docket No. ER20-\_\_-000**

**Direct Testimony and Exhibits of Robert B. Hevert**

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I. INTRODUCTION

1 **Q1. Please state your name, affiliation, and business address.**

2 A1. My name is Robert B. Hevert. I am a Partner of ScottMadden, Inc. My business address is  
3 1900 West Park Drive, Suite 250, Westborough, Massachusetts 01581.

4 **Q2. On whose behalf are you submitting this testimony?**

5 A2. I am submitting this direct testimony (“Direct Testimony”) before the Federal Energy  
6 Regulatory Commission (“FERC” or the “Commission”) on behalf of LS Power Grid New  
7 York Corporation I (“LSPG-NY”, or the “Company”).

8 **Q3. Briefly describe your educational background.**

9 A3. I hold a Bachelor’s degree in Business and Economics from the University of Delaware, and an  
10 MBA with a concentration in Finance from the University of Massachusetts. I also hold the  
11 Chartered Financial Analyst designation.

12 **Q4. Please describe your experience in the energy and utility industries.**

13 A4. I have worked in regulated industries for over 30 years, having served as an executive and  
14 manager with consulting firms, a financial officer of a publicly traded natural gas utility, and  
15 an analyst at a telecommunications utility. In my role as a consultant, I have advised numerous  
16 energy and utility clients on a wide range of financial and economic issues, including corporate  
17 and asset-based transactions, asset and enterprise valuation, transaction due diligence, and  
18 strategic matters. As an expert witness, I have provided testimony in more than 250  
19 proceedings regarding various financial and regulatory matters before numerous state utility  
20 regulatory agencies, the Commission, the Alberta Utilities Commission, and in United States  
21 Federal Court. A summary of my professional and educational background, including a list of

1 my testimony in prior proceedings, is included as Exhibit No LSPG-NY-701.

## II. PURPOSE AND OVERVIEW OF TESTIMONY

### 2 **Q5. What is the purpose of your Direct Testimony?**

3 A5. The purpose of my testimony is to present evidence and provide my evaluation of a fair base  
4 rate of return on equity (“ROE”)<sup>1</sup> for LSPG-NY. As discussed throughout the balance of my  
5 testimony, my analyses and recommendation consider (1) the Commission’s established  
6 precedent and recent guidance regarding methodological approaches, (2) operating and  
7 financial data relating specifically to LSPG-NY, (3) an assessment of industry and capital  
8 market conditions, (4) analytical results relating to a group of comparable companies, and (5)  
9 recent state-authorized ROEs for distribution-only companies. My analyses and conclusions  
10 are supported by the data presented in Exhibit Nos. LSPG-NY-702 through LSPG-NY-713,  
11 which have been prepared by me or under my direction.

### 12 **Q6. What are your conclusions regarding the Company’s Cost of Equity?**

13 A6. Based on the Commission’s guidance as prescribed in Opinion Nos. 531, 531-A, and 531-B<sup>2</sup>  
14 and the Commission’s *Orders Directing Briefs* in Docket Nos. EL11-66-001 and EL14-12-  
15 003,<sup>3</sup> the two-stage form of the Discounted Cash Flow (“DCF”) model,<sup>4</sup> the Capital Asset  
16 Pricing Model (“CAPM”), the Bond Yield Plus Risk Premium model, and the Expected

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<sup>1</sup> Throughout my testimony, I interchangeably use the terms “ROE” and “Cost of Equity”.

<sup>2</sup> *Martha Coakley v. Bangor Hydro-Electric Company*, Opinion No. 531, 147 FERC ¶ 61,234 (2014), *Order On Paper Hearing*, Opinion No. 531-A, 149 FERC ¶ 61,032 (2014), and *Order On Rehearing*, Opinion No. 531-B, 150 FERC ¶ 61,165 (2015).

<sup>3</sup> See Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018); Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018).

<sup>4</sup> The Commission’s preferred two-stage form of the DCF model is also referred to herein as the Two-Step DCF model.

1 Earnings approach result in an estimated Cost of Equity for an above average risk utility of 9.87  
2 percent.

3 On November 21, 2019, the Commission issued its *Order on Briefs, Rehearing, and*  
4 *Initial Decision* in Docket Nos. EL14-12-003 and EL15-45-000,<sup>5</sup> establishing specific  
5 methodological approaches it would apply in determining the ROE.<sup>6</sup> Applying the  
6 Commission's prescribed approaches to the Two-Step DCF and CAPM methods, and several  
7 approaches to determining the median of the upper zone of reasonableness, results in ROE  
8 estimates for an above average risk utility of 9.45 percent, and 9.63 percent. Reasonable  
9 adjustments to the methods prescribed in Opinion No. 569, results in ROE estimates of 9.89  
10 percent and 10.11 percent.

11 Given the Company's risk profile and the results based on reasonable adjustments to the  
12 Commission's prescribed methods (as discussed throughout my Direct Testimony), and  
13 considering state-authorized ROEs and previous Commission guidance, both of which I  
14 continue to find relevant to investor expectations, I believe the ROE for LSPG-NY should be  
15 set at the upper end of the range of 9.63 percent to 10.11 percent. In my view, the quantitative  
16 and qualitative analyses discussed throughout my Direct Testimony, and the risks associated  
17 with the Company's involvement in the New York Independent System Operator ("NYISO")  
18 AC Transmission Upgrades (the "Project"), indicate an ROE of 10.00 percent is a reasonable  
19 estimate of the Company's Cost of Equity.<sup>7</sup> In addition, I find the upper end of the composite

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<sup>5</sup> Opinion No. 569, *Order on Briefs, Rehearing, and Initial Decision*, 169 FERC ¶ 61,129 (November 21, 2019) ("Opinion No. 569").

<sup>6</sup> See, for example, Opinion No. 569 at PP 98, 133.

<sup>7</sup>  $10.00\% = (9.87\% + 10.11\%) / 2$ ;  $9.87\% = (9.63\% + 10.11\%) / 2$ .

1 zone of reasonableness to be 11.35 percent.<sup>8</sup>

2 **Q7. Please provide a brief overview of the analyses that led to your ROE recommendation.**

3 A7. Because no single model is more reliable than all others under all market conditions, and  
4 because equity analysts and investors often use more than one analytical approach when valuing  
5 investments, it is important to consider the results of multiple models in determining the  
6 Company's ROE. In the Commission's October 16, 2018 *Order Directing Briefs* in Docket  
7 No. EL11-66-001,<sup>9</sup> and its November 15, 2018 *Order Directing Briefs* in Docket No. EL14-  
8 12-003,<sup>10</sup> the Commission issued guidance regarding the following methods used to estimate  
9 the ROE: (1) the Two-Step DCF model, (2) the Bond Yield Risk Premium model, (3) the  
10 CAPM, and (4) the Expected Earnings approach. Consistent with Opinion No. 569,<sup>11</sup> I also  
11 have considered the effect of excluding the Bond Yield Risk Premium and Expected Earnings  
12 approaches. Lastly, although I am aware the Commission discussed certain preferences  
13 regarding the application of the DCF and CAPM methods, and the weighting of their results, I  
14 have considered the effects of reasonable adjustments to the Commission's approaches.

15 In applying those models, I considered evolving capital market and business conditions,  
16 including Federal monetary policy, and other appropriate benchmarks. I also considered the  
17 Company's risks associated with its involvement in the Project. My analyses recognize that  
18 estimating the Cost of Equity is an empirical, but not an entirely mathematical exercise; it relies  
19 on quantitative and qualitative data and analyses, all of which are used to inform the judgment

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<sup>8</sup> See, Tables 9 and 10 below.

<sup>9</sup> Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 32.

<sup>10</sup> Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at P 34.

<sup>11</sup> Opinion No. 569 at P 31.

1 that inevitably must be applied. I therefore considered my analytical results in the context of  
2 such Company-specific and general capital market factors as those summarized above. Based  
3 on the approaches discussed later in my Direct Testimony, an ROE of 10.00 percent,  
4 representing the upper end of the range of 9.63 percent to 10.11 percent, is reasonable and  
5 appropriate.

6 **Q8. Does your recommendation balance the interests of investors and ratepayers?**

7 A8. Yes. Investors have many options available to them and will only invest in a firm if the expected  
8 return justifies the risks assumed in making that investment. Ratepayers have an interest in  
9 safe, reliable, and efficient service, which depends on investors' willingness to commit the  
10 capital needed to maintain and improve the utility system. In that important sense, investors  
11 and ratepayers have a common interest in a financially strong utility with cost-effective access  
12 to debt and equity capital, when and as needed. To the extent the ROE is (1) adequate to attract  
13 capital at reasonable terms; (2) sufficient to ensure the utility's financial integrity; and (3)  
14 commensurate with returns on investments of comparable risk, the interests of investors and  
15 ratepayers will be aligned. I believe my recommendation meets these objectives.

16 **Q9. How is the remainder of your Direct Testimony organized?**

17 A9. The remainder of my Direct Testimony is organized as follows:

- 18 • Section III – Discusses the regulatory guidelines and financial considerations relevant in  
19 estimating the Cost of Equity;
- 20 • Section IV – Explains my selection of the proxy group of electric utilities used to develop  
21 my analytical results;
- 22 • Section V – Explains my analyses and the analytical bases as iterated in the Commission's

1 *Orders Directing Briefs* in Docket Nos. EL11-66-001 and EL14-12-003<sup>12</sup>;

- 2 • Section VI – Explains my analyses, and the bases of those analyses, as established in
- 3 Opinion No. 569, including the effect of reasonable modifications to the Commission’s
- 4 approaches;
- 5 • Section VII – Provides a review of state-authorized returns;
- 6 • Section VIII – Discusses the current capital market conditions and the effect of those
- 7 conditions on the Company’s Cost of Equity;
- 8 • Section IX – Provides a discussion of specific business risks that have a direct bearing on
- 9 the Company’s Cost of Equity; and
- 10 • Section X – Summarizes my conclusions and recommendations.

### III. REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS

11 **Q10. Please provide a brief summary of the guidelines established by the United States**  
12 **Supreme Court (the “Court”) for the purpose of determining the ROE.**

13 A10. The Court established the guiding principles for establishing a fair return for capital in two  
14 cases: (1) *Bluefield Water Works and Improvement Co. V. Public Service Commission*  
15 (*“Bluefield”*); and (2) *Federal Power Commission v. Hope Natural Gas Co.* (*“Hope”*). In  
16 *Bluefield*, the Court stated:

17 A public utility is entitled to such rates as will permit it to earn a return upon  
18 the value of the property which it employs for the convenience of the public  
19 equal to that generally being made at the same time and in the same general  
20 part of the country on investments in other business undertakings which are  
21 attended by corresponding risks and uncertainties; but it has no

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<sup>12</sup> See Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018); Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018).

1 constitutional right to profits such as are realized or anticipated in highly  
 2 profitable enterprises or speculative ventures. The return should be  
 3 reasonably sufficient to assure confidence in the financial soundness of the  
 4 utility, and should be adequate, under efficient and economical management,  
 5 to maintain and support its credit, and enable it to raise the money necessary  
 6 for the proper discharge of its public duties.<sup>13</sup>

7 The Court therefore recognized that: (1) a regulated public utility cannot remain  
 8 financially sound unless the return it is allowed to earn on its invested capital is at least equal  
 9 to the cost of capital (the principle relating to the demand for capital); and (2) a regulated public  
 10 utility will not be able to attract capital if it does not offer investors an opportunity to earn a  
 11 return on their investment equal to the return they expect to earn on other investments of similar  
 12 risk (the principle relating to the supply of capital). It should be noted that those standards are  
 13 not solely related to utility companies.

14 In *Hope*, the Court reiterates the financial integrity and capital attraction principles of  
 15 the *Bluefield* case:

16 From the investor or company point of view it is important that there be  
 17 enough revenue not only for operating expenses but also for the capital  
 18 costs of the business. These include service on the debt and dividends on  
 19 the stock. By that standard the return to the equity owner should be  
 20 commensurate with returns on investments in other enterprises having  
 21 corresponding risks. That return, moreover, should be sufficient to assure  
 22 confidence in the financial integrity of the enterprise, so as to maintain its  
 23 credit and to attract capital.<sup>14</sup>

24 In summary, the Court has found a fair ROE should be (1) comparable to returns  
 25 investors expect to earn on other investments of similar risk, (2) sufficient to assure confidence

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<sup>13</sup> *Bluefield Waterworks & Imp. Co., v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679, 692-93 (1923).

<sup>14</sup> *Fed. Power Comm'n v. Hope Nat. Gas Co.*, 320 U.S. 591, 603 (1944).

1 in the company’s financial integrity, and (3) adequate to maintain and support the company’s  
 2 credit and to attract capital.

**IV. PROXY GROUP SELECTION**

3 **Q11. Why is it necessary to select a group of proxy companies to determine the Cost of Equity**  
 4 **for LSPG-NY?**

5 A11. First, it is important to bear in mind that the Cost of Equity for a given enterprise depends on  
 6 the risks attendant to the business in which the company is engaged. According to financial  
 7 theory, the value of a given company is equal to the aggregate market value of its constituent  
 8 business units. The value of the individual business units reflects the risks and opportunities  
 9 inherent in the business sectors in which those units operate. In this proceeding, we are focused  
 10 on estimating the Cost of Equity for LSPG-NY. Because the ROE is a market-based concept  
 11 and LSPG-NY is not a publicly traded entity,<sup>15</sup> it is necessary to establish a group of companies  
 12 that are both publicly traded and comparable to the Company in certain fundamental respects  
 13 to serve as its “proxy” in the ROE estimation process.

14 Even if the Company were a publicly traded entity, it is possible that short-term events  
 15 could bias its market value in one way or the other during a given period of time. A significant  
 16 benefit of using a proxy group is that it serves to moderate the effects of anomalous, temporary  
 17 events associated with any one company.

18 **Q12. Does the selection of a proxy group suggest that analytical results will be tightly clustered**  
 19 **around average (i.e., mean) results?**

20 A12. Not necessarily. The DCF approach, for example, is based on the theory that a stock’s current

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<sup>15</sup> LSPG-NY is an indirect, wholly owned subsidiary of LS Power.

1 price represents the present value of its future expected cash flows. The Commission's Two-  
2 Step DCF model calculates the ROE as the sum of the expected dividend yield and projected  
3 growth, where growth is measured as a weighted average of short-term and long-term  
4 projections. Despite the care taken to develop a group of risk-comparable companies, market  
5 expectations regarding future risks and growth opportunities will vary from company to  
6 company. Therefore, even within a group of similarly situated companies, it is common for  
7 analytical results to reflect a wide range. Consequently, it is common for models to produce a  
8 wide range of results. At issue, then, is how to determine the ROE within that range. That  
9 determination is greatly advantaged by the review of other analytical models, an understanding  
10 of the current market environment, and the informed judgment and experience of the analyst.

11 **Q13. Please provide a summary profile of LSPG-NY.**

12 A13. LSPG-NY is ultimately a wholly owned operating subsidiary of LS Power, a privately owned,  
13 independent power company. Together with the New York Power Authority ("NYPA"),  
14 LSPG-NY was selected as the developer for the Project.<sup>16</sup> LSPG-NY is a transmission-only  
15 company whose business is to develop, own, and operate transmission facilities in the NYISO  
16 region.

17 **Q14. How did you select the companies included in your proxy groups?**

18 A14. With the objective of selecting a proxy group that is most representative of the risks and  
19 prospects faced by the Company, I began with the universe of companies that Value Line  
20 classifies as Electric Utilities, which includes a group of 37 domestic U.S. Utilities, and applied

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<sup>16</sup> Source: <http://www.lspgridnewyork.com/>

1 the following screening criteria:<sup>17</sup>

- 2 • I excluded companies that did not consistently pay quarterly cash dividends during the
- 3 six-month period included in my analyses;
- 4 • Consistent with Commission practice,<sup>18</sup> I excluded companies whose long-term
- 5 corporate credit ratings from Standard & Poor’s (“S&P”) and Moody’s Investors
- 6 Service (“Moody’s”) (where available) are more than one credit rating notch above or
- 7 below the rating of BBB+ and Baa1, for S&P and Moody’s, respectively (that is,
- 8 companies were excluded if they had S&P ratings outside of A-, BBB+, and BBB, or
- 9 Moody’s ratings outside of Baa1, Baa2 and A3);
- 10 • I excluded companies that did not have an I/B/E/S consensus earnings growth rate as
- 11 published by Yahoo! Finance, or were not covered by Value Line;<sup>19</sup> and
- 12 • I eliminated any companies that were party to a merger, or other significant transaction,
- 13 during the six-month period ending October 31, 2019.

14 **Q15. How did you determine the range of credit ratings used in your screening criteria?**

15 A15. Neither LSPG-NY, nor its parent, LS Power, is independently rated by any of the major credit  
 16 rating agencies. Therefore, I first calculated the average S&P and Moody’s long-term corporate  
 17 credit ratings for the firms listed in Value Line’s electric utility industry groups.<sup>20</sup> Based on  
 18 the average BBB+ S&P rating and Baa1 Moody’s rating, and consistent with Commission

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<sup>17</sup> In its April 2012 order in *Southern California Edison Company*, 139 FERC ¶ 61,042, the Commission reiterated support for proxy group selection criteria that included the requirement that companies have at least \$1.00 billion in revenue. Given LSPG-NY currently has no rate base and no revenue, I did not apply that minimum revenue screen in this proceeding.

<sup>18</sup> Opinion No. 569 at P 365; *Coakley*, Opinion No. 531, at PP 106-107.

<sup>19</sup> I/B/E/S growth rates were available for all companies. *See also*, Opinion No. 569 at P 365.

<sup>20</sup> *See, e.g.* DesertLink, LLC, Docket No. ER17-735-000, Exhibit No. DesertLink-500, at 21-22.

1 guidance,<sup>21</sup> I applied a screen of one notch above and below the S&P and Moody's respective  
 2 ratings. Thus, based on those results, I excluded any companies with ratings outside of A-,  
 3 BBB+, and BBB for S&P, and Baa1, Baa2 and A3 for Moody's.

4 **Q16. Did you include LSPG-NY or LS Power in your analysis?**

5 A16. No. Neither LSPG-NY nor LS Power is publicly traded on the U.S. market, nor included in the  
 6 Value Line universe of Electric Utilities. Even if it were, and met the screening criteria  
 7 discussed above, to avoid the circular logic that otherwise would occur, it has been my  
 8 consistent practice to exclude the subject company (or its parent) from the proxy group.

9 **Q17. Has the Commission determined that it is appropriate to rely on a national proxy group**  
 10 **rather than to apply a geographic screening criterion?**

11 A17. Yes. The Commission addressed this issue in its April 2010 order in *Southern California*  
 12 *Edison*:

13 However, the record developed by the parties to this proceeding supporting  
 14 a national proxy group is sufficient to render a decision consistent with the  
 15 requisites of the U.S. Supreme Court standard enunciated in *Federal Power*  
 16 *Comm'n v. Hope Natural Gas Co.* that a proxy group should consist of  
 17 companies "of commensurate returns on investments in other enterprises  
 18 having corresponding risks." We are persuaded by the parties that using a  
 19 national proxy group in this case complies with the *Hope* standard of risk  
 20 that is necessary "to assure confidence in the financial integrity of the  
 21 enterprise, so as to maintain its credit and to attract capital." We are also  
 22 persuaded by the arguments of the parties that limiting the composition of  
 23 the proxy group, as we proposed in the *February 2008 Order*, may not  
 24 adequately reflect SoCal Edison's business risks. Therefore, in keeping with  
 25 the *Consumers Energy* standard that the proxy group reflects comparable  
 26 risk, and in consideration of the record developed in this proceeding, we will  
 27 accept SoCal Edison's national proxy group, with modifications explained  
 28 herein, as an appropriate proxy group to determine its ROE.<sup>22</sup>

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<sup>21</sup> Opinion No. 569 at P 365; *Coakley*, Opinion No. 531, at PP 106-107.

<sup>22</sup> *Southern California Edison Co.*, 131 FERC ¶ 61,020 at P 29 (2010); The Commission's acceptance of a national proxy group was reiterated in *Southern California Edison Company*, 139 FERC ¶ 61,042 at P 34 (2012).

1 In the *Coakley* Order on Initial Decision, the Commission again determined that a national  
2 proxy group was appropriate, stating:

3 We find that it is appropriate to use a national proxy group, and we therefore  
4 affirm the Initial Decision’s adoption of the NETOs’ national proxy group.  
5 Whether it is more appropriate to use a national proxy group or a regional  
6 proxy group is a question of capital attraction and comparability of risk. We  
7 agree that “the NETOs must compete for capital with other utilities (and  
8 companies in other sectors) throughout the nation,” and that investors are not  
9 limited to investments in geographically adjacent states but instead  
10 participate in national or international capital markets. If the NETOs’ ROE  
11 is significantly less than the returns of utilities in other parts of the nation,  
12 capital will more readily flow to areas other than New England and the  
13 NETOs may not be able to attract sufficient capital consistent with the *Hope*  
14 and *Bluefield* standards. Further, widening the geographic range of the proxy  
15 group allows for the application of more stringent screening criteria, to refine  
16 the proxy group to a level of risk more comparable, while maintaining a  
17 group of proxy companies that is sufficiently large and diverse to reliably  
18 capture the range of reasonable returns. Moreover, in determining  
19 comparability of financial and business risks, financial data is much more  
20 probative than geographical proximity.<sup>23</sup>

21 Lastly, in Opinion No. 569, the Commission reiterated the use of a national proxy  
22 group.<sup>24</sup> As the Commission noted, the principal factors used to assess potential proxy  
23 companies relate to capital attraction and risk comparability. The breadth of my electric utility  
24 proxy group helps ensure that the analytical range reflects the risks to which investors are  
25 exposed, and the return they require to commit equity capital to electric transmission  
26 companies.

27 **Q18. What companies met the screening criteria?**

28 A18. The criteria discussed above produced the following 29-company proxy group:

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<sup>23</sup> *Coakley*, Opinion No. 531, at P 96.

<sup>24</sup> Opinion No. 569 at P 365.

**Table 1: Proxy Group**

<b>Company</b>	<b>Ticker</b>
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Avangrid, Inc.	AGR
Avista Corporation	AVA
Black Hills Corporation	BKH
CenterPoint Energy, Inc.	CNP
CMS Energy Corporation	CMS
Consolidated Edison, Inc.	ED
Dominion Energy, Inc.	D
DTE Energy Company	DTE
Duke Energy Corporation	DUK
Entergy Corporation	ETR
Eversource Energy	ES
Exelon Corporation	EXC
Eergy, Inc.	EVRG
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corp.	OGE
Otter Tail Corporation	OTTR
Pinnacle West Capital Corporation	PNW
Portland General Electric Company	POR
PPL Corporation	PPL
Public Service Enterprise Group Inc.	PEG
Sempra Energy	SRE
Southern Company	SO
WEC Energy Group, Inc.	WEC
Xcel Energy Inc.	XEL

V. RETURN ON EQUITY ANALYSES BASED ON GUIDANCE PRIOR TO  
OPINION NO. 569

1 **Q19. Please briefly discuss the ROE in the context of the regulated Rate of Return**  
2 **(“ROR”).**

3 A19. Regulated utilities primarily use common stock and long-term debt to finance their capital  
4 investments. The overall ROR weighs the costs of the individual sources of capital by their  
5 respective book values. Whereas the cost of debt and cost of preferred stock can be directly  
6 observed, the Cost of Equity is market-based and, therefore, must be estimated based on  
7 observable market information.

8 **Q20. How is the required ROE determined?**

9 A20. The required ROE is estimated by using analytical techniques that rely on market-based data to  
10 quantify investor expectations regarding required equity returns, adjusted for certain  
11 incremental costs and risks. Although several empirical models have been developed for that  
12 purpose, all are subject to limiting assumptions or other constraints. Consequently, many  
13 finance texts recommend using multiple approaches to estimate the Cost of Equity.<sup>25</sup> When  
14 faced with the task of estimating the Cost of Equity, analysts and investors are inclined to gather  
15 and evaluate as much relevant data as reasonably can be analyzed and, therefore, rely on  
16 multiple analytical approaches.

17 By their nature, quantitative models produce a range of results from which the ROE  
18 required by the market must be estimated. As discussed throughout my testimony, that

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<sup>25</sup> See, for example, Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed., 1994, at 341, and Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed., 2000, at 214.

1 estimation must be based on a comprehensive review of relevant data and information, and does  
 2 not necessarily lend itself to a strict mathematical solution. Consequently, the key consideration  
 3 in determining the Cost of Equity is to ensure that the methodologies employed reasonably  
 4 reflect investors' view of the financial markets in general, and the subject company (in the  
 5 context of the proxy group) in particular.

6 Consistent with Commission guidance for electric utilities in the Commission's *Orders*  
 7 *Directing Briefs* in Docket Nos. EL11-66-001 and EL14-12-003,<sup>26</sup> I analyzed the results of the  
 8 Commission's Two-Step DCF model, the CAPM, the Bond Yield Plus Risk Premium model,  
 9 and the Expected Earnings approach.<sup>27</sup>

10 ***Two-Step DCF Model***

11 **Q21. Are DCF models widely used in regulatory proceedings?**

12 A21. Yes. The DCF model is widely recognized in regulatory proceedings, and in financial  
 13 literature. Nonetheless, neither the DCF nor any other model should be applied without  
 14 considerable judgment in the selection of data and the interpretation of results.

15 **Q22. Please describe the DCF approach.**

16 A22. The DCF approach is based on the theory that a stock's current price represents the present  
 17 value of all expected future cash flows. In its simplest form, the DCF model expresses the  
 18 Cost of Equity as the sum of the expected dividend yield and long-term growth rate, and is  
 19 expressed as follows:

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<sup>26</sup> See Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at PP 15, 17. See also Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at PP 16, 18.

<sup>27</sup> As discussed below, I have also considered the Commission's methodology as established in Opinion No. 569.

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

where  $P$  represents the current stock price,  $D_1 \dots D_\infty$  represent expected future dividends, and  $k$  is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the familiar form:

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

Equation [2] often is referred to as the “Constant Growth DCF” model, in which the first term is the expected dividend yield and the second term is the expected long-term annual growth rate.

In *Coakley*, the Commission found that the Two-Step DCF model applied in natural gas and oil pipeline cases likewise should be applied in electric transmission filings.<sup>28</sup> Consistent with Commission practice,  $g$  (as shown in Equation [2], above) applies weights of two-thirds and one-third, respectively, to the short-term analyst derived growth rate projections and the long-term Gross Domestic Product (“GDP”) growth rate.<sup>29</sup>

**Q23. What assumptions are required for the Commission’s Two-Step DCF model?**

A23. The model requires the following assumptions: (1) a constant average annual growth rate which, as described above, reflects both short and long-term growth estimates; (2) a stable dividend payout ratio; (3) a constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate. To the extent that any of those assumptions is violated, it increases the need to apply considered judgment and/or specific adjustments to the model’s results.

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<sup>28</sup> *Coakley*, Opinion No. 531, at PP 41, 43.

<sup>29</sup> *Coakley*, Opinion No. 531, at P 17.

1 **Q24. How did you determine the dividend yield?**

2 A24. In keeping with Commission precedent,<sup>30</sup> for each proxy company, I (1) averaged the high and  
3 low stock prices for each of the six months in the study period; (2) divided the indicated annual  
4 dividend at the end of each of those months by its average stock price for each month (resulting  
5 in a monthly dividend yield for each month of the study period); and (3) averaged those monthly  
6 dividend yields. That calculation included data for the period extending from May 1, 2019  
7 through October 31, 2019.

8 **Q25. Did you adjust the dividend yield to account for periodic growth in dividends?**

9 A25. Yes. Because utilities increase their quarterly dividends at different times throughout the year,  
10 it is reasonable to assume that dividend increases will be evenly distributed over calendar  
11 quarters. Given that assumption, it is appropriate to calculate the expected dividend yield by  
12 applying one-half of the long-term growth rate to the current dividend yield. That adjustment,  
13 which is consistent with Commission precedent,<sup>31</sup> ensures that the expected dividend yield is,  
14 on average, representative of the coming twelve-month period, and does not overstate the  
15 dividends to be paid during that time. Accordingly, the dividend yield component of the DCF  
16 estimates provided in Exhibit No. LSPG-NY-702 reflect one-half of the expected growth rate.

17 **Q26. Please describe the importance of growth estimates in applying the DCF model.**

18 A26. The Commission's Two-Step DCF model effectively assumes a single growth estimate in  
19 perpetuity (*i.e.*, as presented in Equation [2] above). To reduce the long-term growth rate to a  
20 single measure, we must assume a constant payout ratio, and that earnings per share ("EPS"),

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<sup>30</sup> Coakley, Opinion No. 531, at P 77.

<sup>31</sup> Coakley, Opinion No. 531, at P 71.

1 dividends per share, and book value per share all grow at the same constant rate. Over the long  
2 term, however, dividend growth can only be sustained by earnings growth. Consequently, it is  
3 important to incorporate a variety of measures of long-term earnings growth into the Constant  
4 Growth DCF model.

5 **Q27. What sources of short-term growth have you used in your DCF analysis?**

6 A27. I used Thomson Reuters' I/B/E/S consensus analyst five-year EPS growth estimates as reported  
7 by Yahoo! Finance.

8 **Q28. Why have you used analysts' projections of earnings growth rates in your DCF analysis?**

9 A28. In the *Coakley* Order on Initial Decision, the Commission stated:

10 We affirm the Presiding Judge's adoption of the NETOs' five-year IBES  
11 growth rate data contained in its witness's April 26, 2013 testimony. The  
12 growth rate used in the DCF model should be the growth rate expected by  
13 the market. That growth rate may not necessarily prove to be the correct  
14 growth forecast, but the cost of common equity to a regulated enterprise  
15 depends upon what the market expects, not upon what ultimately happens.  
16 Accordingly, it is appropriate to look to the most recent record evidence of  
17 the growth rates actually expected by the investment community.

18  
19 The Commission has long relied on IBES growth projections as evidence of  
20 the growth rates expected by the investment community. Since the  
21 discontinuation of the IBES Monthly Summary Data Book in 2008, the  
22 Commission has consistently used IBES growth rate estimates published by  
23 *Yahoo! Finance* as the source of analysts' consensus growth rates.<sup>32</sup>

24 Consistent with Commission guidance, I therefore have included analysts' projected EPS  
25 growth rates published by Yahoo! Finance as the short-term forecast of growth rates.

26 **Q29. What long-term growth rate did you use in your DCF analysis?**

27 A29. I applied an expected Gross Domestic Product ("GDP") growth rate of 4.26 percent, which is

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<sup>32</sup> *Coakley*, Opinion No. 531, at PP 88-89.

1 based on the average long-term projections from U.S. Energy Information Administration  
 2 (“EIA”) *Annual Energy Outlook 2019*, the Social Security Administration (“SSA”) *2019*  
 3 *OASDI Trustees Report*,<sup>33</sup> and *Blue Chip Financial Forecasts*.<sup>34</sup>

4 **Q30. Please summarize your application of the Two-Step DCF model.**

5 A30. Consistent with Commission practice, my primary Two-Step DCF analysis applied the  
 6 following inputs to Equation [2]:<sup>35</sup>

- 7 1. The monthly low and monthly high stock prices for the period May 2019 through  
 8 October 2019;
- 9 2. The annualized dividend per share at the end of each of the six months for the period  
 10 May 2019 through October 2019;
- 11 3. Short-term consensus earnings growth rate forecasts from Thomson Reuters I/B/E/S, as  
 12 published in Yahoo! Finance; and
- 13 4. A long-term growth rate of 4.26 percent, based on the average long-term growth rate  
 14 from the EIA *Annual Energy Outlook 2019*, the SSA *2019 OASDI Trustees Report*, and  
 15 *Blue Chip Financial Forecasts*.

16 **Q31. How did you calculate the DCF results, Zone of Reasonableness, and point estimate?**

17 A31. I calculated the DCF results by combining the expected dividend yield for the coming year

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<sup>33</sup> Officially called *The 2019 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*.

<sup>34</sup> The consensus long-term (10-year) GDP projection from *Blue Chip Financial Forecasts* was used in place of the IHS Global Insight projection relied on by the Commission in *Coakley*, due to data availability and cost constraints. The resulting 4.26% long-term GDP estimate is 13 basis points below the 4.39% estimate used in *Coakley* (Opinion No. 531-A at P 10) and Docket No. EL14-12-002 (Opinion No. 551, 156 FERC ¶ 61,234 (September 28, 2016) at P 21).

<sup>35</sup> See, Exhibit No. LSPG-NY-702.

1 (calculated using the half-growth method discussed above) and the weighted growth rate  
 2 (giving two-thirds weight to the short-term analyst growth rate and one-third weight to the  
 3 projected 4.26 percent GDP growth rate) for each proxy company. The Zone of Reasonableness  
 4 was established by the high and low DCF results for the proxy group, excluding outliers as  
 5 described below. Consistent with Commission guidance for rate cases involving a single utility  
 6 of above average risk,<sup>36</sup> I determined a DCF point estimate using the upper median (*i.e.*, the  
 7 median of the upper half) of the individual proxy group DCF results that fell within the Zone  
 8 of Reasonableness (*see*, Exhibit No. LSPG-NY-702).

9 **Q32. Has the Commission recognized it may be necessary to exclude certain results from ROE**  
 10 **analyses?**

11 A32. Yes. In recent *Orders Directing Briefs* in Docket Nos. EL11-66-001 and EL14-12-003, the  
 12 Commission noted it intends to continue excluding ROE model results that do not pass  
 13 “threshold tests of economic logic”, based on low-end and high-end outlier tests.<sup>37</sup> On the low  
 14 end, the Commission has established the convention of excluding results that are too low to be  
 15 credible by reference to long-term bond yields, recognizing that “investors generally cannot be  
 16 expected to purchase a common stock if debt, which has less risk than a common stock, yields  
 17 essentially the same expected return.”<sup>38</sup> The low end test excludes companies whose low end  
 18 ROE results were within 100 basis points of the cost of long-term debt,<sup>39</sup> as well any results

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<sup>36</sup> Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 17 fn. 46; Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at P 18 fn. 40.

<sup>37</sup> Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 49; Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at P 50.

<sup>38</sup> Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 51; Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at P 52.

<sup>39</sup> *Coakley*, Opinion No. 531, at P 123.

1 below a “natural break” in the range of proxy group results.<sup>40</sup> In *Coakley*, the Commission  
 2 explained this is a flexible test.<sup>41</sup>

3 For the high end test, the Commission proposed in its recent *Orders Directing Briefs*  
 4 that it would exclude results more than 150.00 percent of the proxy groups’ median result,  
 5 before the application of any high or low-end outlier test.<sup>42</sup> Although not based on such a  
 6 formulaic approach, the Commission has excluded high-end results in past cases. For example,  
 7 in the November 2004 order addressing filings to establish ISO New England (“ISO-NE”) as a  
 8 Regional Transmission Organization, the Commission determined that a Cost of Equity  
 9 estimate of 17.70 percent for PPL Corporation was “extreme”, and including that estimate  
 10 would “skew the results.”<sup>43</sup>

11 **Q33. Based on Commission precedent, what DCF results did you exclude as outliers?**

12 A33. According to Moody’s, the average yield on long-term Baa-rated utility bonds for the six-  
 13 months ending October 31, 2019 was approximately 4.00 percent.<sup>44</sup> In keeping with the  
 14 convention noted above, I eliminated DCF results below 5.00 percent (*i.e.*, 100 basis points  
 15 above 4.00 percent). Based on that criterion, results for Entergy Corporation (“Entergy”). and

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<sup>40</sup> *Ibid.* In *Pioneer Transmission*, the Commission excluded companies whose low-end ROE results were within 100 basis points of the cost of long-term debt; *see, Pioneer Transmission, LLC*, 126 FERC ¶ 61,281 at P 94 (2009). In *Kern River Gas Transmission Company*, the Commission found that results 97 and 126 basis points above the average yield for public utility debt were too low to be credible; *see, Kern River Gas Transmission Company*, Opinion No. 486, 117 FERC ¶ 61,077 at P 140 fn. 227 (2006).

<sup>41</sup> *Coakley*, Opinion No. 531, at P 122.

<sup>42</sup> Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 53; Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at P 54.

<sup>43</sup> *RTO Rehearing Order*, 109 FERC ¶ 61,147 at P 205 (2004).

<sup>44</sup> Source: Bloomberg Professional Services.

1 Exelon Corporation (“Exelon”), were eliminated.<sup>45</sup> As to the high end, none of the proxy  
 2 companies had an estimated ROE more than 150.00 percent of the proxy group median.  
 3 Consequently, no DCF estimates were eliminated as high-end outliers.

4 **Q34. What were the results of your DCF analysis?**

5 A34. The Two-Step DCF results are summarized in Table 2, below (*see also*, Exhibit No. LSPG-NY-  
 6 702).

**Table 2: Two-Step DCF Results**

	<b>ROE</b>
Zone of Reasonableness Low:	6.12%
Zone of Reasonableness High:	10.83%
Upper Median <sup>46</sup> :	8.96%

7 **Q35. Has previous Commission guidance affirmed the median of proxy group ROE results will**  
 8 **be used as the basis for allowed ROEs when setting ROEs for average risk individual**  
 9 **utilities, and the upper median will be used for above average risk individual utilities?**

10 A35. Yes, it has. In its *Orders Directing Briefs* in Docket Nos. EL11-66-001 and EL14-12-003, the  
 11 Commission specified that the median results will be used as the basis for the allowed ROE  
 12 when setting the ROE for average risk utilities, and the upper median will be used for individual  
 13 utilities with above average risk.<sup>47</sup> The Commission explained the rationale for relying on the  
 14 median for a rate case involving a single utility, noting that “[w]hen deriving the ROE for an

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<sup>45</sup> See Exhibit No. LSPG-NY-702. Entergy and Exelon had DCF results of 3.79 percent and 2.98 percent, respectively, using FERC’s Two-Step methodology; Entergy and Exelon each had negative consensus growth rate estimates.

<sup>46</sup> Assumes median of the composite zone of reasonableness sets the lower bound of the upper half of the zone of reasonableness.

<sup>47</sup> See, for example, Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 17 fn. 46, and P 32; Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at P 18 fn. 40, and P 34.

1 individual utility facing average risk, the Commission has held that the median best represents  
 2 the central tendency in a proxy group with a skewed distribution of returns.”<sup>48</sup> The Commission  
 3 also has explained that “the median also has the advantage of taking into account more of the  
 4 companies in a proxy group rather than only those at the top and bottom.”<sup>49</sup>

### 5 *CAPM Analysis*

#### 6 **Q36. Please briefly describe the general form of the CAPM analysis.**

7 A36. The CAPM estimates the Cost of Equity for a given security as a function of a risk-free  
 8 return plus a risk premium (to compensate investors for the non-diversifiable or “systematic”  
 9 risk of that security). As shown in Equation [3], the CAPM is defined by four components,  
 10 each of which theoretically must be a forward-looking estimate:

$$11 \quad k = r_f + \beta(r_m - r_f) \text{ Equation [3]}$$

12 where:

13  $k$  = the required market ROE for a security;

14  $\beta$  = the Beta coefficient of that security;

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

16  $r_m$  = the required return on the market as a whole.

17 In Equation [3], the term  $(r_m - r_f)$  represents the Market Risk Premium.<sup>50</sup> According to the  
 18 theory underlying the CAPM, since unsystematic risk can be diversified away by adding  
 19 securities to investment portfolios, investors should be concerned only with systematic or non-

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<sup>48</sup> *Golden Spread Electric Cooperative*, 123 FERC ¶ 61,047 at P 63 (2008).

<sup>49</sup> *Virginia Electric and Power Company*, 123 FERC ¶ 61,098 at P 66 (2008), citing Opinion No. 501.

<sup>50</sup> The Market Risk Premium is defined as the incremental return of the market over the risk-free rate.

1 diversifiable risk. Non-diversifiable risk is measured by the Beta coefficient, which is defined  
2 as:

$$3 \quad \beta_j = \frac{\sigma_j}{\sigma_m} \times \rho_{j,m} \quad \text{Equation [4]}$$

4 where  $\sigma_j$  is the standard deviation of returns for company “j,”  $\sigma_m$  is the standard deviation of  
5 returns for the broad market (as measured, for example, by the S&P 500 Index), and  $\rho_{j,m}$  is the  
6 correlation of returns in between company  $j$  and the broad market.

7 The Beta coefficient therefore represents both relative volatility (*i.e.*, the standard  
8 deviation) of returns, and the correlation in returns between the subject company and the overall  
9 market. Intuitively, higher Beta coefficients indicate the subject company’s returns have been  
10 relatively volatile and moved in tandem with the overall market. Consequently, if a company  
11 has a Beta coefficient of 1.00, it is as risky as the market and does not provide any  
12 diversification benefit.

13 A distinct advantage of the CAPM approach is that it reflects both the absolute levels  
14 of the required equity return for a broad spectrum of companies (the expected Market Return),  
15 and the return required for companies that are more, or less, risky than the overall market (the  
16 Beta coefficients for the proxy group companies).

17 **Q37. With those observations in mind, what risk-free rate assumptions did you include in your**  
18 **CAPM analyses?**

19 A37. Because utility assets represent long-term investments and utility equity is a long-duration  
20 security, I used two estimates of the risk-free rate: (1) the current six-month average yield on

1 30-year Treasury bonds (*i.e.*, 2.41 percent);<sup>51</sup> and (2) the near-term projected 30-year Treasury  
2 yield (*i.e.*, 2.28 percent).<sup>52</sup>

3 **Q38. Why have you relied on the 30-year Treasury yield for your CAPM analyses?**

4 A38. Investors in utility equity securities commit capital to an investment that will produce cash  
5 flows over an indefinite time period. In determining the security most relevant to the  
6 application of the CAPM, it is important to select the term (or maturity) that best matches the  
7 life of the underlying investment. Because electric utilities typically are long-duration  
8 investments, the 30-year Treasury yield is more suitable for the purpose of calculating the Cost  
9 of Equity.<sup>53</sup>

10 In finance, “duration” (whether for bonds or equity) typically refers to the present value  
11 weighted time to receive the security’s cash flows. In terms of its practical application, duration  
12 is a measure of the percentage change in the market price of a given stock in response to a  
13 change in the implied long-term return of that stock. A common investment strategy is to match  
14 the duration of investments with the term of the underlying asset in which the funds are being  
15 invested, or the term of a liability being funded. Because the term of the risk-free rate should  
16 match the life of the underlying investment, and knowing that equity has a perpetual life, the  
17 longest-term Treasury security is the best measure of the risk-free rate in the CAPM.

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<sup>51</sup> Source: Bloomberg Professional Services.

<sup>52</sup> See Blue Chip Financial Forecasts, Vol. 38, No. 11, November 1, 2019, at 2. Consensus projections of the 30-year Treasury yield for the six quarters ending March 2021.

<sup>53</sup> As noted by the Commission, “the risk-free rate is represented by a proxy, typically the yield on 30-year Treasury bonds.” See, *Coakley*, Opinion No. 531-B, at P 108. See also Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018), Appendix at 40. See also Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018), Appendix at 36.

1 **Q39. What Market Risk Premium did you use in your CAPM analyses?**

2 A39. To reflect current market expectations, I developed a forward-looking (*ex-ante*) estimate of the  
3 Market Risk Premium.

4 **Q40. Please describe your *ex-ante* approach to estimating the Market Risk Premium.**

5 A40. Consistent with the Commission's finding in Opinion No. 531-B in *Coakley*,<sup>54</sup> the approach is  
6 based on the market required return, less the current 30-year Treasury bond yield. To estimate  
7 the market required return, I calculated the S&P 500 Index market capitalization weighted  
8 average ROE based on the Constant Growth DCF model using data from Bloomberg.<sup>55</sup> I  
9 calculated the expected dividend yield (using the same one-half growth rate assumption  
10 described earlier), and then combined that amount with the projected earnings growth rate to  
11 arrive at the market capitalization weighted average DCF result. I performed that calculation  
12 for each S&P 500 company that pays dividends.<sup>56</sup> I then subtracted the current 30-year  
13 Treasury yield from that amount to arrive at the market DCF-derived *ex-ante* Market Risk  
14 Premium estimate. The results of those calculations are provided in Exhibit No. LSPG-NY-  
15 703.

16 **Q41. What Beta coefficients did you use in your CAPM analysis?**

17 A41. As shown in Exhibit No. LSPG-NY-704, consistent with Commission precedent, I relied on

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<sup>54</sup> *Coakley*, Opinion No. 531-B, at P 109.

<sup>55</sup> The Commission has noted "in a forward-looking CAPM analysis, the market risk premium is calculated by subtracting the risk-free rate from the result produced by the DCF analysis." See Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018), Appendix at 40-41. See also Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018), Appendix at 36-37.

<sup>56</sup> See *Coakley*, Opinion No. 531-B, at P 111.

1 Beta coefficients reported by Value Line.<sup>57</sup> Value Line calculates the Beta coefficient based  
 2 on weekly returns (for the subject company and the New York Stock Exchange Index) over a  
 3 five-year period and adjusts its calculated (or raw) Beta coefficients to reflect the tendency of  
 4 the Beta coefficient to regress to the market mean of 1.00.

5 **Q42. Have you applied a size premium adjustment to your CAPM estimates?**

6 A42. Yes, consistent with the Commission’s finding in Opinion No. 531-B in *Coakley*,<sup>58</sup> each proxy  
 7 company’s CAPM result was adjusted using a size premium applicable to its market  
 8 capitalization (*see*, Exhibit No. LSPG-NY-704). My CAPM analysis relied on size premium  
 9 data reported by Duff & Phelps.<sup>59</sup>

10 **Q43. What are the results of your CAPM analyses?**

11 A43. The results of my CAPM analyses are summarized in Table 3 below.

**Table 3: Summary of CAPM Results**

	<b>2.41% Risk-Free Rate</b>	<b>2.28% Risk-Free Rate</b>
Zone of Reasonableness Low:	6.18%	6.11%
Zone of Reasonableness High:	10.46%	10.43%
Upper Median <sup>60</sup> :	8.90%	8.86%

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<sup>57</sup> The Commission has noted the use of Value Line Beta coefficients is “a generally accepted methodology routinely relied upon by investors,” (*See, Coakley*, Opinion No. 531-B, at PP 108-109.)

<sup>58</sup> *Coakley*, Opinion No. 531-B, at P 117. *See also, Ass’n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 156 FERC ¶ 61,234 at PP 165-166 (Sept. 28, 2016)

<sup>59</sup> Source: Duff & Phelps, 2019 Cost of Capital Navigator.

<sup>60</sup> Assumes median of the composite zone of reasonableness sets the lower bound of the upper half of the zone of reasonableness.

1           ***Bond Yield Plus Risk Premium Approach***

2   **Q44. Please generally describe the Bond Yield Plus Risk Premium approach.**

3   A44. This approach is based on the basic financial principle that equity investors bear the residual  
4       risk associated with ownership and therefore require a premium over the return they would have  
5       earned as a bondholder. That is, because returns to equity holders are riskier than returns to  
6       bondholders, equity investors must be compensated for bearing that additional risk. Risk  
7       premium approaches, therefore, estimate the Cost of Equity as the sum of the Equity Risk  
8       Premium and the yield on a particular class of bonds. Because the Equity Risk Premium is not  
9       directly observable, it typically is estimated using a variety of approaches, some of which  
10      incorporate *ex-ante*, or forward-looking estimates of the Cost of Equity, and others that consider  
11      historical, or *ex-post*, estimates. An alternative approach is to use actual authorized returns for  
12      electric utilities to estimate the Equity Risk Premium.

13   **Q45. Please explain how you performed your Bond Yield Plus Risk Premium analysis.**

14   A45. As discussed above, I first defined the Risk Premium as the difference between the authorized  
15       ROE, and the then-prevailing level of long-term interest rates. I then gathered data from 124  
16       FERC-jurisdictional electric rate proceedings between January 2006 and October 2019 and  
17       calculated two sets of Risk Premium estimates. In the first set of estimates, the Risk Premium  
18       was measured relative to the yield on 30-year Treasuries. In the second set, the Risk Premium  
19       was measured relative to the yield on Baa-rated utility bond yield. To reflect the prevailing  
20       level of interest rates during the pendency of the proceedings, I calculated the average 30-year  
21       Treasury yield and Baa-rated utility bond yield over a one-year (*i.e.*, 250 trading day) lag period.

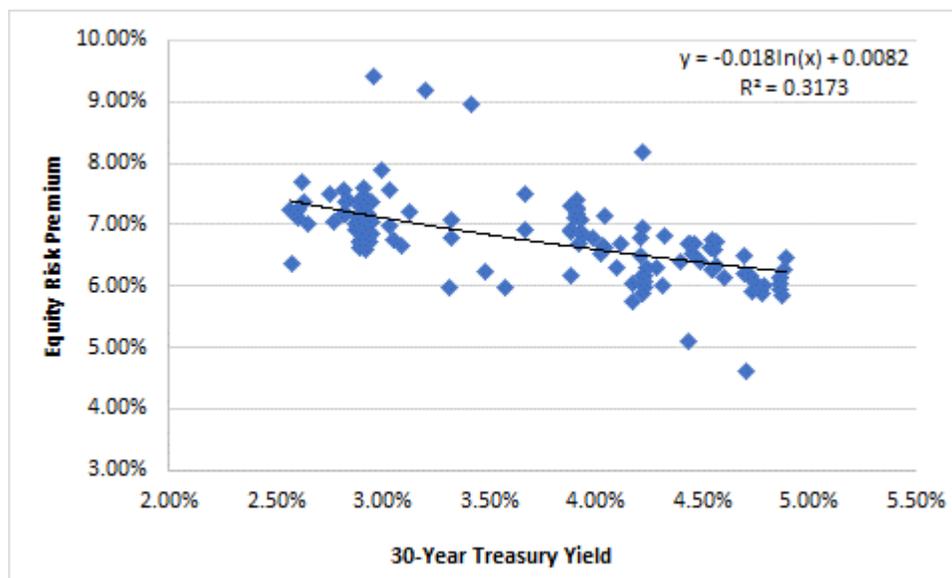
1 **Q46. How did you model the relationship between interest rates and the Equity Risk**  
 2 **Premium?**

3 A46. I modeled the relationship using regression analysis, in which the observed Equity Risk  
 4 Premium is the dependent variable, and the average bond yield (alternately the 30-year Treasury  
 5 yield and the Moody’s Baa-rated utility bond index yield) is the independent variable. To  
 6 account for that variability, I used the semi-log regression in which the Equity Risk Premium is  
 7 expressed as a function of the natural log of the 30-year Treasury yield or Baa-rated utility bond  
 8 yield:

$$RP = \alpha + \beta(\text{LN}(T)) \text{ Equation [5]}$$

10 As shown on Charts 1 and 2 (below), the semi-log form is useful when measuring an absolute  
 11 change in the dependent variable (in this case, the Risk Premium) relative to a proportional  
 12 change in the independent variable (the 30-year Treasury yield).

13 **Chart 1: Equity Risk Premium – 30-Year Treasury Yield<sup>61</sup>**

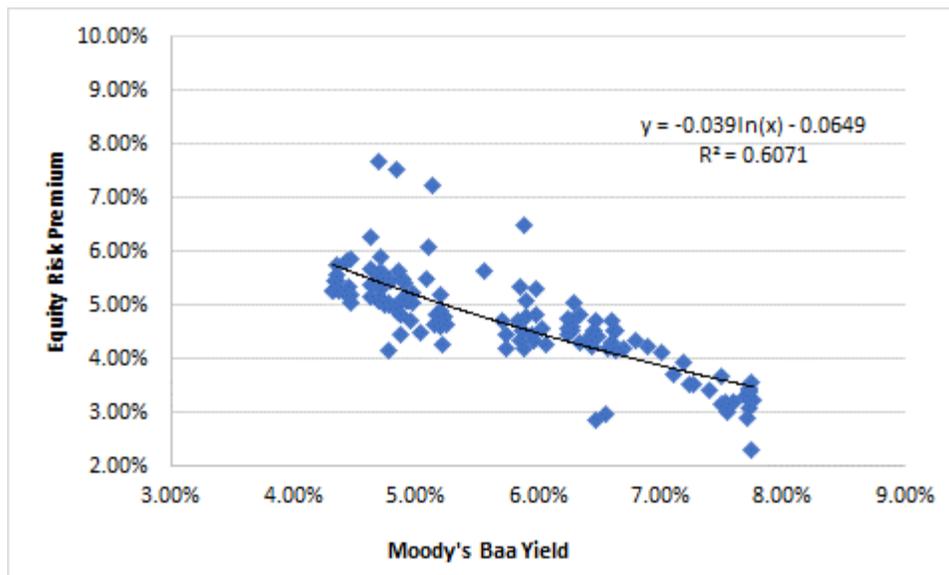


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<sup>61</sup> See also, Exhibit No. LSPG-NY-705.

1 **Chart 2: Equity Risk Premium -- Moody's Long-Term Baa Utility Bond Yield<sup>62</sup>**



3 As Charts 1 and 2 demonstrate, over time there has been a (statistically significant),  
 4 negative relationship between long-term bond yields and the Equity Risk Premium. That  
 5 finding is consistent with prior research, which has shown that the Equity Risk Premium is  
 6 inversely related to the level of interest rates.<sup>63</sup> The inverse relationship demonstrates that the  
 7 currently low interest rate environment does not necessarily suggest a correspondingly low Cost  
 8 of Equity. In *Coakley*, the Commission noted that relationship, stating “[t]he link between  
 9 interest rates and risk premiums provides a helpful indicator of how investors’ required returns  
 10 on equity have been impacted by the interest rate environment.”<sup>64</sup> Because the two are  
 11 inversely related, simply applying the long-term average Equity Risk Premia of 6.78 percent

<sup>62</sup> See also, Exhibit No. LSPG-NY-706.

<sup>63</sup> See, e.g., Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts’ Growth Forecasts*, Financial Management, Summer 1992, at 63-70; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility’s Cost of Equity*, Financial Management, Spring 1985, at 33-45; and Farris M. Maddox, Donna T. Pippert, and Rodney N. Sullivan, *An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry*, Financial Management, Autumn 1995, at 89-95.

<sup>64</sup> *Coakley*, Opinion No. 531, at P 147.

1 and 4.70 percent to the current level of long-term Treasury yields and Baa-rated utility bond  
2 yields, respectively, would significantly understate the Cost of Equity.

3 Based on the regression coefficients in Charts 1 and 2, however, the implied ROE  
4 relative to 30-year Treasury yields is between 9.88 percent and 10.43 percent, and relative to  
5 Baa-rated utility bond yields is between 10.06 percent and 10.38 percent (*see*, Exhibits Nos.  
6 LSPG-NY-705 and LSPG-NY-706). The average (mean) of my Bond Yield Plus Risk Premium  
7 results is 10.12 percent.

### 8 *Expected Earnings Analysis*

#### 9 **Q47. What are the advantages of using an Expected Earnings model?**

10 A47. The Expected Earnings approach is based on the intuitively simple concept that when faced  
11 with alternative investments of comparable risk, investors will choose the investment with the  
12 higher expected return. In that fundamental sense it is consistent with the economic principle  
13 of opportunity costs, and the *Hope* and *Bluefield* “comparable risk” standard. The approach  
14 reflects the basic principle that regulatory commissions do not determine the returns that will  
15 be earned in the capital markets, they establish the returns that will be applied to the book value  
16 of common equity. The Expected Earnings approach provides a direct measure of the  
17 comparability of those expected returns.

18 The Expected Earnings approach highlights information that is important to investors,  
19 providing a direct measure of the book-based return comparable-risk utilities are expected to  
20 earn. The standard transmission revenue requirements formula explicitly recognizes the  
21 validity of book value of equity by choosing to measure capital structure based on book value  
22 rather than market value. Because it looks to the earnings expected of comparable-risk

1 companies, the approach is consistent with the *Hope* and *Bluefield* “comparable return”  
2 standard. The Expected Earnings approach therefore provides a simple and direct measure of  
3 equity investors’ expected opportunity cost on the book value of equity, without the need for  
4 assumptions regarding investor behavior.

5 **Q48. Please describe how you implemented the Expected Earnings model.**

6 A48. I relied on Value Line’s forecast of expected returns on book value for the specific firms in the  
7 proxy group. To do so, I gathered the projected earned Return on Common Equity for the  
8 period 2022-2024 from the latest Value Line report for each proxy company. I adjusted those  
9 projected returns to account for the fact that they reflect common shares outstanding at the end  
10 of the period, rather than the average shares outstanding over the course of the period.<sup>65</sup>

11 The Zone of Reasonableness based on the Expected Earnings approach is 6.00 percent  
12 to 14.06 percent, and the upper median expected return is 11.50 percent<sup>66</sup> (*see*, Exhibit No.  
13 LSPG-NY-707).

14 ***Summary of Cost of Equity Estimates Under Opinion No. 531***

15 **Q49. Please now summarize the results of your Cost of Equity estimates under Opinion No.**  
16 **531.**

17 A49. Using the Commission’s Two-Step DCF, the upper median result is 8.96 percent. The upper  
18 median CAPM result using a six-month average risk-free rate is 8.90 percent; the upper median

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<sup>65</sup> The rationale for that adjustment is straightforward: Earnings are achieved over the course of a year (period), and should be related to the equity that was, on average, in place during that year (period). *See*, Leopold A. Bernstein, Financial Statement Analysis: Theory, Application, and Interpretation, Irwin, 4<sup>th</sup> Ed., 1988, at 630.

<sup>66</sup> Assumes median of the composite zone of reasonableness sets the lower bound of the upper half of the zone of reasonableness.

1 CAPM result using a 2.28 percent near-term projected risk-free rate is 8.86 percent. The  
 2 average of those two CAPM results is 8.88 percent. The upper median Expected Earnings result  
 3 is 11.50 percent. The Bond Yield Plus Risk model results range from 9.88 percent to 10.43  
 4 percent, with a mean result of 10.12 percent.

5 Applying equal weight to the upper median results of the DCF, CAPM and Expected  
 6 Earnings analysis, and the single estimate (mean) of the Risk Premium model, the results  
 7 suggest an ROE of 9.87 percent.

**VI. RETURN ON EQUITY ANALYSES ESTABLISHED IN OPINION NO. 569**

8 **Q50. Please summarize the Commission’s ROE methodology as established in Opinion No. 569.**

9 A50. In Opinion No. 569, the Commission established that it will rely on the DCF and CAPM  
 10 approaches, eliminating the Risk Premium and Expected Earnings approaches from its ROE  
 11 methodology.<sup>67</sup> As discussed below, the Commission also issued specific guidance regarding  
 12 the application of the DCF and CAPM approaches.

***Two-Step DCF Model***

14 **Q51. Please describe the Commission’s guidance on the application of the Two-Step DCF model**  
 15 **as discussed in Opinion No. 569.**

16 A51. As discussed in Opinion No. 569, the Commission adjusted the application of the Two-Step  
 17 DCF model to represent the following form:

$$k = \frac{D_0 (1 + g_1)}{P_0} + \left( \frac{2g_1}{3} + \frac{g_2}{3} \right) \text{ Equation [6]}$$

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<sup>67</sup> Opinion No. 569 at P 31.

1 where  $g_1$  is the short-term growth rate derived from analysts' earnings growth rate projections,  
2 and reaffirming  $g_2$  as the long-term GDP growth rate.<sup>68</sup> In determining the short-term analyst  
3 projected growth rate should be applied to calculate the adjusted dividend yield, the  
4 Commission found, "[b]ecause this first dividend is necessarily paid within the time period  
5 covered by the IBES short-term growth projection, that rate is the more appropriate growth rate  
6 for calculating the  $(1+.5g)$  adjustment to the dividend yield."<sup>69</sup> Further, in Opinion No. 569,  
7 the Commission reiterated its preference of relying solely on IBES short-term growth  
8 projections for  $g_1$ .<sup>70</sup> I therefore have incorporated Thomson Reuters' I/B/E/S consensus analyst  
9 five-year earnings per share growth estimates as reported by Yahoo! Finance in calculating the  
10 adjusted dividend yield.

11 **Q52. How did you determine the dividend yield?**

12 A52. As discussed above, for each proxy company, I (1) averaged the high and low stock prices for  
13 each of the six months in the study period; (2) divided the indicated annual dividend at the end  
14 of each of those months by its average stock price for each month (resulting in a monthly  
15 dividend yield for each month of the study period); and (3) averaged those monthly dividend  
16 yields. That calculation included data for the period extending from May 1, 2019 through  
17 October 31, 2019.

18 **Q53. What long-term growth rate did you use in your DCF analysis?**

19 A53. I applied an expected GDP growth rate of 4.26 percent, which is based on the average long-  
20 term projections from the EIA *Annual Energy Outlook 2019*, the SSA *2019 OASDI Trustees*

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<sup>68</sup> *Ibid.*, at P 134.

<sup>69</sup> *Ibid.*, at P 98.

<sup>70</sup> *Ibid.*, at P 124.

1 *Report*,<sup>71</sup> and *Blue Chip Financial Forecasts*.<sup>72</sup>

2 **Q54. Please summarize your application of the Two-Step DCF model.**

3 A54. Consistent with Commission precedent, my Two-Step DCF analysis applied the following  
4 inputs to Equation [6]:<sup>73</sup>

- 5 1. The monthly low and monthly high stock prices for the period May 2019 through  
6 October 2019;
- 7 2. The annualized dividend per share at the end of each of the six months for the period  
8 May 2019 through October 2019;
- 9 3. Short-term consensus earnings growth rate forecasts from Thomson Reuters I/B/E/S, as  
10 published in Yahoo! Finance; and
- 11 4. A long-term growth rate of 4.26 percent as discussed above.

12 **Q55. Did you consider a second estimate of long-term growth in your DCF analysis?**

13 A55. Yes. As an alternative estimate, I applied a long-term growth rate of 5.16 percent, based on the  
14 long-term historical (1929 through 2018) real GDP growth rate of 3.22 percent,<sup>74</sup> and a  
15 projected inflation rate of 1.88 percent. The real GDP growth rate is calculated as the compound  
16 growth rate in the chain-weighted GDP for the period from 1929 through 2018. The 1.88  
17 percent expected inflation rate is an average of (1) the compound annual forward rate starting

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<sup>71</sup> Officially called *The 2019 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*.

<sup>72</sup> The consensus long-term (10-year) GDP projection from *Blue Chip Financial Forecasts* was used in place of the IHS Global Insight projection relied on by the Commission in *Coakley*, due to data availability and cost constraints. The resulting 4.26% long-term GDP estimate is 13 basis points below the 4.39% estimate used in *Coakley* (Opinion No. 531-A at P 10) and Docket No. EL14-12-002 (Opinion No. 551, 156 FERC ¶ 61,234 (September 28, 2016) at P 21). *See also*, Opinion No. 569 at P 158 and Appendix A.

<sup>73</sup> *See*, Exhibit Nos. LSPG-NY-708 and LSPG-NY-709.

<sup>74</sup> Bureau of Economic Analysis, October 30, 2019 update.

1 in ten years (*i.e.*, 2029) based on the 30-day average spread between yields on long-term  
 2 nominal Treasury Securities and long-term Treasury Inflation Protected Securities, known as  
 3 the “TIPS spread” of 1.66 percent;<sup>75</sup> and (2) the consensus *Blue Chip Financial Forecast*  
 4 projection of CPI for 2026 – 2030 of 2.10 percent.<sup>76</sup>

5 The real GDP growth rate projection assumes that, absent specific knowledge to the  
 6 contrary, real GDP growth will revert to its long-term mean over time. Because estimating the  
 7 Cost of Equity is a market-based exercise, it is important to reflect the sentiments and  
 8 expectations of investors to the extent possible. As a point of reference, the resulting 5.16  
 9 percent projected nominal GDP growth rate is 95 basis points below the long-term average of  
 10 6.11 percent.<sup>77</sup> I consider that approach to be a reasonable alternative to estimating the long-  
 11 term growth rate applied in the DCF model.

12 **Q56. Has the Commission reaffirmed its practice of excluding certain results from ROE**  
 13 **analyses?**

14 A56. Yes. However, the Commission has slightly altered its guidance for determining low-end  
 15 outliers. In Opinion No. 569, the Commission stated it will revise its low-end outlier test to be  
 16 calculated as the yields of generic corporate Baa bonds plus 20.00 percent of the CAPM Market  
 17 Risk Premium.<sup>78</sup> The Commission also reaffirmed its position that it may exclude results  
 18 considered below a “natural break” in the range of proxy group results. The Commission notes  
 19 it will “not [enumerate] a rigid formula, such as specifying how close the company has to be to  
 20 the next proxy group member to justify inclusion or exclusion from the proxy, for the

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<sup>75</sup> See Board of Governors of the Federal Reserve System, “Table H.15 Selected Interest Rates.”

<sup>76</sup> Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14.

<sup>77</sup> Source: Bureau of Economic Analysis.

<sup>78</sup> Opinion No. 569 at P 387.

1 application of the natural break analysis.”<sup>79</sup>

2 **Q57. What are the results of your DCF analysis?**

3 A57. The Two-Step DCF produced zones of reasonableness as summarized in Table 4, below (*see*  
4 *also*, Exhibit Nos. LSPG-NY-708 and LSPG-NY-709).

**Table 4: Two-Step DCF Results**

	GDP Projection	
	4.26%	5.16%
Zone of Reasonableness Low:	7.61%	7.32%
Zone of Reasonableness High:	10.86%	11.16%

5

6 ***CAPM Analysis***

7 **Q58. Please describe the Commission’s guidance on the application of the CAPM approach as**  
8 **discussed in Opinion No. 569.**

9 A58. As discussed in Opinion No. 569, the Commission established the following parameters in  
10 applying the CAPM:

- 11 1. The 30-year U.S. Treasury average historical bond yield over a six-month period, equal  
12 to 2.41 percent, as the risk-free rate (*see*, Section V above);<sup>80</sup>
- 13 2. The expected market return is based on a One-Step DCF model (*see*, Section V above)  
14 of the dividend paying members of the S&P 500, including analyst-derived IBES  
15 growth rates, and excluding observations with negative growth rates or growth rates in

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<sup>79</sup> *Ibid.*, at P 397.

<sup>80</sup> *Ibid.*, at PP 237, 238.

1 excess of 20.00 percent;<sup>81</sup>

2 3. Beta coefficients as provided by Value Line;<sup>82</sup> and

3 4. The use of a size adjustment.<sup>83</sup>

4 **Q59. Did you apply an alternate form of the *ex-ante* Market Risk Premium?**

5 A59. Yes, I did. Whereas the approach applied in Opinion No. 569 (and described above) includes  
6 only dividend paying companies and non-negative growth rates not in excess of 20.00 percent,  
7 my alternative approach includes both dividend and non-dividend paying companies (*see*,  
8 Exhibit No. LSPG-NY-711).<sup>84</sup>

9 **Q60. Why do you believe it is appropriate to include non-dividend paying companies in an *ex-***  
10 ***ante* Market Risk Premium calculation?**

11 A60. The expected market return is meant to reflect all companies in the market. Investors recognize  
12 the market includes both dividend and non-dividend paying companies. By excluding non-  
13 dividend paying companies, some of the largest companies in the market (based on market  
14 capitalization) would be not be considered part of the investible universe. For example,  
15 Alphabet Inc., Berkshire Hathaway Inc.<sup>85</sup>, Amazon.com Inc., and Facebook Inc., do not pay  
16 dividends. As of October 2019, their combined market capitalization was approximately \$2.82  
17 trillion, over 10.00 percent of the entire S&P 500.<sup>86</sup> Excluding just those companies therefore  
18 could have a significant effect on the calculated Market Risk Premium. Equally important, the

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<sup>81</sup> *Ibid.*, at PP 260, 267; the growth rates applied in my analysis are the short-term analyst growth rates as provided by Bloomberg Professional. *See*, Exhibit No. LSPG-NY-710.

<sup>82</sup> *Ibid.*, at P 297.

<sup>83</sup> *Ibid.*, at P 296.

<sup>84</sup> I have not excluded any negative growth rates, nor growth rates in excess of 20.00 percent.

<sup>85</sup> Class B shares.

<sup>86</sup> Based on data from Bloomberg Professional. *See*, Exhibit Nos. LSPG-NY-703, LSPG-NY-710, and LSPG-NY-711.

1 resulting estimate would not represent an estimate of the market, as it should (as is the case  
2 when negative growth rates and growth rates in excess of 20.00 percent are excluded).

3 Additionally, removing non-dividend paying companies from the calculation of the  
4 Market Risk Premium is internally inconsistent with the CAPM's application. A fundamental  
5 assumption of the CAPM is that the required return is proportional to the risk of the investment.  
6 In the CAPM structure, the Beta coefficient is the measure of the dispersion of the subject  
7 company's returns relative to the overall market, and the correlation of its returns to the market  
8 (*see*, Equation [4], above). Because the Beta coefficient is calculated relative to the overall  
9 market, which includes non-dividend paying companies, it is important that the expected market  
10 return also reflects the overall market.

11 Combining Beta coefficients calculated relative to the entire market with a Market Risk  
12 Premium calculated using only a subset of the market (*i.e.*, dividend paying companies),  
13 therefore, may introduce a bias to the analysis. Because Beta coefficients are a positive function  
14 of the correlation of returns between the subject company and the index, removing non-dividend  
15 paying companies may decrease the correlation of the proxy companies with the market index,  
16 thereby decreasing the Beta coefficient. On the other hand, dividend paying companies may  
17 have lower volatility than non-dividend paying companies. Because the Beta coefficient also  
18 reflects relative volatility (*i.e.*, subject company relative to the index), if the volatility of the  
19 index falls, the relative volatility may increase, increasing the Beta coefficient. Simply,  
20 removing non-dividend paying companies from the market index may provide an incomplete  
21 measure of the expected market return, and a biased estimate of the Beta coefficient.

1 **Q61. Have you assessed the effect of excluding non-dividend paying companies from the market**  
 2 **index on Beta coefficients?**

3 A61. Yes, I have. As noted above, my concern with removing non-dividend paying companies from  
 4 the market index used to calculate the expected market return, but not the Beta coefficient, is  
 5 the inconsistency between the two. To assess that concern, I calculated each proxy company's  
 6 Beta coefficient based on the method applied by Value Line, using the S&P 500 High Dividend  
 7 Index<sup>87</sup>, rather than the New York Stock Exchange index, as the market index. The resulting  
 8 Beta coefficients range from 0.68 to 0.91, with mean and median results of 0.77 and 0.76,  
 9 respectively.

10 **Q62. Did you calculate an *ex-ante* Market Risk Premium using the S&P 500 High Dividend**  
 11 **Index?**

12 A62. Yes, I did. The *ex-ante* Market Risk Premium calculated using the S&P 500 High Dividend  
 13 Index is in line the Commission's approach as described in Opinion No. 569.

**Table 5: S&P 500 High Dividend Index and S&P 500 Dividend Paying Market Risk  
 Premiums<sup>88</sup>**

	<b>Market Risk Premium</b>
S&P 500 High Dividend Index:	8.84%
S&P 500 Dividend Paying:	8.83%

14

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<sup>87</sup> The S&P® 500 High Dividend Index is designed to measure the performance of the top 80 high dividend-yielding companies within the S&P 500® Index, based on dividend yield. To determine dividend yield: (i) an indicated dividend is measured by taking the latest dividend paid (excluding special payments) multiplied by the annual frequency of the payment; and (ii) the indicated dividend is then divided by the company's share price at the date of rebalancing. Source: <https://us.spdrs.com/en/etf/spdr-portfolio-sp-500-high-dividend-etf-SPYD>

<sup>88</sup> Assumes 2.41 percent risk-free rate; excludes negative growth rates and growth rates in excess of 20.00 percent from both approaches; *see*, Exhibit No. LSPG-NY-710.

1 **Q63. What are the results of your CAPM analysis?**

2 A63. The CAPM produced zones of reasonableness as summarized in Table 6, below (*see also*,  
3 Exhibit Nos. LSPG-NY-712 and LSPG-NY-713).

**Table 6: CAPM Results**

	<b>FERC Opinion No. 569 Market Risk Premium</b>	<b>Alternate Market Risk Premium</b>	<b>S&amp;P 500 High Dividend Market Risk Premium<sup>89</sup></b>
Zone of Reasonableness Low:	7.40%	7.31%	8.09%
Zone of Reasonableness High:	10.28%	11.54%	11.93%

4

5 ***Composite Zone of Reasonableness and Return on Equity Estimate***

6 **Q64. Please summarize the Commission's preference for determining the composite zone of**  
7 **reasonableness and ROE estimate as stated in Opinion No. 569.**

8 A64. In Opinion No. 569, the Commission provides the following guidance for determining the  
9 composite zone of reasonableness and the resulting ROE estimate:

10 In particular, we will apply the DCF and CAPM models separately to the  
11 applicable proxy group, producing two zones of reasonableness: a DCF zone  
12 of reasonableness and a CAPM zone of reasonableness. Then the top of the  
13 DCF zone of reasonableness will be averaged with the top of the CAPM  
14 zone of reasonableness and the bottom of the DCF zone of reasonableness  
15 will be averaged with the bottom of the CAPM zone of reasonableness to  
16 determine a single composite zone of reasonableness for use in both the first  
17 and second prong analysis under FPA section 206. If an existing ROE is  
18 found to be unjust and unreasonable, the replacement ROE will be set at the  
19 central tendency of the composite zone of reasonableness or the central  
20 tendency of the upper or lower halves of the composite zone of  
21 reasonableness depending upon whether the utility is of average, above  
22 average, or below average risk, respectively.<sup>90</sup>

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<sup>89</sup> Results are illustrative only.

<sup>90</sup> Opinion No. 569 at P 437.

1 **Q65. What is the composite zone of reasonableness and resulting ROE estimate of your analysis**  
2 **based on the Commission’s guidance in Opinion No. 569?**

3 A65. Based on Commission guidance in Opinion No. 569, the composite zone of reasonableness is  
4 7.51 percent to 10.57 percent. After considering the adjustments as discussed above, the more  
5 accurate composite zone of reasonableness is from 7.31 percent to 11.35 percent.

6 **Q66. How have you determined the ROE estimate for LSPG-NY prior to any methodological**  
7 **adjustments?**

8 A66. As discussed above, the Commission has indicated that the ROE will be set at the central  
9 tendency of the composite zone of reasonableness, or the central tendency of the upper or lower  
10 halves of the composite zone of reasonableness, depending on if the utility is average, above  
11 average or below average risk, respectively. The Commission also has indicated that for a  
12 single utility, it will rely on the median as the measure of central tendency.<sup>91</sup>

13 As discussed throughout my Direct Testimony (*see also*, Section IX below), the  
14 Company faces above-average risks and as such, its ROE should be based on the central  
15 tendency of the upper half of the composite zone of reasonableness.

16 **Q67. How have you determined the upper half of the composite zone of reasonableness?**

17 A67. Because the Commission has not provided specific guidance in calculating the upper half of the  
18 composite zone of reasonableness in cases of single utilities, I have provided two alternative  
19 methods based on my interpretation of the Commission’s guidance, and its approach in  
20 Appendix C of Opinion No. 569.

21 **Q68. Please describe your two alternative approaches.**

22 A68. As a starting point, both approaches assume a median of 8.69 percent, equal to the average of

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<sup>91</sup> *Ibid.*, at PP 398, 409.

1 the medians of the zones of reasonableness for the DCF and CAPM approaches, respectively.  
 2 At issue then, is setting the upper bound of the upper half of the composite zone of  
 3 reasonableness (the “upper bound”).

4 My first approach assumes the upper bound is calculated by reference to the median  
 5 (8.69 percent). Given that 1/8<sup>th</sup> of the composite zone of reasonableness is equal to 0.38 percent,  
 6 I assumed the upper half of the composite zone of reasonableness is equivalent to one quartile  
 7 of the entire composite zone of reasonableness. Based on that approach (as shown in Table 7),  
 8 the lower bound of the composite zone of reasonableness (the “lower bound”) is 9.07 percent,<sup>92</sup>  
 9 and the upper bound is 9.84 percent.<sup>93</sup> The median of the upper half of the composite zone of  
 10 reasonableness is therefore 9.45 percent (*i.e.*, the average of 9.07 percent and 9.84 percent),  
 11 prior to any methodological adjustments.

**Table 7: ROE Estimate – First Scenario**

<b>Composite Zone</b>	<b>1/8<sup>th</sup> Range</b>	<b>Median</b>	<b>Middle Zone</b>	<b>Upper Zone</b>
7.51% - 10.57%	0.38%	8.69%	8.31% - 9.07%	9.07% - 9.84%
Central Tendency (Median)			8.69%	<b>9.45%</b>

12  
 13 My second approach assumes the upper bound is the 87.5<sup>th</sup> percentile of the entire  
 14 composite Zone of Reasonableness, as observed in Appendix C of Opinion No. 569. Under  
 15 that approach, the ROE estimate is 9.63 percent, prior to any methodological adjustments.

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<sup>92</sup> 9.07% = 8.69% + 0.38%. See, Opinion No. 569, Appendix C.

<sup>93</sup> 9.84% = 9.07% + (2 \* 0.38%).

**Table 8: ROE Estimate – Second Scenario<sup>94</sup>**

<b>Composite Zone</b>	<b>1/8<sup>th</sup> Range</b>	<b>Median</b>	<b>Middle Zone</b>	<b>Upper Zone</b>
7.51% - 10.57%	0.38%	8.69%	8.31% - 9.07%	9.07% - 10.19%
Central Tendency (Median)			8.69%	<b>9.63%</b>

1

2 **Q69. What are your resulting ROE estimates after taking in to account the methodological**  
 3 **adjustments as discussed above?**

4 A69. Taking in to account reasonable adjustments to the methods stated in Opinion No. 569, I find  
 5 more reasonable ROE estimates of 9.89 percent and 10.11 percent (*see*, Tables 9 and 10).

**Table 9: Modified ROE Estimate – First Scenario**

<b>Composite Zone</b>	<b>1/8<sup>th</sup> Range</b>	<b>Median</b>	<b>Middle Zone</b>	<b>Upper Zone</b>
7.31% - 11.35%	0.50%	8.88%	8.37% - 9.38%	9.38% - 10.39%
Central Tendency (Median)			8.88%	<b>9.89%</b>

6

**Table 10: Modified ROE Estimate – Second Scenario**

<b>Composite Zone</b>	<b>1/8<sup>th</sup> Range</b>	<b>Median</b>	<b>Middle Zone</b>	<b>Upper Zone</b>
7.31% - 11.35%	0.50%	8.88%	8.37% - 9.38%	9.38% - 10.85%
Central Tendency (Median)			8.88%	<b>10.11%</b>

7

**VII. STATE-AUTHORIZED RETURNS**

8 **Q70. Has the Commission indicated it will consider state-authorized ROEs in determining**  
 9 **Commission authorized returns?**

10 A70. To a degree, yes. The Commission found state-authorized ROEs “serve as a check given the

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<sup>94</sup> I continue to assume a lower bound of 9.07 percent as is consistent with Appendix C of Opinion No. 569.

1 model risk as [they] formulate [their] ROE determinations.”<sup>95</sup> As a point of reference, the  
 2 Commission noted that “state-authorized ROEs may apply to distribution companies, which  
 3 feature lower risks than transmission companies subject to Commission ROEs.”<sup>96</sup>

4 **Q71. Have you reviewed recent state-authorized returns?**

5 A71. Yes, I have. In reviewing state-authorized returns for distribution only companies, for the  
 6 twelve-month period ending October 31, 2019, the mean and median authorized returns were  
 7 9.56 percent and 9.60 percent<sup>97</sup>, respectively. Given the Commission’s observations regarding  
 8 the relevance of state-authorized returns, the ROE estimates produced by the approaches  
 9 outlined in Opinion No. 569 fall below returns authorized for entities facing lower risks than  
 10 electric transmission companies, such as LSPG-NY.

VIII. CAPITAL MARKET ENVIRONMENT

11 **Q72. Do economic conditions influence the required cost of capital and required return on**  
 12 **common equity?**

13 A72. Yes. As discussed in Section V, the models used to estimate the Cost of Equity are meant to  
 14 reflect, and therefore are influenced by, current and expected capital market conditions.  
 15 Therefore, it is important to assess the reasonableness of any financial model’s results in the  
 16 context of observable market data. To the extent certain ROE estimates are incompatible with  
 17 such data or inconsistent with basic financial principles, it is appropriate to consider whether  
 18 alternative estimation techniques are likely to provide more meaningful and reliable results.

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<sup>95</sup> Opinion No. 569 at P 363.

<sup>96</sup> *Ibid.*

<sup>97</sup> Source: Regulatory Research Associates. Excludes limited-issue riders and Illinois formula rate proceedings.

1 **Q73. Does your recommendation consider the capital market environment?**

2 A73. Yes, it does. From an analytical perspective, it is important that the inputs and assumptions  
3 used to arrive at an ROE recommendation, including assessments of capital market conditions,  
4 are consistent with the recommendation itself. Although all analyses require an element of  
5 judgment, the application of that judgment must be made in the context of the quantitative and  
6 qualitative information available to the analyst, and the capital market environment in which  
7 the analyses were undertaken.

8 **Q74. Has market volatility increased in recent months?**

9 A74. Yes, it has. A visible and widely reported measure of expected volatility is the Cboe Options  
10 Exchange (“Cboe”) Volatility Index, often referred to as the VIX. As Cboe explains, the VIX  
11 is a calculation designed to produce a measure of constant, 30-day expected volatility of the  
12 U.S. stock market, derived from real-time, mid-quote prices of S&P 500® Index call and put  
13 options.<sup>98</sup> Simply, the VIX is a market-based measure of expected volatility. Because volatility  
14 is a measure of risk, increases in the VIX, or in its volatility, are a broad indicator of expected  
15 increases in market risk.

16 Although the VIX is not expressed as a percentage, it should be understood as such.  
17 That is, if the VIX stood at 15.00, it would be interpreted as an expected standard deviation in  
18 annual market returns of 15.00 percent over the coming 30 days. Since 2000, the VIX has  
19 averaged about 19.54, which is highly consistent with the long-term standard deviation on  
20 annual market returns (19.80 percent, as reported by Duff & Phelps).<sup>99</sup>

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<sup>98</sup> Source: <http://www.cboe.com/vix>

<sup>99</sup> Source: Duff & Phelps, 2019 SBBI Yearbook, at 6-17.

1 Table 11, below, demonstrates the increase in market uncertainty from 2017 to 2019.  
 2 As that table notes, the standard deviation (that is, the volatility of volatility) from 2018 through  
 3 2019 is about 3.07 times higher than its 2017 level (1.36).

4 **Table 11: VIX Levels and Volatility<sup>100</sup>**

LONG-TERM AVERAGE	19.18
2018-2019 Average	16.27
2018-2019 Maximum	37.32
2018-2019 Minimum	9.15
2018-2019 Standard Deviation	4.16
2017 Average	11.09
2017 Maximum	16.04
2017 Minimum	9.14
2017 Standard Deviation	1.36

5  
 6 The increase in volatility is not surprising as market participants reassess the Federal Reserve’s  
 7 long-term objective of monetary policy normalization, and the increasing risks associated with  
 8 federal trade policy initiatives.

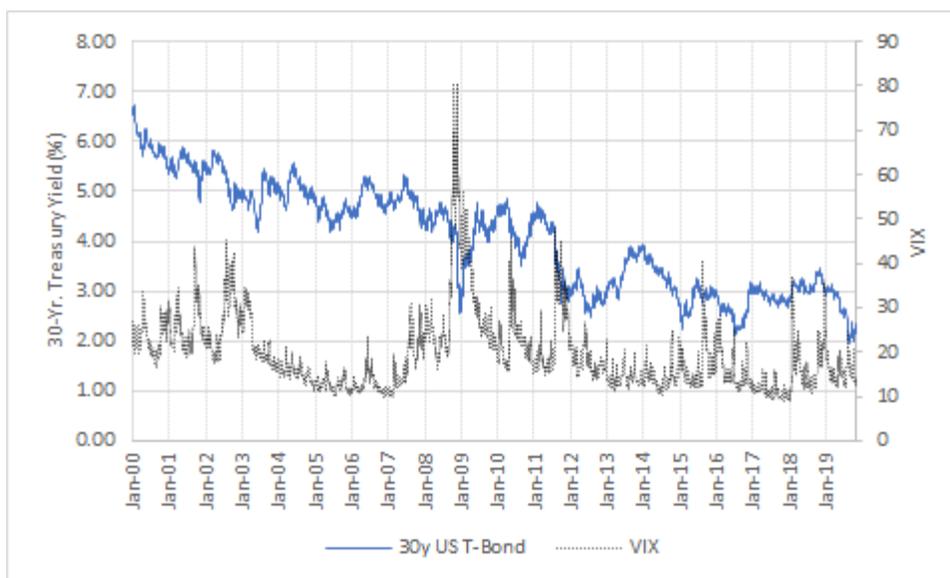
9 **Q75. Is there a relationship between equity market volatility and interest rates?**

10 A75. Yes, there is. Significant and abrupt increases in volatility tend to be associated with declines  
 11 in Treasury yields. That relationship makes intuitive sense; as investors see increasing risk their  
 12 objectives may shift principally to capital preservation (that is, avoiding a capital loss). A  
 13 means of doing so is to allocate capital to the relative safety of Treasury securities, in a “flight  
 14 to safety.” Because Treasury yields are inversely related to Treasury bond prices, as investors  
 15 bid up the prices of bonds, they bid down the yields (*see*, Chart 3, below, showing decreases in  
 16 the 30-year Treasury yield coincident with significant increases in the VIX).

---

<sup>100</sup> Source: Yahoo! Finance.

1

Chart 3: 30-Year Treasury Yields vs. VIX<sup>101</sup>

2

3 In those instances, the fall in yields does not reflect a reduction in required returns, it reflects  
 4 an increase in risk aversion and, therefore, an increase in required equity returns.

5 **Q76. Is market volatility expected to increase from its current levels?**

6 A76. Yes, it is. One means of assessing market expectations regarding the future level of volatility  
 7 is to review Cboe's "Term Structure of Volatility." As Cboe points out:

8 The implied volatility term structure observed in SPX options markets is  
 9 analogous to the term structure of interest rates observed in fixed income  
 10 markets. Similar to the calculation of forward rates of interest, it is possible  
 11 to observe the option market's expectation of future market volatility  
 12 through use of the SPX implied volatility term structure.<sup>102</sup>

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<sup>101</sup> Source: S&P Global Market Intelligence, Yahoo! Finance.

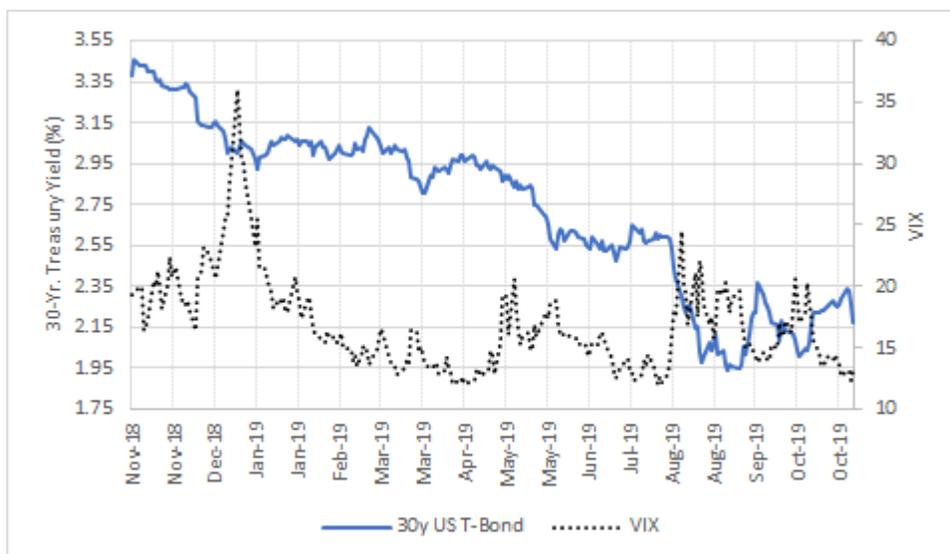
<sup>102</sup> Source: <http://www.cboe.com/trading-tools/strategy-planning-tools/term-structure-data>.

1 Cboe’s term structure data is upward sloping, indicating market expectations of increasing  
 2 volatility. The expected VIX value in November 2020 is about 19.14, suggesting investors see  
 3 a reversion to long-term average volatility over the coming months.<sup>103</sup>

4 **Q77. Have recent declines in the Treasury yield been associated with increases in market**  
 5 **volatility?**

6 A77. Yes, they have. Since November 2018, the periods during which Treasury yields fell coincided  
 7 with increases in the VIX (*see*, Chart 4, below).

8 **Chart 4: 30-Year Treasury Yields vs. VIX (11/18 – 10/19)<sup>104</sup>**



9  
 10 **Q78. What conclusions do you draw from those analyses?**

11 A78. It is important to consider whether changes in long-term interest rates reflect fundamental  
 12 changes in investor sentiment, or whether they reflect potentially transitory factors. The recent,  
 13 sudden decline in interest appears to be related to the increase in equity market volatility, which

<sup>103</sup> Source: <http://www.cboe.com/trading-tools/strategy-planning-tools/term-structure-data>, accessed December 9, 2019.

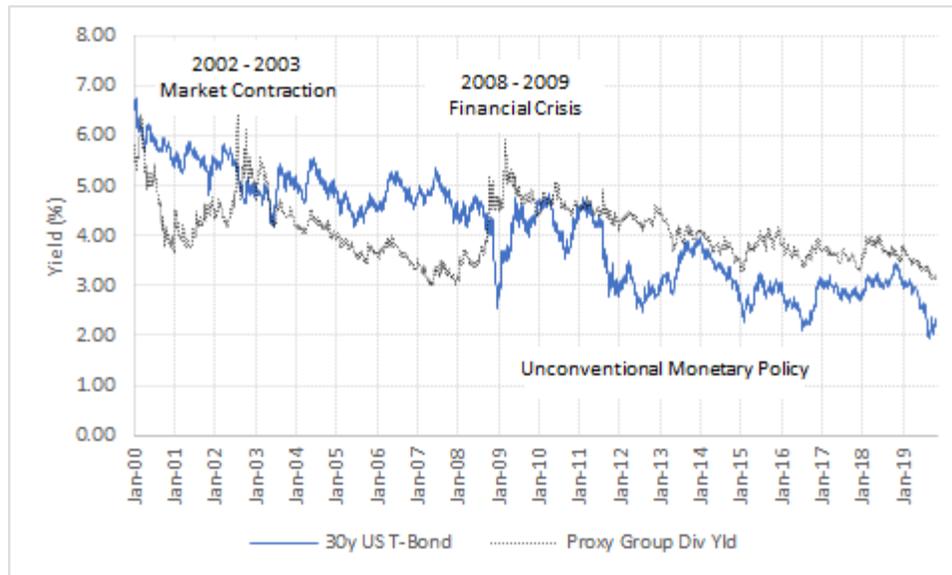
<sup>104</sup> Source: S&P Global Market Intelligence, Yahoo! Finance.

1           may be event-driven rather than a fundamental change. Because the methods used to estimate  
2           the Cost of Equity are forward-looking it is important to consider those distinctions in assessing  
3           model results.

4   **Q79. Have utility dividend yields closely followed long-term Treasury yields?**

5   A79. Although they have been directionally related over time, the fundamental relationship between  
6       Treasury yields and utility dividend yields changed after the 2008/2009 financial crisis. From  
7       2000 through 2008, Treasury yields generally exceeded dividend yields; the exception was the  
8       2002-2003 market contraction. During that period investors sought the safety of Treasury  
9       securities, accepting lower yields in exchange for a greater likelihood of capital preservation,  
10      as also occurred during the 2008/2009 financial crisis. Once the contraction ended (in the latter  
11     half of 2003), the relationship was restored, and Treasury yields again exceeded dividend yields  
12     (*see* Chart 5, below).

1 **Chart 5: Utility Dividend Yields and 30-Year Treasury Yields<sup>105</sup>**



2  
3 During the 2008/2009 financial crisis, Treasury bond prices increased (yields  
4 decreased), and utility stock prices decreased (dividend yields increased) such that the prior  
5 relationship inverted. As the Federal Reserve implemented and maintained “unconventional”  
6 monetary policies in reaction to the financial crisis (*i.e.*, Quantitative Easing) with the intended  
7 consequence of lowering long-term interest rates, the now-inverted relationship between  
8 Treasury yields and utility dividend yields persisted, as investors seek the safety of Treasury  
9 securities in exchange for capital preservation.

10 Even though the “yield spread”<sup>106</sup> became inverted after the financial crisis, it has not  
11 been static. That is, as Treasury yields fell in response to central bank policies, dividend yields  
12 did not fall to the same degree; the yield spread widened (*see* Chart 5, above). That data

<sup>105</sup> Source: S&P Global Market Intelligence.

<sup>106</sup> Defined here as dividend yields less Treasury yields.

1 suggests that, although utility prices are sensitive to long-term Treasury yields, the relationship  
 2 is not unbounded.

3 **Q80. Is that relationship also seen in utility price/earnings ratios?**

4 A80. Yes, it is. Looking to the period following the Federal Reserve’s Quantitative Easing policy,  
 5 the proxy group’s P/E ratio has varied, often reverting once it has largely breached its 90-day  
 6 moving average.

7 **Chart 6: Proxy Group Average Price/Earnings Ratio<sup>107</sup>**

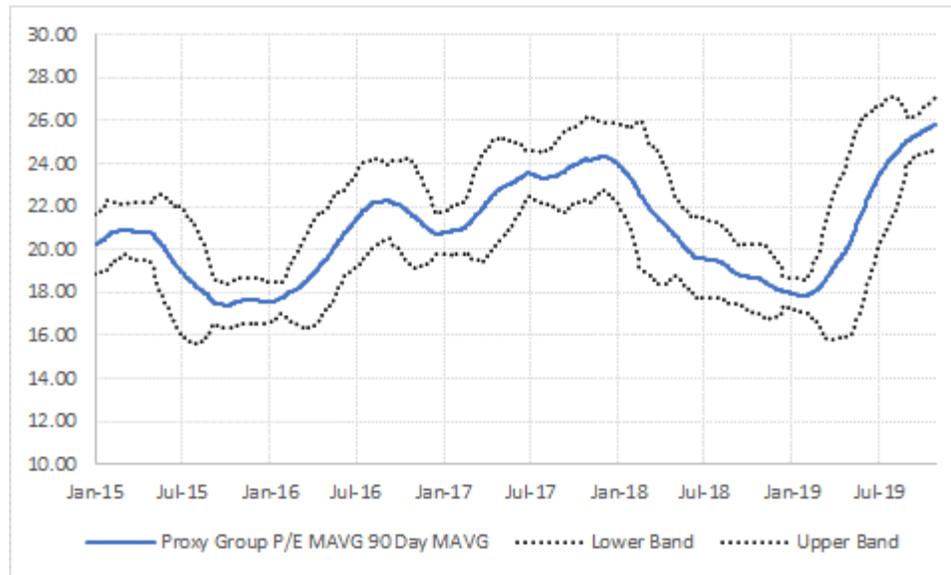


8  
 9 From a somewhat different perspective, the proxy group’s P/E ratio has traded within a two-  
 10 standard deviation range, although that range recently has widened, indicating increasing  
 11 variability in the group’s valuation.

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<sup>107</sup> Calculated as an index. Source: S&P Global Market Intelligence.

1

**Chart 7: Proxy Group Average P/E Ratio Bands<sup>108</sup>**

2

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That data supports the conclusion discussed earlier, that utility stock prices are sensitive to changes in interest rates, but only to a degree. The “reach for yield” that sometimes occurs when interest rates fall has a limit; investors will not accept the incremental risk of capital losses when utility valuation levels become “stretched”. That also may be the case when investors see interest rates reacting to market volatility that is event-driven, rather than a fundamental change in the capital market environment or investor risk tolerances. The increasing variability can be seen in Chart 7 (above), when the bands around the 90-day moving average P/E ratios widen. During those periods, the risk of capital loss increases, implying a further limit on valuation levels.

<sup>108</sup>


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Calculated as an index. Source: S&P Global Market Intelligence. Bands represent two standard deviations calculated over 90 days.

1 **Q81. What conclusions do you draw from your analyses of the current capital market**  
2 **environment, and how do those conclusions affect your ROE recommendation?**

3 A81. Because certain models used to estimate the Cost of Equity require long-term assumptions, it  
4 is important to understand whether those assumptions hold. The current market environment  
5 is one in which changes in interest rates likely are associated with events, more than they are a  
6 function of fundamental economic conditions. Further, utility valuations have a limit, even  
7 when investors look to them for an alternate source of income as interest rates fall.

8 On balance, it remains important to consider changes in market conditions, the likely  
9 causes of those changes, and how model results should be viewed in light of those changes. For  
10 instance, as the relationship between utility dividend yields and interest rates holds, it will be  
11 important to consider the alternative approaches and measures of reasonableness investors may  
12 apply in estimating a fair and reasonable ROE. Furthermore, as investors reallocate to safer  
13 assets, utilities of above average risk may face additional market pressure. As such, my  
14 recommended range of 9.63 percent to 10.11 percent considers that under the current capital  
15 market conditions, the results of a strict application of the Commission's guidance in Opinion  
16 No. 569 may place undue burden on above average risk utilities, such as LSPG-NY.

## IX. BUSINESS RISKS

17 **Q82. Do the median analytical results for the proxy group provide an appropriate estimate of**  
18 **the Cost of Equity for LSPG-NY?**

19 A82. No. In my view, an additional factor that must be considered when determining where the  
20 appropriate Cost of Equity falls within the range of results are the Company's sizable  
21 investments in the Project and the accompanying risks the Company faces with respect to those  
22 investments.

1 **Q83. Please provide additional background on the Project.**

2 A83. The Project is intended to provide upgrades to multiple transmission facilities within NYISO,  
3 providing significant incremental Central East transfer capacity, along with upgrades to aging  
4 infrastructure and the minimization of acquisitions related to new non-utility rights-of way.<sup>109</sup>  
5 NYISO estimates the Project to have a total capital cost of approximately \$750 million, and  
6 was a joint proposal with NYPA.

7 **Q84. Please describe the risks associated with the Company.**

8 A84. The Project represents the only assets for the Company, concentrating its operations solely on  
9 transmission assets in the state of New York. Operations such as this have a high degree of  
10 concentrated risk, as opposed to those facing a typical utility of average risk, which will operate  
11 a diverse set of assets, including transmission and distribution assets, and potentially generation  
12 assets as well. Additionally, a typical utility will have a larger operating footprint, maintaining  
13 ownership of a diverse utility system rather than a few facilities. Lastly, the Company faces  
14 significant capital costs for the Project, for which there currently is no rate base and no revenue,  
15 suggesting significant uncertainty as it relates to expected cash flow.

16 **Q85. Please elaborate on the risk the Company faces relating to the Project.**

17 A85. The Project is in the early stages of development, and subsequently faces permitting and  
18 construction risk. While a typical utility may face permitting and construction risk related to  
19 expansions of its system, the effects of that risk are mitigated by a critical mass of utility assets  
20 in operation, which mitigate the permitting and construction risk the overall utility may face as

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<sup>109</sup> Petition of LS Power Grid New York, LLC and LS Power Grid New York Corporation I for a Declaratory Order Approving Abandonment Recovery Under Incentive Rate Treatment, January 7, 2019, at 7-8.

1 a whole. This is not the case for the Company. Further, the Company is also agreeing to 80/20  
 2 risk sharing, in which the Company will share the risk of construction cost increases typically  
 3 borne by ratepayers, representing incremental risk not faced by an average utility which has not  
 4 agreed to share any risk of capital cost increases borne by ratepayers.

5 **Q86. Does your recommendation reflect the risks associated with the Company’s involvement**  
 6 **in the AC Transmission Upgrades?**

7 A86. Yes. I believe LSPG-NY is “above average risk” as I interpret the Commission to have used  
 8 that term in its recent *Orders Directing Briefs* and in Opinion No. 569. To account for the  
 9 incremental risk associated with the Company’s involvement in the Project, my recommended  
 10 ROE point estimate is based on the Commission’s guidance for the use of the upper median as  
 11 the measure of central tendency for above average risk utilities. Lastly, I note that my  
 12 recommendation is independent of any transmission incentives which the Commission may  
 13 grant as related to the risks facing the Company and the Project. As such, my recommendation  
 14 is only related to the characterization of risk for determining a fair and reasonable ROE based  
 15 on Commission guidance in Opinion No. 569.

**X. CONCLUSIONS AND RECOMMENDATIONS**

16 **Q87. What are your conclusions regarding a fair and reasonable Cost of Equity for LSPG-NY?**

17 A87. As discussed above, I find that the Cost of Equity for LSPG-NY most reasonably falls towards  
 18 the upper end of the range of 9.63 percent to 10.11 percent, and within that range, an ROE of  
 19 10.00 percent is reasonable and appropriate.

20 It is my view that my recommended range and ROE estimate best considers the  
 21 Company’s risk profile and effects of reasonable adjustments to the Commission’s prescribed

1 methods in Opinion No. 569. Furthermore, reviewing state-authorized ROEs and previous  
2 Commission guidance<sup>110</sup>, both of which I believe continue to provide valuable insight to  
3 investors, an ROE of 10.00 percent continues to be reasonable and appropriate. In addition, I  
4 identify the upper end of the composite zone of reasonableness to be 11.35 percent.<sup>111</sup>

5 **Q88. Does this conclude your Direct Testimony?**

6 A88. Yes, it does.

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<sup>110</sup> See, for example, Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018);  
Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018).

<sup>111</sup> See, Tables 9 and 10 above.



*Resume of:*  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

### *Summary*

Bob Hevert is a financial and economic consultant with more than 30 years of broad experience in the energy and utility industries. He has an extensive background in the areas of corporate finance, mergers and acquisitions, project finance, asset and business unit valuation, rate and regulatory matters, energy market assessment, and corporate strategic planning. He has provided expert testimony on a wide range of financial, strategic, and economic matters on more than 250 occasions at the state, provincial, and federal levels.

Prior to joining ScottMadden, Bob served as managing partner at Sussex Economic Advisors, LLC. Throughout the course of his career, he has worked with numerous leading energy companies and financial institutions throughout North America. He has provided expert testimony and support of litigation in various regulatory proceedings on a variety of energy and economic issues. Bob earned a B.S. in business and economics from the University of Delaware and an M.B.A. with a concentration in finance from the University of Massachusetts at Amherst. Bob also holds the Chartered Financial Analyst designation.

### *Areas of Specialization*

- Regulation and rates
- Utilities
- Fossil/hydro generation
- Markets and RTOs
- Nuclear generation
- Mergers and acquisitions
- Regulatory strategy and rate case support
- Capital project planning
- Strategic and business planning

### *Recent Expert Testimony Submission/Appearance*

- Federal Energy Regulatory Commission – Return on Equity
- New Jersey Board of Public Utilities – Merger Approval
- New Mexico Public Regulation Commission – Cost of Capital and Financial Integrity
- United States District Court – PURPA and FERC Regulations
- Alberta Utilities Commission – Return on Equity and Capital Structure

### *Recent Assignments*

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies, the Alberta Utilities Commission, and the Federal Energy Regulatory Commission
- For an independent electric transmission provider in Texas, prepared an expert report on the economic damages with respect to failure to meet guaranteed completion dates. The report was filed as part of an arbitration proceeding and included a review of the ratemaking implications of economic damages
- Advised the board of directors of a publicly traded electric and natural gas combination utility on dividend policy issues, earnings payout trends and related capital market considerations
- Assisted a publicly traded utility with a strategic buy-side evaluation of a gas utility with more than \$1 billion in assets. The assignment included operational performance benchmarking, calculation of merger synergies, risk analysis, and review of the regulatory implications of the transaction
- Provided testimony before the Arkansas Public Service Commission in support of the acquisition of SourceGas LLC by Black Hills Corporation. The testimony addressed certain balance sheet capitalization and credit rating issues
- For the State of Maine Public Utility Commission, prepared a report that summarized the Northeast and Atlantic Canada natural gas power markets and analyzed the potential benefits and costs associated with natural gas pipeline expansions. The independent report was filed at the Maine Public Utility Commission



Testimony Listing of:  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>Regulatory Commission of Alaska</b>				
Cook Inlet Natural Gas Storage Alaska, LLC	06/18	Cook Inlet Natural Gas Storage Alaska, LLC	Docket No. U-18-043	Return on Equity
ENSTAR Natural Gas Company	06/16	ENSTAR Natural Gas Company	Matter No. TA 285-4	Return on Equity
ENSTAR Natural Gas Company	08/14	ENSTAR Natural Gas Company	Matter No. TA 262-4	Return on Equity
<b>Alberta Utilities Commission</b>				
AltaLink, L.P., and EPCOR Distribution & Transmission, Inc., and FortisAlberta Inc.	10/17	AltaLink, L.P., and EPCOR Distribution & Transmission, Inc., and FortisAlberta Inc.	2018 General Cost of Capital, Proceeding ID. 22570	Rate of Return
EPCOR Energy Alberta G.P. Inc.	01/17	EPCOR Energy Alberta G.P. Inc.	Proceeding 22357	Energy Price Setting Plan
AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	02/16	AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	2016 General Cost of Capital, Proceeding ID. 20622	Rate of Return
<b>Arizona Corporation Commission</b>				
Southwest Gas Corporation	05/19	Southwest Gas Corporation	Docket No. G-01551A-19-0055	Return on Equity
Southwest Gas Corporation	05/16	Southwest Gas Corporation	Docket No. G-01551A-16-0107	Return on Equity
Southwest Gas Corporation	11/10	Southwest Gas Corporation	Docket No. G-01551A-10-0458	Return on Equity
<b>Arkansas Public Service Commission</b>				
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	07/19	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	Docket No. 17-010-FR	Response to Direct Testimony of Staff Witness regarding Cost of Long Term Debt for Formula Rate Plan Rider
Southwestern Electric Power Company	02/19	Southwestern Electric Power Company	Docket No. 19-008-U	Return on Equity
Oklahoma Gas and Electric Company	09/16	Oklahoma Gas and Electric Company	Docket No. 16-052-U	Return on Equity
SourceGas Arkansas, Inc.	12/15	SourceGas Arkansas, Inc.	Docket No. 15-078-U	Response to Direct Testimony by Arkansas Attorney General related to Compliance Issues
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	11/15	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	Docket No. 15-098-U	Return on Equity
SourceGas Arkansas, Inc.	04/15	SourceGas Arkansas, Inc.	Docket No. 15-011-U	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	01/07	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	Docket No. 06-161-U	Return on Equity
<b>California Public Utilities Commission</b>				
Southwest Gas Corporation	08/19	Southwest Gas Corporation	Docket No. A-19-08-015	Return on Equity



*Testimony Listing of:*  
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**Rates and Regulation Practice Leader**

<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET NO.</b>	<b>SUBJECT</b>
Southwest Gas Corporation	12/12	Southwest Gas Corporation	Docket No. A-12-12-024	Return on Equity
<b>Colorado Public Utilities Commission</b>				
Atmos Energy Corporation	06/17	Atmos Energy Corporation	Docket No. 17AL-0429G	Return on Equity
Xcel Energy, Inc.	03/15	Public Service Company of Colorado	Docket No. 15AL-0135G	Return on Equity (gas)
Xcel Energy, Inc.	06/14	Public Service Company of Colorado	Docket No. 14AL-0660E	Return on Equity (electric)
Xcel Energy, Inc.	12/12	Public Service Company of Colorado	Docket No. 12AL-1268G	Return on Equity (gas)
Xcel Energy, Inc.	11/11	Public Service Company of Colorado	Docket No. 11AL-947E	Return on Equity (electric)
Xcel Energy, Inc.	12/10	Public Service Company of Colorado	Docket No. 10AL-963G	Return on Equity (electric)
Atmos Energy Corporation	07/09	Atmos Energy Colorado-Kansas Division	Docket No. 09AL-507G	Return on Equity (gas)
Xcel Energy, Inc.	12/06	Public Service Company of Colorado	Docket No. 06S-656G	Return on Equity (gas)
Xcel Energy, Inc.	04/06	Public Service Company of Colorado	Docket No. 06S-234EG	Return on Equity (electric)
Xcel Energy, Inc.	08/05	Public Service Company of Colorado	Docket No. 05S-369ST	Return on Equity (steam)
Xcel Energy, Inc.	05/05	Public Service Company of Colorado	Docket No. 05S-246G	Return on Equity (gas)
<b>Connecticut Public Utilities Regulatory Authority</b>				
Connecticut Light and Power Company	11/17	Connecticut Light and Power Company	Docket No. 17-10-46	Return on Equity
Connecticut Light and Power Company	06/14	Connecticut Light and Power Company	Docket No. 14-05-06	Return on Equity
Southern Connecticut Gas Company	09/08	Southern Connecticut Gas Company	Docket No. 08-08-17	Return on Equity
Southern Connecticut Gas Company	12/07	Southern Connecticut Gas Company	Docket No. 05-03-17PH02	Return on Equity
Connecticut Natural Gas Corporation	12/07	Connecticut Natural Gas Corporation	Docket No. 06-03-04PH02	Return on Equity
<b>Council of the City of New Orleans</b>				
Entergy New Orleans, LLC	09/18	Entergy New Orleans, LLC	Docket No. UD-18-07	Return on Equity
<b>Delaware Public Service Commission</b>				
Delmarva Power & Light Company	08/17	Delmarva Power & Light Company	Docket No. 17-0977 (Electric)	Return on Equity
Delmarva Power & Light Company	08/17	Delmarva Power & Light Company	Docket No. 17-0978 (Gas)	Return on Equity
Delmarva Power & Light Company	05/16	Delmarva Power & Light Company	Case No. 16-649 (Electric)	Return on Equity
Delmarva Power & Light Company	05/16	Delmarva Power & Light Company	Case No. 16-650 (Gas)	Return on Equity
Delmarva Power & Light Company	03/13	Delmarva Power & Light Company	Case No. 13-115	Return on Equity
Delmarva Power & Light Company	12/12	Delmarva Power & Light Company	Case No. 12-546	Return on Equity
Delmarva Power & Light Company	03/12	Delmarva Power & Light Company	Case No. 11-528	Return on Equity



*Testimony Listing of:*  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>District of Columbia Public Service Commission</b>				
Potomac Electric Power Company	05/19	Potomac Electric Power Company	Formal Case No. 1156	Return on Equity
Potomac Electric Power Company	12/17	Potomac Electric Power Company	Formal Case No. 1150	Return on Equity
Potomac Electric Power Company	06/16	Potomac Electric Power Company	Formal Case No. 1139	Return on Equity
Washington Gas Light Company	02/16	Washington Gas Light Company	Formal Case No. 1137	Return on Equity
Potomac Electric Power Company	03/13	Potomac Electric Power Company	Formal Case No. 1103-2013-E	Return on Equity
Potomac Electric Power Company	07/11	Potomac Electric Power Company	Formal Case No. 1087	Return on Equity
<b>Federal Energy Regulatory Commission</b>				
Edison Electric Institute	07/19	Edison Electric Institute	Docket No. PL19-4-000	Reply comments to FERC Notice of Inquiry regarding Return on Equity analysis
Sabine Pipeline, LLC	09/15	Sabine Pipeline, LLC	Docket No. RP15-1322-000	Return on Equity
NextEra Energy Transmission West, LLC	07/15	NextEra Energy Transmission West, LLC	Docket No. ER15-2239-000	Return on Equity
Maritimes & Northeast Pipeline, LLC	05/15	Maritimes & Northeast Pipeline, LLC	Docket No. RP15-1026-000	Return on Equity
Public Service Company of New Mexico	12/12	Public Service Company of New Mexico	Docket No. ER13-685-000	Return on Equity
Public Service Company of New Mexico	10/10	Public Service Company of New Mexico	Docket No. ER11-1915-000	Return on Equity
Portland Natural Gas Transmission System	05/10	Portland Natural Gas Transmission System	Docket No. RP10-729-000	Return on Equity
Florida Gas Transmission Company, LLC	10/09	Florida Gas Transmission Company, LLC	Docket No. RP10-21-000	Return on Equity
Maritimes and Northeast Pipeline, LLC	07/09	Maritimes and Northeast Pipeline, LLC	Docket No. RP09-809-000	Return on Equity
Spectra Energy	02/08	Saltville Gas Storage	Docket No. RP08-257-000	Return on Equity
Panhandle Energy Pipelines	08/07	Panhandle Energy Pipelines	Docket No. PL07-2-000	Response to draft policy statement regarding inclusion of MLPs in proxy groups for determination of gas pipeline ROEs
Southwest Gas Storage Company	08/07	Southwest Gas Storage Company	Docket No. RP07-541-000	Return on Equity
Southwest Gas Storage Company	06/07	Southwest Gas Storage Company	Docket No. RP07-34-000	Return on Equity
Sea Robin Pipeline LLC	06/07	Sea Robin Pipeline LLC	Docket No. RP07-513-000	Return on Equity
Transwestern Pipeline Company	09/06	Transwestern Pipeline Company	Docket No. RP06-614-000	Return on Equity
GPU International and Aquila	11/00	GPU International	Docket No. EC01-24-000	Market Power Study



Testimony Listing of:  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>Florida Public Service Commission</b>				
Florida Power & Light Company	03/16	Florida Power & Light Company	Docket No. 160021-EI	Return on Equity
Tampa Electric Company	04/13	Tampa Electric Company	Docket No. 130040-EI	Return on Equity
<b>Georgia Public Service Commission</b>				
Atlanta Gas Light Company	05/10	Atlanta Gas Light Company	Docket No. 31647-U	Return on Equity
<b>Hawaii Public Utilities Commission</b>				
Hawaiian Electric Company, Inc.	08/19	Hawaiian Electric Company, Inc.	Docket No. 2019-0085	Return on Equity
Hawai'i Electric Light Company, Inc.	12/18	Hawai'i Electric Light Company, Inc.	Docket No. 2018-0368	Return on Equity
Maui Electric Company, Limited	10/17	Maui Electric Company, Limited	Docket No. 2017-0150	Return on Equity
Hawaiian Electric Company, Inc.	12/16	Hawaiian Electric Company, Inc.	Docket No. 2016-0328	Return on Equity
Hawai'i Electric Light Company, Inc.	09/16	Hawai'i Electric Light Company, Inc.	Docket No. 2015-0170	Return on Equity
Maui Electric Company, Limited	12/14	Maui Electric Company, Limited	Docket No. 2014-0318	Return on Equity
Hawaiian Electric Company, Inc.	06/14	Hawaiian Electric Company, Inc.	Docket No. 2013-0373	Return on Equity
Hawai'i Electric Light Company, Inc.	08/12	Hawai'i Electric Light Company, Inc.	Docket No. 2012-0099	Return on Equity
<b>Illinois Commerce Commission</b>				
Ameren Illinois Company d/b/a Ameren Illinois	01/18	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 18-0463	Return on Equity
Ameren Illinois Company d/b/a Ameren Illinois	01/15	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 15-0142	Return on Equity
Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	04/14	Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	Docket No. 14-0371	Return on Equity
Ameren Illinois Company d/b/a Ameren Illinois	01/13	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 13-0192	Return on Equity
Ameren Illinois Company d/b/a Ameren Illinois	02/11	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 11-0279	Return on Equity (electric)
Ameren Illinois Company d/b/a Ameren Illinois	02/11	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 11-0282	Return on Equity (gas)
<b>Indiana Utility Regulatory Commission</b>				
Duke Energy Indiana, Inc.	07/19	Duke Energy Indiana, Inc.	Cause No. 45253	Return on Equity



*Testimony Listing of:*  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET NO.</b>	<b>SUBJECT</b>
Indiana Michigan Power Company	05/19	Indiana Michigan Power Company	Cause No. 45235	Return on Equity
Indiana Michigan Power Company	07/17	Indiana Michigan Power Company	Cause No. 44967	Return on Equity
Duke Energy Indiana, Inc.	12/15	Duke Energy Indiana, Inc.	Cause No. 44720	Return on Equity
Duke Energy Indiana, Inc.	12/14	Duke Energy Indiana, Inc.	Cause No. 44526	Return on Equity
Northern Indiana Public Service Company	05/09	Northern Indiana Public Service Company	Cause No. 43894	Assessment of Valuation Approaches
<b>Kansas Corporation Commission</b>				
Empire District Electric Company	02/19	Empire District Electric Company	Docket No. 19-EPDE-223-RTS	Return on Equity
Empire District Electric Company	12/18	Empire District Electric Company	Docket No. 19-EPDE-223-RTS	Alternative Ratemaking Mechanisms
Kansas City Power & Light Company	05/18	Kansas City Power & Light Company	Docket No. 18-KCPE-480-RTS	Return on Equity
Westar Energy	02/18	Westar Energy	Docket No. 18-WSEE-328-RTS	Return on Equity
Great Plains Energy, Inc. and Kansas City Power & Light Company	01/17	Great Plains Energy, Inc. and Kansas City Power & Light Company	Docket No. 16-KCPE-593-ACQ	Response to Direct Testimony by Commission Staff related to the ratemaking capital structure processes
Kansas City Power & Light Company	01/15	Kansas City Power & Light Company	Docket No. 15-KCPE-116-RTS	Return on Equity
<b>Maine Public Utilities Commission</b>				
Northern Utilities, Inc.	06/19	Northern Utilities, Inc.	Docket No. 2019-00049	Return on Equity
Northern Utilities, Inc.	05/17	Northern Utilities, Inc.	Docket No. 2017-00065	Return on Equity
Central Maine Power Company	06/11	Central Maine Power Company	Docket No. 2010-327	Response to Bench Analysis provided by Commission Staff relating to the Company's credit and collections processes
<b>Maryland Public Service Commission</b>				
Washington Gas Light Company	04/19	Washington Gas Light Company	Case No. 9605	Return on Equity
Potomac Electric Power Company	01/19	Potomac Electric Power Company	Case No. 9602	Return on Equity
Washington Gas Light Company	05/18	Washington Gas Light Company	Case No. 9481	Return on Equity
Potomac Electric Power Company	01/18	Potomac Electric Power Company	Case No. 9472	Return on Equity
Delmarva Power & Light Company	07/17	Delmarva Power & Light Company	Case No. 9455	Return on Equity
Potomac Electric Power Company	03/17	Potomac Electric Power Company	Case No. 9443	Return on Equity



Testimony Listing of:  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Delmarva Power & Light Company	06/16	Delmarva Power & Light Company	Case No. 9424	Return on Equity
Potomac Electric Power Company	06/16	Potomac Electric Power Company	Case No. 9418	Return on Equity
Potomac Electric Power Company	12/13	Potomac Electric Power Company	Case No. 9336	Return on Equity
Delmarva Power & Light Company	03/13	Delmarva Power & Light Company	Case No. 9317	Return on Equity
Potomac Electric Power Company	11/12	Potomac Electric Power Company	Case No. 9311	Return on Equity
Potomac Electric Power Company	12/11	Potomac Electric Power Company	Case No. 9286	Return on Equity
Delmarva Power & Light Company	12/11	Delmarva Power & Light Company	Case No. 9285	Return on Equity
Delmarva Power & Light Company	12/10	Delmarva Power & Light Company	Case No. 9249	Return on Equity
<b>Massachusetts Department of Public Utilities</b>				
NSTAR Gas Company d/b/a Eversource Energy	11/19	NSTAR Gas Company d/b/a Eversource Energy	DPU 19-120	Return on Equity
NSTAR Electric Company d/b/a Eversource Energy; Massachusetts Electric Company & Nantucket Electric Company, d/b/a National Grid; and Fitchburg Gas and Electric Light Company, d/b/a Unitil	02/19	NSTAR Electric Company d/b/a Eversource Energy; Massachusetts Electric Company & Nantucket Electric Company, d/b/a National Grid; and Fitchburg Gas and Electric Light Company, d/b/a Unitil	DPU 18-64/DPU 18-65/DPU 18-66	Response to Direct Testimony by Attorney General Witness regarding Remuneration Rate Section 83D
National Grid	11/18	Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid	DPU 18-150	Return on Equity
NSTAR Electric Company d/b/a Eversource Energy	11/18	NSTAR Electric Company d/b/a Eversource Energy	DPU 18-76/DPU 18-77/DPU 18-78	Response to Direct Testimony by Attorney General Witness regarding Remuneration Rate Section 83C
Boston Gas Company, Colonial Gas Company each d/b/a National Grid	11/17	Boston Gas Company, Colonial Gas Company each d/b/a National Grid	DPU 17-170	Return on Equity
NSTAR Electric Company Western and Massachusetts Electric Company each d/b/a Eversource Energy	01/17	NSTAR Electric Company Western Massachusetts Electric Company each d/b/a Eversource Energy	DPU 17-05	Return on Equity
National Grid	11/15	Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid	DPU 15-155	Return on Equity



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Fitchburg Gas and Electric Light Company d/b/a Unitil	06/15	Fitchburg Gas and Electric Light Company d/b/a Unitil	DPU 15-80	Return on Equity
NSTAR Gas Company	12/14	NSTAR Gas Company	DPU 14-150	Return on Equity
Fitchburg Gas and Electric Light Company d/b/a Unitil	07/13	Fitchburg Gas and Electric Light Company d/b/a Unitil	DPU 13-90	Return on Equity
Bay State Gas Company d/b/a Columbia Gas of Massachusetts	04/12	Bay State Gas Company d/b/a Columbia Gas of Massachusetts	DPU 12-25	Capital Cost Recovery
National Grid	08/09	Massachusetts Electric Company d/b/a National Grid	DPU 09-39	Revenue Decoupling and Return on Equity
National Grid	08/09	Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid	DPU 09-38	Return on Equity – Solar Generation
Bay State Gas Company	04/09	Bay State Gas Company	DPU 09-30	Return on Equity
NSTAR Electric	09/04	NSTAR Electric	DTE 04-85	Divestiture of Power Purchase Agreement
NSTAR Electric	08/04	NSTAR Electric	DTE 04-78	Divestiture of Power Purchase Agreement
NSTAR Electric	07/04	NSTAR Electric	DTE 04-68	Divestiture of Power Purchase Agreement
NSTAR Electric	07/04	NSTAR Electric	DTE 04-61	Divestiture of Power Purchase Agreement
NSTAR Electric	06/04	NSTAR Electric	DTE 04-60	Divestiture of Power Purchase Agreement
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Bay State Gas Company	01/93	Bay State Gas Company	DPU 93-14	Divestiture of Shelf Registration
Bay State Gas Company	01/91	Bay State Gas Company	DPU 91-25	Divestiture of Shelf Registration
<b>Michigan Public Service Commission</b>				
Indiana Michigan Power Company	06/19	Indiana Michigan Power Company	Case No. U-20359	Return on Equity
SEMCO Energy Gas Company	05/19	SEMCO Energy Gas Company	Case No. U-20479	Return on Equity
Indiana Michigan Power Company	05/17	Indiana Michigan Power Company	Case No. U-18370	Return on Equity



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>Minnesota Public Utilities Commission</b>				
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	08/17	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-17-285	Return on Equity
ALLETE, Inc., d/b/a Minnesota Power Inc.	11/16	ALLETE, Inc., d/b/a Minnesota Power Inc.	Docket No. E015/GR-16-664	Return on Equity
Otter Tail Power Corporation	02/16	Otter Tail Power Company	Docket No. E017/GR-15-1033	Return on Equity
Minnesota Energy Resources Corporation	09/15	Minnesota Energy Resources Corporation	Docket No. G-011/GR-15-736	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	08/15	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-15-424	Return on Equity
Xcel Energy, Inc.	11/13	Northern States Power Company	Docket No. E002/GR-13-868	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	08/13	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-13-316	Return on Equity
Xcel Energy, Inc.	11/12	Northern States Power Company	Docket No. E002/GR-12-961	Return on Equity
Otter Tail Power Corporation	04/10	Otter Tail Power Company	Docket No. E-017/GR-10-239	Return on Equity
Minnesota Power a division of ALLETE, Inc.	11/09	Minnesota Power	Docket No. E-015/GR-09-1151	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	11/08	CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-08-1075	Return on Equity
Otter Tail Power Corporation	10/07	Otter Tail Power Company	Docket No. E-017/GR-07-1178	Return on Equity
Xcel Energy, Inc.	11/05	Northern States Power Company -Minnesota	Docket No. E-002/GR-05-1428	Return on Equity (electric)
Xcel Energy, Inc.	09/04	Northern States Power Company - Minnesota	Docket No. G-002/GR-04-1511	Return on Equity (gas)
<b>Mississippi Public Service Commission</b>				
CenterPoint Energy Resources, Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Mississippi Gas	07/09	CenterPoint Energy Mississippi Gas	Docket No. 09-UN-334	Return on Equity
<b>Missouri Public Service Commission</b>				
Empire District Electric Company	08/19	Empire District Electric Company	Case No. ER-2019-0374	Return on Equity
Union Electric Company d/b/a Ameren Missouri	07/19	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2019-0335	Return on Equity
Union Electric Company d/b/a Ameren Missouri	12/18	Union Electric Company d/b/a Ameren Missouri	Case No. GR-2019-0077	Return on Equity



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
KCP&L Greater Missouri Operations Company	01/18	KCP&L Greater Missouri Operations Company	Case No. ER-2018-0146	Return on Equity
Kansas City Power & Light Company	01/18	Kansas City Power & Light Company	Case No. ER-2018-0145	Return on Equity
Laclede Gas Company and Missouri Gas Energy	11/17	Laclede Gas Company and Missouri Gas Energy	Case No. GR-2017-0215 Case No. GR-2017-0216	Goodwill Adjustment on Capital Structure
Liberty Utilities (Midstates Natural Gas) Corp. d/b/a/ Liberty Utilities	09/17	Liberty Utilities (Midstates Natural Gas) Corp. d/b/a/ Liberty Utilities	Case No. GR-2018-0013	New Ratemaking Mechanisms
Union Electric Company d/b/a Ameren Missouri	07/16	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2016-0179	Return on Equity (electric)
Kansas City Power & Light Company	07/16	Kansas City Power & Light Company	Case No. ER-2016-0285	Return on Equity (electric)
Kansas City Power & Light Company	02/16	Kansas City Power & Light Company	Case No. ER-2016-0156	Return on Equity (electric)
Kansas City Power & Light Company	10/14	Kansas City Power & Light Company	Case No. ER-2014-0370	Return on Equity (electric)
Union Electric Company d/b/a Ameren Missouri	07/14	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2014-0258	Return on Equity (electric)
Union Electric Company d/b/a Ameren Missouri	06/14	Union Electric Company d/b/a Ameren Missouri	Case No. EC-2014-0223	Return on Equity (electric)
Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	02/14	Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	Case No. GR-2014-0152	Return on Equity
Laclede Gas Company	12/12	Laclede Gas Company	Case No. GR-2013-0171	Return on Equity
Union Electric Company d/b/a Ameren Missouri	02/12	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2012-0166	Return on Equity (electric)
Union Electric Company d/b/a AmerenUE	09/10	Union Electric Company d/b/a AmerenUE	Case No. ER-2011-0028	Return on Equity (electric)
Union Electric Company d/b/a AmerenUE	06/10	Union Electric Company d/b/a AmerenUE	Case No. GR-2010-0363	Return on Equity (gas)
<b>Montana Public Service Commission</b>				
Northwestern Corporation	09/12	Northwestern Corporation d/b/a Northwestern Energy	Docket No. D2012.9.94	Return on Equity (gas)
<b>Nevada Public Utilities Commission</b>				
Southwest Gas Corporation	05/18	Southwest Gas Corporation	Docket No. 18-05031	Return on Equity (gas)
Southwest Gas Corporation	04/12	Southwest Gas Corporation	Docket No. 12-04005	Return on Equity (gas)
Nevada Power Company	06/11	Nevada Power Company	Docket No. 11-06006	Return on Equity (electric)
<b>New Hampshire Public Utilities Commission</b>				



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Northern Utilities, Inc.	06/17	Northern Utilities, Inc.	Docket No. DG 17-070	Return on Equity
Liberty Utilities d/b/a EnergyNorth Natural Gas	04/17	Liberty Utilities d/b/a EnergyNorth Natural Gas	Docket No. DG 17-048	Return on Equity
Unitil Energy Systems, Inc.	04/16	Unitil Energy Systems, Inc.	Docket No. DE 16-384	Return on Equity
Liberty Utilities d/b/a Granite State Electric Company	04/16	Liberty Utilities d/b/a Granite State Electric Company	Docket No. DE 16-383	Return on Equity
Liberty Utilities d/b/a EnergyNorth Natural Gas	08/14	Liberty Utilities d/b/a EnergyNorth Natural Gas	Docket No. DG 14-180	Return on Equity
Liberty Utilities d/b/a Granite State Electric Company	03/13	Liberty Utilities d/b/a Granite State Electric Company	Docket No. DE 13-063	Return on Equity
EnergyNorth Natural Gas d/b/a National Grid NH	02/10	EnergyNorth Natural Gas d/b/a National Grid NH	Docket No. DG 10-017	Return on Equity
Unitil Energy Systems, Inc., EnergyNorth Natural Gas, Inc. d/b/a National Grid NH, Granite State Electric Company d/b/a National Grid, and Northern Utilities, Inc. – New Hampshire Division	08/08	Unitil Energy Systems, Inc., EnergyNorth Natural Gas, Inc. d/b/a National Grid NH, Granite State Electric Company d/b/a National Grid, and Northern Utilities, Inc. – New Hampshire Division	Docket No. DG 07-072	Carrying Charge Rate on Cash Working Capital
<b>New Jersey Board of Public Utilities</b>				
Elizabethtown Gas Company	04/19	Elizabethtown Gas Company	Docket No. GR19040486	Return on Equity
Atlantic City Electric Company	10/18	Atlantic City Electric Company	Docket No. EO18020196	Return on Equity
Atlantic City Electric Company	08/18	Atlantic City Electric Company	Docket No. ER18080925	Return on Equity
Atlantic City Electric Company	06/18	Atlantic City Electric Company	Docket No. ER18060638	Return on Equity
Atlantic City Electric Company	03/17	Atlantic City Electric Company	Docket No. ER17030308	Return on Equity
Pivotal Utility Holdings, Inc.	08/16	Elizabethtown Gas	Docket No. GR16090826	Return on Equity
The Southern Company; AGL Resources Inc.; AMS Corp. and Pivotal Holdings, Inc. d/b/a Elizabethtown Gas	04/16	The Southern Company; AGL Resources Inc.; AMS Corp. and Pivotal Holdings, Inc. d/b/a Elizabethtown Gas	Docket No. GM15101196	Merger Approval
Atlantic City Electric Company	03/16	Atlantic City Electric Company	Docket No. ER16030252	Return on Equity
Pepco Holdings, Inc.	03/14	Atlantic City Electric Company	Docket No. ER14030245	Return on Equity
Orange and Rockland Utilities	11/13	Rockland Electric Company	Docket No. ER13111135	Return on Equity
Atlantic City Electric Company	12/12	Atlantic City Electric Company	Docket No. ER12121071	Return on Equity



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Atlantic City Electric Company	08/11	Atlantic City Electric Company	Docket No. ER11080469	Return on Equity
Pepco Holdings, Inc.	09/06	Atlantic City Electric Company	Docket No. EM06090638	Divestiture and Valuation of Electric Generating Assets
Pepco Holdings, Inc.	12/05	Atlantic City Electric Company	Docket No. EM05121058	Market Value of Electric Generation Assets; Auction
Conectiv	06/03	Atlantic City Electric Company	Docket No. EO03020091	Market Value of Electric Generation Assets; Auction Process
<b>New Mexico Public Regulation Commission</b>				
Public Service Company of New Mexico	12/16	Public Service Company of New Mexico	Case No. 16-00276-UT	Return on Equity (electric)
Public Service Company of New Mexico	08/15	Public Service Company of New Mexico	Case No. 15-00261-UT	Return on Equity (electric)
Public Service Company of New Mexico	12/14	Public Service Company of New Mexico	Case No. 14-00332-UT	Return on Equity (electric)
Public Service Company of New Mexico	12/14	Public Service Company of New Mexico	Case No. 13-00390-UT	Cost of Capital and Financial Integrity
Southwestern Public Service Company	02/11	Southwestern Public Service Company	Case No. 10-00395-UT	Return on Equity (electric)
Public Service Company of New Mexico	06/10	Public Service Company of New Mexico	Case No. 10-00086-UT	Return on Equity (electric)
Public Service Company of New Mexico	09/08	Public Service Company of New Mexico	Case No. 08-00273-UT	Return on Equity (electric)
Xcel Energy, Inc.	07/07	Southwestern Public Service Company	Case No. 07-00319-UT	Return on Equity (electric)
<b>New York State Public Service Commission</b>				
Consolidated Edison Company of New York, Inc.	01/15	Consolidated Edison Company of New York, Inc.	Case No. 15-E-0050	Return on Equity (electric)
Orange and Rockland Utilities, Inc.	11/14	Orange and Rockland Utilities, Inc.	Case Nos. 14-E-0493 and 14-G-0494	Return on Equity (electric and gas)
Consolidated Edison Company of New York, Inc.	01/13	Consolidated Edison Company of New York, Inc.	Case No. 13-E-0030	Return on Equity (electric)
Niagara Mohawk Corporation d/b/a National Grid for Electric Service	04/12	Niagara Mohawk Corporation d/b/a National Grid for Electric Service	Case No. 12-E-0201	Return on Equity (electric)
Niagara Mohawk Corporation d/b/a National Grid for Gas Service	04/12	Niagara Mohawk Corporation d/b/a National Grid for Gas Service	Case No. 12-G-0202	Return on Equity (gas)
Orange and Rockland Utilities, Inc.	07/11	Orange and Rockland Utilities, Inc.	Case No. 11-E-0408	Return on Equity (electric)
Orange and Rockland Utilities, Inc.	07/10	Orange and Rockland Utilities, Inc.	Case No. 10-E-0362	Return on Equity (electric)



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<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET NO.</b>	<b>SUBJECT</b>
Consolidated Edison Company of New York, Inc.	11/09	Consolidated Edison Company of New York, Inc.	Case No. 09-G-0795	Return on Equity (gas)
Consolidated Edison Company of New York, Inc.	11/09	Consolidated Edison Company of New York, Inc.	Case No. 09-S-0794	Return on Equity (steam)
Niagara Mohawk Power Corporation	07/01	Niagara Mohawk Power Corporation	Case No. 01-E-1046	Power Purchase and Sale Agreement; Standard Offer Service Agreement
<b>North Carolina Utilities Commission</b>				
Duke Energy Progress, LLC	10/19	Duke Energy Progress, LLC	Docket No. E-2, Sub 1219	Return on Equity
Duke Energy Carolinas, LLC	09/19	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1214	Return on Equity
Piedmont Natural Gas Company, Inc.	04/19	Piedmont Natural Gas Company, Inc.	Docket No. G-9, Sub 743	Return on Equity
Virginia Electric and Power Company d/b/a Dominion North Carolina Power	03/19	Virginia Electric and Power Company d/b/a Dominion North Carolina Power	Docket No. E-22, Sub 562	Return on Equity
Duke Energy Carolinas, LLC	08/17	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1146	Return on Equity
Duke Energy Progress, LLC	06/17	Duke Energy Progress, LLC	Docket No. E-2, Sub 1142	Return on Equity
Public Service Company of North Carolina, Inc.	03/16	Public Service Company of North Carolina, Inc.	Docket No. G-5, Sub 565	Return on Equity
Dominion North Carolina Power	03/16	Dominion North Carolina Power	Docket No. E-22, Sub 532	Return on Equity
Duke Energy Carolinas, LLC	02/13	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1026	Return on Equity
Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc.	10/12	Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc.	Docket No. E-2, Sub 1023	Return on Equity
Virginia Electric and Power Company d/b/a Dominion North Carolina Power	03/12	Virginia Electric and Power Company d/b/a Dominion North Carolina Power	Docket No. E-22, Sub 479	Return on Equity
Duke Energy Carolinas, LLC	07/11	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 989	Return on Equity
<b>North Dakota Public Service Commission</b>				
Otter Tail Power Company	11/17	Otter Tail Power Company	Docket No. 17-398	Return on Equity (electric)
Otter Tail Power Company	11/08	Otter Tail Power Company	Docket No. 08-862	Return on Equity (electric)



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>Oklahoma Corporation Commission</b>				
Empire District Electric Company	03/19	Empire District Electric Company	Cause No. PUD201800133	Return on Equity
CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Oklahoma Gas	03/16	CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Oklahoma Gas	Cause No. PUD201600094	Return on Equity
Oklahoma Gas & Electric Company	12/15	Oklahoma Gas & Electric Company	Cause No. PUD201500273	Return on Equity
Public Service Company of Oklahoma	07/15	Public Service Company of Oklahoma	Cause No. PUD201500208	Return on Equity
Oklahoma Gas & Electric Company	07/11	Oklahoma Gas & Electric Company	Cause No. PUD201100087	Return on Equity
CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Oklahoma Gas	03/09	CenterPoint Energy Oklahoma Gas	Cause No. PUD200900055	Return on Equity
<b>Pennsylvania Public Utility Commission</b>				
Pike County Light & Power Company	01/14	Pike County Light & Power Company	Docket No. R-2013-2397237	Return on Equity (electric & gas)
Veolia Energy Philadelphia, Inc.	12/13	Veolia Energy Philadelphia, Inc.	Docket No. R-2013-2386293	Return on Equity (steam)
<b>Rhode Island Public Utilities Commission</b>				
The Narragansett Electric Company d/b/a National Grid	02/19	The Narragansett Electric Company d/b/a National Grid	Docket No. 4929	Support for financial remuneration under new power purchase agreement
The Narragansett Electric Company d/b/a National Grid	11/17	The Narragansett Electric Company d/b/a National Grid	Docket No. 4770	Return on Equity (electric & gas)
The Narragansett Electric Company d/b/a National Grid	04/12	The Narragansett Electric Company d/b/a National Grid	Docket No. 4323	Return on Equity (electric & gas)
National Grid RI – Gas	08/08	National Grid RI – Gas	Docket No. 3943	Revenue Decoupling and Return on Equity
<b>South Carolina Public Service Commission</b>				
Duke Energy Carolinas, LLC	11/18	Duke Energy Carolinas, LLC	Docket No. 2018-319-E	Return on Equity
Duke Energy Progress, LLC	11/18	Duke Energy Progress, LLC	Docket No. 2018-318-E	Return on Equity
South Carolina Electric & Gas	08/18	South Carolina Electric & Gas	Docket No. 2017-370-E	Return on Equity
South Carolina Electric & Gas	12/17	South Carolina Electric & Gas	Docket No. 2017-305-E	Return on Equity
Duke Energy Progress, LLC	07/16	Duke Energy Progress, LLC	Docket No. 2016-227-E	Return on Equity
Duke Energy Carolinas, LLC	03/13	Duke Energy Carolinas, LLC	Docket No. 2013-59-E	Return on Equity
South Carolina Electric & Gas	06/12	South Carolina Electric & Gas	Docket No. 2012-218-E	Return on Equity



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Duke Energy Carolinas, LLC	08/11	Duke Energy Carolinas, LLC	Docket No. 2011-271-E	Return on Equity
South Carolina Electric & Gas	03/10	South Carolina Electric & Gas	Docket No. 2009-489-E	Return on Equity
<b>South Dakota Public Utilities Commission</b>				
Otter Tail Power Company	04/18	Otter Tail Power Company	Docket No. EL18-021	Return on Equity (electric)
Otter Tail Power Company	08/10	Otter Tail Power Company	Docket No. EL10-011	Return on Equity (electric)
Northern States Power Company	06/09	South Dakota Division of Northern States Power	Docket No. EL09-009	Return on Equity (electric)
Otter Tail Power Company	10/08	Otter Tail Power Company	Docket No. EL08-030	Return on Equity (electric)
<b>Texas Public Utility Commission</b>				
AEP Texas, Inc.	05/19	AEP Texas, Inc.	Docket No. 49494	Return on Equity
CenterPoint Energy Houston Electric LLC	04/19	CenterPoint Energy Houston Electric LLC	Docket No. 49421	Return on Equity
Texas-New Mexico Power Company	05/18	Texas-New Mexico Power Company	Docket No. 48401	Return on Equity
Entergy Texas, Inc.	05/18	Entergy Texas, Inc.	Docket No. 48371	Return on Equity
Southwestern Public Service Company	08/17	Southwestern Public Service Company	Docket No. 47527	Return on Equity
Oncor Electric Delivery Company, LLC	03/17	Oncor Electric Delivery Company, LLC	Docket No. 46957	Return on Equity
El Paso Electric Company	02/17	El Paso Electric Company	Docket No. 46831	Return on Equity
Southwestern Electric Power Company	12/16	Southwestern Electric Power Company	Docket No. 46449	Return on Equity (electric)
Sharyland Utilities, L.P.	04/16	Sharyland Utilities, L.P.	Docket No. 45414	Return on Equity
Southwestern Public Service Company	02/16	Southwestern Public Service Company	Docket No. 44524	Return on Equity (electric)
Wind Energy Transmission Texas, LLC	05/15	Wind Energy Transmission Texas, LLC	Docket No. 44746	Return on Equity
Cross Texas Transmission	12/14	Cross Texas Transmission	Docket No. 43950	Return on Equity
Southwestern Public Service Company	12/14	Southwestern Public Service Company	Docket No. 43695	Return on Equity (electric)
Sharyland Utilities, L.P.	05/13	Sharyland Utilities, L.P.	Docket No. 41474	Return on Equity
Wind Energy Texas Transmission, LLC	08/12	Wind Energy Texas Transmission, LLC	Docket No. 40606	Return on Equity
Southwestern Electric Power Company	07/12	Southwestern Electric Power Company	Docket No. 40443	Return on Equity
Oncor Electric Delivery Company, LLC	01/11	Oncor Electric Delivery Company, LLC	Docket No. 38929	Return on Equity
Texas-New Mexico Power Company	08/10	Texas-New Mexico Power Company	Docket No. 38480	Return on Equity (electric)
CenterPoint Energy Houston Electric LLC	06/10	CenterPoint Energy Houston Electric LLC	Docket No. 38339	Return on Equity
Xcel Energy, Inc.	05/10	Southwestern Public Service Company	Docket No. 38147	Return on Equity (electric)



*Testimony Listing of:*  
**Robert B. Hevert, Partner**  
**Rates and Regulation Practice Leader**

<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET NO.</b>	<b>SUBJECT</b>
Texas-New Mexico Power Company	08/08	Texas-New Mexico Power Company	Docket No. 36025	Return on Equity (electric)
Xcel Energy, Inc.	05/06	Southwestern Public Service Company	Docket No. 32766	Return on Equity (electric)
<b>Texas Railroad Commission</b>				
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex And CenterPoint Energy Texas Gas	10/19	CenterPoint Energy Resources Corp. D/B/A CenterPoint Energy Entex And CenterPoint Energy Texas Gas	GUD 10920	Return on Equity
Atmos Energy Corporation – Mid-Tex Division	10/18	Atmos Energy Corporation – Mid-Tex Division	GUD 10779	Return on Equity
Atmos Energy Corporation – West Texas Division	06/18	Atmos Energy Corporation – West Texas Division	GUD 10743	Return on Equity
Atmos Energy Corporation – Mid-Texas Division	06/18	Atmos Energy Corporation – Mid-Texas Division	GUD 10742	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex And CenterPoint Energy Texas Gas	11/17	CenterPoint Energy Resources Corp. D/B/A CenterPoint Energy Entex And CenterPoint Energy Texas Gas	GUD 10669	Return on Equity
Atmos Pipeline - Texas	01/17	Atmos Pipeline - Texas	GUD 10580	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex And CenterPoint Energy Texas Gas	12/16	CenterPoint Energy Resources Corp. D/B/A CenterPoint Energy Entex And CenterPoint Energy Texas Gas	GUD 10567	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	03/15	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 10432	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	07/12	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 10182	Return on Equity
Atmos Energy Corporation – West Texas Division	06/12	Atmos Energy Corporation – West Texas Division	GUD 10174	Return on Equity
Atmos Energy Corporation – Mid-Texas Division	06/12	Atmos Energy Corporation – Mid-Texas Division	GUD 10170	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	12/10	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 10038	Return on Equity
Atmos Pipeline – Texas	09/10	Atmos Pipeline - Texas	GUD 10000	Return on Equity



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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	07/09	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 9902	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Texas Gas	03/08	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Texas Gas	GUD 9791	Return on Equity
<b>Utah Public Service Commission</b>				
Dominion Energy Utah	07/19	Dominion Energy Utah	Docket No. 19-057-02	Return on Equity
Questar Gas Company	12/07	Questar Gas Company	Docket No. 07-057-13	Return on Equity
<b>Vermont Public Service Board</b>				
Central Vermont Public Service Corporation; Green Mountain Power	02/12	Central Vermont Public Service Corporation; Green Mountain Power	Docket No. 7770	Merger Policy
Central Vermont Public Service Corporation	12/10	Central Vermont Public Service Corporation	Docket No. 7627	Return on Equity (electric)
Green Mountain Power	04/06	Green Mountain Power	Docket Nos. 7175 and 7176	Return on Equity (electric)
Vermont Gas Systems, Inc.	12/05	Vermont Gas Systems	Docket Nos. 7109 and 7160	Return on Equity (gas)
<b>Virginia State Corporation Commission</b>				
Virginia Electric and Power Company	03/19	Virginia Electric and Power Company	Case No. PUR-2019-00050	Return on Equity
Virginia Electric and Power Company	03/17	Virginia Electric and Power Company	Case No. PUR-2017-00038	Return on Equity
Virginia Natural Gas, Inc.	03/17	Virginia Natural Gas, Inc.	Case No. PUE-2016-00143	Return on Equity
Virginia Electric and Power Company	10/16	Virginia Electric and Power Company	Case No. PUE-2016-00112; PUE-2016-00113; PUE-2016-00136	Return on Equity
Washington Gas Light Company	06/16	Washington Gas Light Company	Case No. PUE-2016-00001	Return on Equity
Virginia Electric and Power Company	06/16	Virginia Electric and Power Company	Case Nos. PUE-2016-00063; PUE-2016-00062; PUE-2016-00061; PUE-2016-00060; PUE-2016-00059	Return on Equity
Virginia Electric and Power Company	12/15	Virginia Electric and Power Company	Case Nos. PUE-2015-00058; PUE-2015-00059; PUE-2015-00060; PUE-2015-00061; PUE-2015-00075; PUE-2015-00089; PUE-2015-00102; PUE-2015-00104	Return on Equity
Virginia Electric and Power Company	03/15	Virginia Electric and Power Company	Case No. PUE-2015-00027	Return on Equity



*Testimony Listing of:*  
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**Rates and Regulation Practice Leader**

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Virginia Electric and Power Company	03/13	Virginia Electric and Power Company	Case No. PUE-2013-00020	Return on Equity
Virginia Natural Gas, Inc.	02/11	Virginia Natural Gas, Inc.	Case No. PUE-2010-00142	Capital Structure
Columbia Gas of Virginia, Inc.	06/06	Columbia Gas of Virginia, Inc.	Case No. PUE-2005-00098	Merger Synergies
Dominion Resources	10/01	Virginia Electric and Power Company	Case No. PUE000584	Corporate Structure and Electric Generation Strategy
<b>Wyoming Public Service Commission</b>				
Questar Gas Company d/b/a Dominion Energy Wyoming	11/19	Questar Gas Company d/b/a Dominion Energy Wyoming	Docket No. 30010-187-GR-19	Return on Equity

**Expert Reports**

<b>Matter of Arbitration, City of White Hall, Arkansas</b>				
Liberty Utilities Corporation, White Hall Water and White Hall Sewer	04/19	Liberty Utilities Corporation, White Hall Water and White Hall Sewer	AAA Case No. 01-18-0004-0072	Return on Equity
<b>United States District Court, District of South Carolina, Columbia Division</b>				
South Carolina Electric & Gas Company	07/18	South Carolina Electric & Gas Company	Case No. 3:18-CV-01795-JMC	Return on Equity
<b>United States District Court, Western District of Texas, Austin Division</b>				
Southwestern Public Service Company	02/12	Southwestern Public Service Company	C.A. No. A-09-CA-917-SS	PURPA and FERC regulations
<b>American Arbitration Association</b>				
Confidential Client	11/14	Confidential Client	Confidential	Economic harm related to failure to perform

Results Summary - Opinion No. 531 Methods

	<b>Zone of Reasonableness</b>		
	<b>Above-Average Risk Utility</b>		
	<b>Low</b>	<b>High</b>	<b>Upper Median</b>
Two-Step DCF	6.12%	10.83%	8.96%
CAPM- Six-Month Average 30 Year Treasury	6.18%	10.46%	8.90%
CAPM- Near-Term 30 Year Treasury	6.11%	10.43%	8.86%
Composite	6.15%	10.45%	8.88%
Expected Earnings	6.00%	14.06%	11.50%
Risk Premium		10.12%	
	<b>Average of Median</b>		
Average of Median, excl. Risk Premium		9.78%	
Average of Median, incl. Risk Premium		9.87%	
	<b>Low</b>	<b>High</b>	
Composite Zone	6.10%	11.78%	

Results Summary - Opinion No. 569 Methods

**Zone of  
Reasonableness  
Above-Average Risk  
Utility**

	<b>Low</b>	<b>High</b>
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Two-Step DCF	7.61%	10.86%
CAPM- Six-Month Average 30 Year Treasury	7.40%	10.28%

				Lower Zone		Middle Zone		Upper Zone		
	<u>Lower</u>	<u>Upper</u>	<u>1/8 Range</u>	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>	<u>Median</u>
Midpoint Approach	7.51%	10.57%	0.38%	7.89%	8.66%	8.66%	9.42%	9.42%	10.19%	
Median Approach 1 Lower, Middle and Upper Median	7.51%	10.57%	0.38%	7.54%	8.31%	8.31%	9.07%	9.07%	9.84%	8.69%
				7.92%		8.69%		9.45%		
Median Approach 2 Lower, Middle and Upper Median	7.51%	10.57%	0.38%	7.89%	8.31%	8.31%	9.07%	9.07%	10.19%	8.69%
				8.10%		8.69%		9.63%		

Results Summary - Opinion No. 569 with Adjustments

**Zone of  
Reasonableness  
Above-Average Risk  
Utility**

<b>Low</b>	<b>High</b>
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Two-Step DCF	7.32%	11.16%
CAPM- Six-Month Average 30 Year Treasury	7.31%	11.54%

	<u>Lower</u>	<u>Upper</u>	<u>1/8 Range</u>	<u>Lower Zone</u>		<u>Middle Zone</u>		<u>Upper Zone</u>		<u>Median</u>
				<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>	
Midpoint Approach	7.31%	11.35%	0.50%	7.82%	8.83%	8.83%	9.84%	9.84%	10.85%	
Median Approach 1 Lower, Middle and Upper Median	7.31%	11.35%	0.50%	7.37%	8.37%	8.37%	9.38%	9.38%	10.39%	8.88%
				7.87%		8.88%		9.89%		
Median Approach 2 Lower, Middle and Upper Median	7.31%	11.35%	0.50%	7.82%	8.37%	8.37%	9.38%	9.38%	10.85%	8.88%
				8.10%		8.88%		10.11%		

## Two-Step DCF Results

Company	Ticker	[1] Dividend Yield	[2] Yahoo First Call Earnings Growth	[3] Long-Term Growth Rate	[4] Weighted Growth Rate	[5] Expected Dividend Yield	[6] DCF Result
ALLETE, Inc.	ALE	2.77%	7.00%	4.26%	6.09%	2.86%	8.94%
Alliant Energy Corporation	LNT	2.82%	5.15%	4.26%	4.85%	2.89%	7.75%
Ameren Corporation	AEE	2.52%	4.70%	4.26%	4.55%	2.58%	7.13%
American Electric Power Company, Inc.	AEP	3.00%	6.05%	4.26%	5.45%	3.09%	8.54%
Avangrid, Inc.	AGR	3.50%	6.00%	4.26%	5.42%	3.60%	9.02%
Avista Corporation	AVA	3.41%	3.30%	4.26%	3.62%	3.48%	7.10%
Black Hills Corporation	BKH	2.65%	3.01%	4.26%	3.43%	2.70%	6.12%
CenterPoint Energy, Inc.	CNP	3.96%	4.88%	4.26%	4.67%	4.05%	8.72%
CMS Energy Corporation	CMS	2.57%	7.37%	4.26%	6.33%	2.65%	8.98%
Consolidated Edison, Inc.	ED	3.34%	3.31%	4.26%	3.63%	3.40%	7.02%
Dominion Energy, Inc.	D	4.75%	4.60%	4.26%	4.49%	4.86%	9.34%
DTE Energy Company	DTE	2.98%	3.66%	4.26%	3.86%	3.04%	6.89%
Duke Energy Corporation	DUK	4.15%	4.06%	4.26%	4.13%	4.24%	8.36%
Entergy Corporation	ETR	3.43%	-1.60%	4.26%	0.35%	3.43%	3.79%
Eversource Energy	ES	2.74%	5.60%	4.26%	5.15%	2.81%	7.96%
Exelon Corporation	EXC	3.05%	-2.24%	4.26%	-0.07%	3.05%	2.98%
Evergy, Inc.	EVRG	3.07%	6.70%	4.26%	5.89%	3.16%	9.05%
NextEra Energy, Inc.	NEE	2.35%	7.99%	4.26%	6.75%	2.43%	9.18%
NorthWestern Corporation	NWE	3.19%	3.11%	4.26%	3.49%	3.25%	6.74%
OGE Energy Corp.	OGE	3.46%	3.40%	4.26%	3.69%	3.53%	7.21%
Otter Tail Corporation	OTTR	2.68%	9.00%	4.26%	7.42%	2.78%	10.20%
Pinnacle West Capital Corporation	PNW	3.15%	5.11%	4.26%	4.83%	3.23%	8.05%
Portland General Electric Company	POR	2.80%	4.40%	4.26%	4.35%	2.86%	7.21%
PPL Corporation	PPL	5.41%	0.50%	4.26%	1.75%	5.45%	7.21%
Public Service Enterprise Group Incorporated	PEG	3.13%	3.95%	4.26%	4.05%	3.20%	7.25%
Sempra Energy	SRE	2.80%	9.75%	4.26%	7.92%	2.91%	10.83%
Southern Company	SO	4.35%	1.32%	4.26%	2.30%	4.40%	6.70%
WEC Energy Group, Inc.	WEC	2.70%	6.12%	4.26%	5.50%	2.78%	8.28%
Xcel Energy Inc.	XEL	2.66%	5.20%	4.26%	4.89%	2.72%	7.61%
Mean		3.22%	4.53%	4.26%			7.73%
Median		3.05%	4.70%	4.26%			7.75%
						Low-End Outlier (Moody's Utility Baa + 100 basis points):	5.00%
						High-End Outlier (Median * 150%):	11.62%
						Zone of reasonableness high:	10.83%
						Zone of reasonableness low:	6.12%
						Zone of reasonableness median:	7.96%
						Zone of reasonableness upper median:	8.96%

## Notes

[1] Source: Bloomberg (6-month average of dividend yield as of October 31, 2019 using an average of the monthly high and low stock prices and indicated dividend for each month)

[2] Source: Yahoo! Finance.

[3] Source: EIA AEO 2019, SSA 2019 OASDI Trustees Report, Blue Chip Financial Forecasts Vol. 38, No. 6, June 1, 2019, at 14

[4] Equals  $(2/3) \times \text{Col. [2]} + (1/3) \times \text{Col. [3]}$

[5] Equals  $\text{Col. [1]} \times (1 + 0.5 \times \text{Col. [4]})$

[6] Equals  $\text{Col. [4]} + \text{Col. [5]}$

Ex-Ante Market Risk Premium - Dividend-Paying Companies  
Market DCF Method Based - Bloomberg

[1]	[2]	[3]
S&P 500	Current 30-Year	
Est. Required	Treasury (6-month	Implied Market
Market Return	average)	Risk Premium
11.46%	2.41%	9.05%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	23,442.18	0.11%	0.86%	13.53%	14.45%	0.0157%
American Airlines Group Inc	AAL	13,168.02	0.06%	1.33%	4.73%	6.09%	0.0037%
Advance Auto Parts Inc	AAP	11,598.96	0.05%	0.15%	15.31%	15.47%	0.0083%
Apple Inc	AAPL	1,105,306.60	5.12%	1.29%	11.28%	12.63%	0.6469%
AbbVie Inc	ABBV	117,636.43	0.54%	5.41%	6.05%	11.62%	0.0633%
AmerisourceBergen Corp	ABC	17,786.83	0.08%	1.88%	6.32%	8.26%	0.0068%
ABIOMED Inc	ABMD	9,373.30	N/A	0.00%	24.00%	N/A	N/A
Abbott Laboratories	ABT	147,860.58	0.68%	1.51%	9.44%	11.02%	0.0755%
Accenture PLC	ACN	117,931.32	0.55%	1.73%	10.03%	11.85%	0.0647%
Adobe Inc	ADBE	134,539.97	N/A	0.00%	16.00%	N/A	N/A
Analog Devices Inc	ADI	39,389.78	0.18%	1.96%	9.72%	11.77%	0.0215%
Archer-Daniels-Midland Co	ADM	23,403.09	0.11%	3.34%	0.10%	3.44%	0.0037%
Automatic Data Processing Inc	ADP	70,310.48	0.33%	1.99%	12.55%	14.67%	0.0478%
Alliance Data Systems Corp	ADS	5,109.76	0.02%	2.47%	10.07%	12.66%	0.0030%
Autodesk Inc	ADSK	32,358.43	N/A	0.00%	47.95%	N/A	N/A
Ameren Corp	AEE	19,685.49	0.09%	2.51%	4.99%	7.56%	0.0069%
American Electric Power Co Inc	AEP	46,624.11	0.22%	2.87%	5.77%	8.72%	0.0188%
AES Corp/VA	AES	11,318.64	0.05%	3.23%	8.37%	11.74%	0.0062%
Aflac Inc	AFL	39,020.40	0.18%	2.04%	3.78%	5.86%	0.0106%
Allergan PLC	AGN	57,781.16	0.27%	1.68%	8.00%	9.74%	0.0261%
American International Group Inc	AIG	46,070.34	0.21%	2.42%	11.00%	13.55%	0.0289%
Apartment Investment & Management Co	AIV	8,170.76	0.04%	3.61%	3.37%	7.04%	0.0027%
Assurant Inc	AIZ	7,706.77	N/A	1.96%	N/A	N/A	N/A
Arthur J Gallagher & Co	AJG	17,014.63	0.08%	1.88%	9.83%	11.81%	0.0093%
Akamai Technologies Inc	AKAM	14,270.99	N/A	0.00%	12.80%	N/A	N/A
Albemarle Corp	ALB	6,437.61	0.03%	2.35%	7.73%	10.16%	0.0030%
Align Technology Inc	ALGN	20,150.62	N/A	0.00%	20.19%	N/A	N/A
Alaska Air Group Inc	ALK	8,558.79	0.04%	1.99%	19.55%	21.73%	0.0086%
Allstate Corp/The	ALL	34,475.41	0.16%	1.81%	9.00%	10.90%	0.0174%
Allegion PLC	ALLE	10,782.04	0.05%	0.92%	10.46%	11.43%	0.0057%
Alexion Pharmaceuticals Inc	ALXN	23,324.04	N/A	0.00%	12.73%	N/A	N/A
Applied Materials Inc	AMAT	50,122.88	0.23%	1.53%	4.91%	6.48%	0.0150%
Amcor PLC	AMCR	15,374.40	0.07%	5.36%	6.55%	12.08%	0.0086%
Advanced Micro Devices Inc	AMD	37,785.38	N/A	0.00%	23.90%	N/A	N/A
AMETEK Inc	AME	20,927.89	0.10%	0.62%	9.50%	10.15%	0.0098%
Affiliated Managers Group Inc	AMG	4,045.09	0.02%	1.60%	7.06%	8.72%	0.0016%
Amgen Inc	AMGN	126,709.64	0.59%	2.72%	7.92%	10.74%	0.0630%
Ameriprise Financial Inc	AMP	19,747.03	0.09%	2.52%	3.20%	5.76%	0.0053%
American Tower Corp	AMT	96,540.77	0.45%	1.73%	20.21%	22.10%	0.0989%
Amazon.com Inc	AMZN	880,863.09	N/A	0.00%	33.98%	N/A	N/A
Arista Networks Inc	ANET	18,744.90	N/A	0.00%	21.39%	N/A	N/A
ANSYS Inc	ANSS	18,514.78	N/A	0.00%	11.50%	N/A	N/A
Anthem Inc	ANTM	68,228.92	0.32%	1.19%	14.30%	15.58%	0.0492%
Aon PLC	AON	45,225.98	0.21%	0.89%	10.88%	11.82%	0.0248%
AO Smith Corp	AOS	8,167.56	0.04%	1.85%	8.00%	9.92%	0.0038%
Apache Corp	APA	8,144.95	0.04%	4.61%	-17.34%	-13.13%	-0.0050%
Air Products & Chemicals Inc	APD	46,992.94	0.22%	2.14%	12.03%	14.30%	0.0311%
Amphenol Corp	APH	29,747.01	0.14%	0.92%	8.70%	9.66%	0.0133%
Aptiv PLC	APTIV	22,861.05	0.11%	0.99%	5.97%	6.99%	0.0074%
Alexandria Real Estate Equities Inc	ARE	18,280.18	0.08%	2.51%	4.82%	7.39%	0.0063%
Arconic Inc	ARNC	12,091.97	0.06%	0.40%	10.90%	11.32%	0.0063%
Atmos Energy Corp	ATO	13,295.21	0.06%	1.87%	7.50%	9.44%	0.0058%
Activision Blizzard Inc	ATVI	42,976.46	0.20%	0.65%	9.04%	9.72%	0.0193%
AvalonBay Communities Inc	AVB	30,397.73	0.14%	2.79%	7.10%	9.98%	0.0141%
Broadcom Inc	AVGO	116,165.04	0.54%	3.54%	13.48%	17.27%	0.0929%
Avery Dennison Corp	AVY	10,676.68	0.05%	1.74%	4.90%	6.68%	0.0033%
American Water Works Co Inc	AWK	22,284.28	0.10%	1.60%	8.75%	10.43%	0.0108%
American Express Co	AXP	95,966.80	0.44%	1.39%	9.52%	10.97%	0.0488%
AutoZone Inc	AZO	27,267.71	N/A	0.00%	10.18%	N/A	N/A
Boeing Co/The	BA	191,298.37	0.89%	2.40%	8.81%	11.31%	0.1002%
Bank of America Corp	BAC	281,277.01	1.30%	2.11%	9.35%	11.56%	0.1506%
Baxter International Inc	BAX	39,159.64	0.18%	1.50%	11.96%	13.55%	0.0246%
BB&T Corp	BBT	40,652.40	0.19%	3.22%	5.67%	8.98%	0.0169%
Best Buy Co Inc	BBY	18,932.47	0.09%	2.78%	6.60%	9.48%	0.0083%
Becton Dickinson and Co	BDX	69,108.26	0.32%	1.34%	12.19%	13.61%	0.0436%
Franklin Resources Inc	BEN	13,755.72	0.06%	4.16%	10.00%	14.37%	0.0092%
Brown-Forman Corp	BF/B	30,718.71	0.14%	1.06%	6.44%	7.53%	0.0107%
Biogen Inc	BIIB	53,899.79	N/A	0.00%	2.20%	N/A	N/A
Bank of New York Mellon Corp/The	BK	43,112.80	0.20%	2.52%	6.83%	9.44%	0.0189%
Booking Holdings Inc	BKNG	87,097.11	N/A	0.00%	19.03%	N/A	N/A
Baker Hughes Co	BKR	21,984.15	0.10%	3.33%	32.26%	36.13%	0.0368%
BlackRock Inc	BLK	71,813.02	0.33%	2.86%	9.11%	12.10%	0.0403%
Ball Corp	BLL	23,230.34	0.11%	0.70%	6.70%	7.43%	0.0080%
Bristol-Myers Squibb Co	BMY	93,472.07	0.43%	2.87%	15.60%	18.69%	0.0809%
Broadridge Financial Solutions Inc	BR	14,331.74	0.07%	1.71%	7.80%	9.58%	0.0064%
Berkshire Hathaway Inc	BRK/B	521,096.48	N/A	0.00%	6.18%	N/A	N/A
Boston Scientific Corp	BSX	58,086.99	N/A	0.00%	8.88%	N/A	N/A
BorgWarner Inc	BWA	8,606.63	0.04%	1.63%	-0.60%	1.03%	0.0004%
Boston Properties Inc	BXP	21,207.29	0.10%	2.81%	2.31%	5.15%	0.0051%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Citigroup Inc	C	156,884.75	0.73%	2.66%	11.85%	14.67%	0.1066%
Conagra Brands Inc	CAG	13,163.99	0.06%	3.14%	7.60%	10.86%	0.0066%
Cardinal Health Inc	CAH	14,459.39	0.07%	4.07%	3.56%	7.70%	0.0052%
Caterpillar Inc	CAT	76,156.33	0.35%	2.73%	12.98%	15.88%	0.0560%
Chubb Ltd	CB	69,077.10	0.32%	1.98%	10.73%	12.82%	0.0410%
Cboe Global Markets Inc	CBOE	12,860.20	0.06%	1.16%	10.00%	11.22%	0.0067%
CBRE Group Inc	CBRE	18,010.78	N/A	0.00%	7.80%	N/A	N/A
CBS Corp	CBS	13,593.63	0.06%	2.08%	7.63%	9.80%	0.0062%
Crown Castle International Corp	CCI	57,736.64	0.27%	3.31%	17.70%	21.30%	0.0570%
Carnival Corp	CCL	28,921.68	0.13%	4.66%	7.96%	12.80%	0.0172%
Cadence Design Systems Inc	CDNS	18,336.75	N/A	0.00%	9.35%	N/A	N/A
CDW Corp/DE	CDW	18,510.44	0.09%	0.98%	13.55%	14.60%	0.0125%
Celanese Corp	CE	14,643.90	0.07%	1.99%	4.96%	6.99%	0.0047%
Celgene Corp	CELG	76,565.32	N/A	0.00%	15.65%	N/A	N/A
Cerner Corp	CERN	21,082.22	0.10%	0.28%	13.60%	13.90%	0.0136%
CF Industries Holdings Inc	CF	9,860.53	0.05%	2.65%	19.80%	22.71%	0.0104%
Citizens Financial Group Inc	CFG	15,719.56	0.07%	3.86%	5.50%	9.47%	0.0069%
Church & Dwight Co Inc	CHD	17,163.41	0.08%	1.32%	8.29%	9.66%	0.0077%
CH Robinson Worldwide Inc	CHRW	10,239.98	0.05%	2.67%	10.00%	12.81%	0.0061%
Charter Communications Inc	CHTR	112,562.38	N/A	0.00%	31.69%	N/A	N/A
Cigna Corp	CI	66,641.49	0.31%	0.03%	11.32%	11.35%	0.0350%
Cincinnati Financial Corp	CINF	18,495.57	N/A	2.09%	N/A	N/A	N/A
Colgate-Palmolive Co	CL	58,859.24	0.27%	2.53%	4.07%	6.65%	0.0181%
Clorox Co/The	CLX	18,534.18	0.09%	2.74%	3.61%	6.39%	0.0055%
Comerica Inc	CMA	9,430.58	0.04%	4.12%	9.65%	13.97%	0.0061%
Comcast Corp	CMCSA	203,897.40	0.94%	1.85%	10.13%	12.08%	0.1141%
CME Group Inc	CME	73,678.17	0.34%	2.61%	8.26%	10.97%	0.0374%
Chipotle Mexican Grill Inc	CMG	21,629.12	N/A	0.00%	23.12%	N/A	N/A
Cummins Inc	CMI	26,424.56	0.12%	2.80%	6.24%	9.13%	0.0112%
CMS Energy Corp	CMS	18,143.21	0.08%	2.39%	7.35%	9.83%	0.0083%
Centene Corp	CNC	21,964.30	N/A	0.00%	14.90%	N/A	N/A
CenterPoint Energy Inc	CNP	14,569.33	0.07%	3.99%	5.72%	9.82%	0.0066%
Capital One Financial Corp	COF	43,858.56	0.20%	1.72%	4.97%	6.73%	0.0137%
Cabot Oil & Gas Corp	COG	7,603.72	0.04%	1.86%	28.01%	30.14%	0.0106%
Cooper Cos Inc/The	COO	14,425.92	0.07%	0.03%	6.82%	6.85%	0.0046%
ConocoPhillips	COP	60,569.23	0.28%	2.33%	0.80%	3.14%	0.0088%
Costco Wholesale Corp	COST	130,626.48	0.61%	0.91%	9.28%	10.23%	0.0619%
Coty Inc	COTY	8,817.26	0.04%	3.70%	7.03%	10.86%	0.0044%
Campbell Soup Co	CPB	13,947.95	0.06%	3.10%	7.00%	10.21%	0.0066%
Capri Holdings Ltd	CPRI	4,709.57	N/A	0.00%	5.52%	N/A	N/A
Copart Inc	CPRT	19,193.15	N/A	0.00%	N/A	N/A	N/A
salesforce.com Inc	CRM	137,241.73	N/A	0.00%	21.63%	N/A	N/A
Cisco Systems Inc	CSCO	201,624.36	0.93%	3.04%	6.48%	9.62%	0.0898%
CSX Corp	CSX	54,974.79	0.25%	1.36%	12.12%	13.56%	0.0345%
Cintas Corp	CTAS	27,807.25	0.13%	0.84%	11.07%	11.95%	0.0154%
CenturyLink Inc	CTL	14,114.55	0.07%	7.73%	4.95%	12.87%	0.0084%
Cognizant Technology Solutions Corp	CTSH	33,368.66	0.15%	1.32%	11.25%	12.64%	0.0195%
Corteva Inc	CTVA	19,753.74	0.09%	1.58%	95.20%	97.54%	0.0893%
Citrix Systems Inc	CTXS	14,250.00	0.07%	1.29%	7.80%	9.14%	0.0060%
CVS Health Corp	CVS	86,339.98	0.40%	3.01%	6.23%	9.33%	0.0373%
Chevron Corp	CVX	220,482.32	1.02%	4.10%	1.48%	5.61%	0.0572%
Concho Resources Inc	CXO	13,573.46	0.06%	0.74%	13.81%	14.60%	0.0092%
Dominion Energy Inc	D	66,319.59	0.31%	4.43%	4.70%	9.23%	0.0284%
Delta Air Lines Inc	DAL	35,622.60	0.17%	2.72%	11.87%	14.75%	0.0243%
DuPont de Nemours Inc	DD	48,826.57	0.23%	1.65%	5.31%	7.00%	0.0158%
Deere & Co	DE	54,831.96	0.25%	1.72%	6.51%	8.28%	0.0210%
Discover Financial Services	DFS	25,158.96	0.12%	2.08%	7.19%	9.35%	0.0109%
Dollar General Corp	DG	41,218.33	0.19%	0.80%	10.68%	11.52%	0.0220%
Quest Diagnostics Inc	DGX	13,638.08	0.06%	2.07%	4.62%	6.75%	0.0043%
DR Horton Inc	DHI	19,051.29	0.09%	1.15%	12.85%	14.07%	0.0124%
Danaher Corp	DHR	98,993.51	0.46%	0.49%	14.87%	15.39%	0.0706%
Walt Disney Co/The	DIS	234,035.16	1.08%	1.36%	2.63%	4.00%	0.0434%
Discovery Inc	DISCA	19,406.06	N/A	0.00%	12.37%	N/A	N/A
DISH Network Corp	DISH	16,945.94	N/A	0.00%	-8.61%	N/A	N/A
Digital Realty Trust Inc	DLR	27,628.91	0.13%	3.40%	18.50%	22.21%	0.0284%
Dollar Tree Inc	DLTR	26,123.37	N/A	0.00%	8.39%	N/A	N/A
Dover Corp	DOV	15,091.72	0.07%	1.87%	10.80%	12.77%	0.0089%
Dow Inc	DOW	37,524.77	0.17%	5.07%	12.90%	18.29%	0.0318%
Duke Realty Corp	DRE	12,701.14	0.06%	2.48%	4.74%	7.28%	0.0043%
Darden Restaurants Inc	DRI	13,764.47	0.06%	3.15%	8.72%	12.01%	0.0077%
DTE Energy Co	DTE	24,458.82	0.11%	2.99%	5.63%	8.70%	0.0099%
Duke Energy Corp	DUK	68,677.94	0.32%	4.03%	5.01%	9.14%	0.0291%
DaVita Inc	DVA	8,106.19	N/A	0.00%	18.24%	N/A	N/A
Devon Energy Corp	DVN	8,197.18	0.04%	1.53%	7.01%	8.60%	0.0033%
DXC Technology Co	DXC	7,248.50	0.03%	2.99%	3.77%	6.81%	0.0023%
Electronic Arts Inc	EA	28,409.80	N/A	0.00%	-0.86%	N/A	N/A
eBay Inc	EBAY	28,676.76	0.13%	1.58%	12.48%	14.15%	0.0188%
Ecolab Inc	ECL	55,268.50	0.26%	0.96%	12.10%	13.12%	0.0336%
Consolidated Edison Inc	ED	30,630.34	0.14%	3.21%	3.88%	7.15%	0.0101%
Equifax Inc	EFX	16,553.31	0.08%	1.15%	11.67%	12.88%	0.0099%
Edison International	EIX	22,556.01	0.10%	3.90%	5.06%	9.07%	0.0095%
Estee Lauder Cos Inc/The	EL	67,266.50	0.31%	0.99%	11.18%	12.22%	0.0381%
Eastman Chemical Co	EMN	10,417.04	0.05%	3.15%	5.34%	8.58%	0.0041%
Emerson Electric Co	EMR	43,149.37	0.20%	2.80%	7.93%	10.84%	0.0217%
EOG Resources Inc	EOG	40,245.76	0.19%	1.48%	7.48%	9.01%	0.0168%
Equinix Inc	EQIX	48,073.83	0.22%	1.74%	18.62%	20.52%	0.0457%
Equity Residential	EQR	32,924.28	0.15%	2.56%	8.58%	11.25%	0.0172%
Eversource Energy	ES	27,098.44	0.13%	2.56%	6.39%	9.03%	0.0113%
Essex Property Trust Inc	ESS	21,617.29	0.10%	2.38%	8.39%	10.87%	0.0109%
E*TRADE Financial Corp	ETFC	9,477.78	0.04%	1.34%	-0.29%	1.06%	0.0005%
Eaton Corp PLC	ETN	36,011.27	0.17%	3.25%	8.53%	11.92%	0.0199%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Entergy Corp	ETR	24,185.12	0.11%	3.01%	-1.04%	1.96%	0.0022%
Evergy Inc	EVRG	15,048.73	0.07%	3.01%	7.61%	10.73%	0.0075%
Edwards Lifesciences Corp	EW	49,718.92	N/A	0.00%	16.00%	N/A	N/A
Exelon Corp	EXC	44,123.12	0.20%	3.18%	2.10%	5.31%	0.0109%
Expeditors International of Washington I	EXPD	12,452.33	0.06%	1.34%	9.73%	11.14%	0.0064%
Expedia Group Inc	EXPE	19,852.41	0.09%	0.96%	21.45%	22.51%	0.0207%
Extra Space Storage Inc	EXR	14,528.87	0.07%	3.16%	4.93%	8.17%	0.0055%
Ford Motor Co	F	34,058.47	0.16%	6.98%	3.06%	10.15%	0.0160%
Diamondback Energy Inc	FANG	13,982.61	0.06%	0.72%	26.69%	27.50%	0.0178%
Fastenal Co	FAST	20,612.57	0.10%	2.42%	14.20%	16.79%	0.0160%
Facebook Inc	FB	546,537.22	N/A	0.00%	19.35%	N/A	N/A
Fortune Brands Home & Security Inc	FBHS	8,408.15	0.04%	1.44%	9.05%	10.56%	0.0041%
Freepoint-McMoRan Inc	FCX	14,247.75	0.07%	2.04%	-2.36%	-0.35%	-0.0002%
FedEx Corp	FDX	39,830.57	0.18%	1.73%	19.52%	21.42%	0.0395%
FirstEnergy Corp	FE	26,092.17	0.12%	3.15%	0.49%	3.64%	0.0044%
F5 Networks Inc	FFIV	8,697.68	N/A	0.00%	8.34%	N/A	N/A
Fidelity National Information Services I	FIS	80,827.42	0.37%	1.06%	8.97%	10.08%	0.0377%
Fiserv Inc	FISV	72,126.58	N/A	0.00%	14.00%	N/A	N/A
Fifth Third Bancorp	FITB	20,896.39	0.10%	3.25%	5.05%	8.38%	0.0081%
FLIR Systems Inc	FLIR	6,991.85	0.03%	1.31%	13.10%	14.50%	0.0047%
Flowserve Corp	FLS	6,391.21	0.03%	1.59%	14.51%	16.21%	0.0048%
FleetCor Technologies Inc	FLT	25,470.01	N/A	0.00%	15.57%	N/A	N/A
FMC Corp	FMC	11,859.80	0.05%	1.75%	9.50%	11.33%	0.0062%
Fox Corp	FOXA	19,672.08	0.09%	1.31%	6.63%	7.99%	0.0073%
First Republic Bank/CA	FRC	17,538.97	0.08%	0.71%	9.43%	10.16%	0.0083%
Federal Realty Investment Trust	FRT	10,271.85	0.05%	3.05%	5.71%	8.85%	0.0042%
TechnipFMC PLC	FTI	8,809.08	0.04%	2.63%	18.55%	21.42%	0.0087%
Fortinet Inc	FTNT	13,946.06	N/A	0.00%	16.50%	N/A	N/A
Fortive Corp	FTV	23,170.49	0.11%	0.43%	9.35%	9.81%	0.0105%
General Dynamics Corp	GD	51,149.32	0.24%	2.28%	8.28%	10.65%	0.0252%
General Electric Co	GE	87,160.82	0.40%	0.42%	5.70%	6.13%	0.0248%
Gilead Sciences Inc	GILD	80,656.86	0.37%	3.94%	7.91%	12.00%	0.0448%
General Mills Inc	GIS	30,739.47	0.14%	3.89%	6.50%	10.52%	0.0150%
Globe Life Inc	GL	10,618.90	0.05%	0.70%	8.07%	8.80%	0.0043%
Corning Inc	GLW	22,788.72	0.11%	2.75%	8.38%	11.24%	0.0119%
General Motors Co	GM	53,093.62	0.25%	4.13%	12.00%	16.38%	0.0403%
Alphabet Inc	GOOGL	868,659.08	N/A	0.00%	12.38%	N/A	N/A
Genuine Parts Co	GPC	14,904.17	0.07%	2.94%	3.73%	6.72%	0.0046%
Global Payments Inc	GP	50,846.71	0.24%	0.02%	17.13%	17.16%	0.0404%
Gap Inc/The	GPS	6,110.31	0.03%	6.00%	5.03%	11.18%	0.0032%
Garmin Ltd	GRMN	18,569.76	0.09%	2.38%	6.96%	9.42%	0.0081%
Goldman Sachs Group Inc/The	GS	79,839.31	0.37%	1.96%	1.84%	3.82%	0.0141%
WW Grainger Inc	GW	16,636.05	0.08%	1.84%	10.53%	12.46%	0.0096%
Halliburton Co	HAL	16,897.73	0.08%	3.74%	4.40%	8.22%	0.0064%
Hasbro Inc	HAS	12,285.69	0.06%	2.78%	9.40%	12.31%	0.0070%
Huntington Bancshares Inc/OH	HBAN	14,592.83	0.07%	4.11%	5.24%	9.46%	0.0064%
Hanesbrands Inc	HBI	5,499.07	0.03%	4.10%	4.90%	9.10%	0.0023%
HCA Healthcare Inc	HCA	45,534.84	0.21%	0.90%	10.25%	11.19%	0.0236%
HCP Inc	HCP	18,475.57	0.09%	3.93%	3.04%	7.03%	0.0060%
Home Depot Inc/The	HD	256,901.01	1.19%	2.31%	9.32%	11.73%	0.1396%
Hess Corp	HES	20,019.60	0.09%	1.60%	-9.53%	-8.01%	-0.0074%
HollyFrontier Corp	HFC	9,041.92	0.04%	2.43%	-5.47%	-3.10%	-0.0013%
Hartford Financial Services Group Inc/Th	HIG	20,639.07	0.10%	2.17%	9.50%	11.77%	0.0113%
Huntington Ingalls Industries Inc	HI	9,327.55	0.04%	1.52%	40.00%	41.82%	0.0181%
Hilton Worldwide Holdings Inc	HLT	27,358.52	0.13%	0.62%	12.21%	12.87%	0.0163%
Harley-Davidson Inc	HOG	6,098.43	0.03%	3.87%	5.80%	9.78%	0.0028%
Hologic Inc	HOLX	12,913.56	N/A	0.00%	9.30%	N/A	N/A
Honeywell International Inc	HON	123,421.37	0.57%	1.93%	7.64%	9.64%	0.0551%
Helmerich & Payne Inc	HP	4,103.76	0.02%	7.59%	-4.23%	3.20%	0.0006%
Hewlett Packard Enterprise Co	HPE	21,424.92	0.10%	2.75%	6.52%	9.35%	0.0093%
HP Inc	HPQ	25,740.84	0.12%	3.68%	0.69%	4.38%	0.0052%
H&R Block Inc	HRB	5,015.99	0.02%	4.13%	10.00%	14.34%	0.0033%
Hormel Foods Corp	HRL	21,834.03	0.10%	2.05%	3.03%	5.11%	0.0052%
Henry Schein Inc	HSIC	9,278.80	N/A	0.00%	1.25%	N/A	N/A
Host Hotels & Resorts Inc	HST	11,963.12	0.06%	5.15%	27.24%	33.09%	0.0183%
Hershey Co/The	HSY	30,684.28	0.14%	2.04%	7.90%	10.02%	0.0142%
Humana Inc	HUM	39,743.27	0.18%	0.74%	13.38%	14.17%	0.0261%
International Business Machines Corp	IBM	118,436.30	0.55%	4.83%	1.89%	6.76%	0.0371%
Intercontinental Exchange Inc	ICE	52,522.05	0.24%	1.16%	8.80%	10.01%	0.0244%
IDEXX Laboratories Inc	IDXX	24,448.89	N/A	0.00%	18.53%	N/A	N/A
IDEX Corp	IEX	11,829.59	0.05%	1.24%	11.10%	12.41%	0.0068%
International Flavors & Fragrances Inc	IFF	13,027.61	0.06%	2.40%	12.65%	15.20%	0.0092%
Illumina Inc	ILMN	43,441.44	N/A	0.00%	22.26%	N/A	N/A
Incyte Corp	INCY	18,076.14	N/A	0.00%	43.15%	N/A	N/A
IHS Markit Ltd	INFO	28,077.18	N/A	0.00%	12.00%	N/A	N/A
Intel Corp	INTC	245,905.50	1.14%	2.22%	6.15%	8.44%	0.0962%
Intuit Inc	INTU	66,968.96	0.31%	0.80%	15.69%	16.54%	0.0513%
International Paper Co	IP	17,159.09	0.08%	4.61%	4.55%	9.26%	0.0074%
Interpublic Group of Cos Inc/The	IPG	8,433.17	0.04%	4.32%	10.28%	14.82%	0.0058%
IPG Photonics Corp	IPGP	7,121.65	N/A	0.00%	1.92%	N/A	N/A
IQVIA Holdings Inc	IQV	28,017.48	N/A	0.00%	17.75%	N/A	N/A
Ingersoll-Rand PLC	IR	30,402.44	0.14%	1.70%	9.41%	11.19%	0.0158%
Iron Mountain Inc	IRM	9,417.10	0.04%	7.50%	3.81%	11.45%	0.0050%
Intuitive Surgical Inc	ISRG	63,906.37	N/A	0.00%	14.05%	N/A	N/A
Gartner Inc	IT	13,782.91	N/A	0.00%	13.08%	N/A	N/A
Illinois Tool Works Inc	ITW	54,182.64	0.25%	2.42%	6.87%	9.37%	0.0235%
Invesco Ltd	IVZ	7,634.49	0.04%	7.35%	5.64%	13.20%	0.0047%
JB Hunt Transport Services Inc	JBHT	12,551.66	0.06%	0.88%	11.40%	12.33%	0.0072%
Johnson Controls International plc	JCI	34,477.97	0.16%	2.54%	7.57%	10.20%	0.0163%
Jacobs Engineering Group Inc	JEC	12,679.91	0.06%	0.66%	15.62%	16.33%	0.0096%
Jack Henry & Associates Inc	JKHY	10,893.05	0.05%	1.12%	9.20%	10.37%	0.0052%

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Johnson & Johnson	JNJ	347,512.43	1.61%	2.84%	5.31%	8.23%	0.1324%
Juniper Networks Inc	JNPR	8,583.15	0.04%	3.04%	7.36%	10.51%	0.0042%
JPMorgan Chase & Co	JPM	399,429.82	1.85%	2.72%	4.80%	7.59%	0.1404%
Nordstrom Inc	JWN	5,561.44	0.03%	4.23%	5.83%	10.19%	0.0026%
Kellogg Co	K	21,669.71	0.10%	3.57%	1.68%	5.28%	0.0053%
KeyCorp	KEY	17,764.03	0.08%	3.95%	4.89%	8.93%	0.0074%
Keysight Technologies Inc	KEYS	18,928.49	N/A	0.00%	N/A	N/A	N/A
Kraft Heinz Co/The	KHC	39,442.32	0.18%	4.95%	-1.87%	3.03%	0.0055%
Kimco Realty Corp	KIM	9,103.33	0.04%	5.26%	3.99%	9.35%	0.0039%
KLA Corp	KLAC	26,786.55	0.12%	1.94%	13.60%	15.67%	0.0194%
Kimberly-Clark Corp	KMB	45,552.01	0.21%	3.09%	4.88%	8.04%	0.0170%
Kinder Morgan Inc/DE	KMI	45,254.01	0.21%	4.98%	11.90%	17.18%	0.0360%
CarMax Inc	KMX	15,319.95	N/A	0.00%	10.68%	N/A	N/A
Coca-Cola Co/The	KO	233,204.87	1.08%	2.95%	6.04%	9.08%	0.0981%
Kroger Co/The	KR	19,751.95	0.09%	2.44%	4.75%	7.25%	0.0066%
Kohl's Corp	KSS	8,156.84	0.04%	5.22%	6.17%	11.55%	0.0044%
Kansas City Southern	KSU	13,954.06	0.06%	1.06%	12.73%	13.86%	0.0090%
Loews Corp	L	14,574.51	N/A	0.51%	N/A	N/A	N/A
L Brands Inc	LB	4,709.71	0.02%	7.05%	9.23%	16.60%	0.0036%
Leidos Holdings Inc	LDOS	12,207.05	0.06%	1.55%	10.00%	11.63%	0.0066%
Leggett & Platt Inc	LEG	6,744.42	N/A	3.08%	N/A	N/A	N/A
Lennar Corp	LEN	18,455.35	0.09%	0.27%	10.52%	10.80%	0.0092%
Laboratory Corp of America Holdings	LH	16,098.03	N/A	0.00%	8.20%	N/A	N/A
L3Harris Technologies Inc	LHX	45,919.42	N/A	1.39%	N/A	N/A	N/A
Linde PLC	LIN	107,226.32	0.50%	1.82%	12.63%	14.57%	0.0723%
LKQ Corp	LKQ	10,475.89	N/A	0.00%	13.50%	N/A	N/A
Eli Lilly & Co	LLY	109,406.90	0.51%	2.22%	10.25%	12.59%	0.0638%
Lockheed Martin Corp	LMT	106,250.66	0.49%	2.37%	9.36%	11.84%	0.0583%
Lincoln National Corp	LNC	11,306.88	0.05%	2.66%	9.00%	11.78%	0.0062%
Alliant Energy Corp	LNT	12,669.37	0.06%	2.67%	5.67%	8.41%	0.0049%
Lowe's Cos Inc	LOW	86,140.45	0.40%	1.88%	15.05%	17.07%	0.0681%
Lam Research Corp	LRCX	39,322.18	0.18%	1.67%	15.89%	17.68%	0.0322%
Southwest Airlines Co	LUV	30,170.83	0.14%	1.28%	7.55%	8.88%	0.0124%
Las Vegas Sands Corp	LVS	47,495.38	0.22%	5.11%	4.16%	9.37%	0.0206%
Lamb Weston Holdings Inc	LW	11,398.73	0.05%	1.06%	7.68%	8.78%	0.0046%
LyondellBasell Industries NV	LYB	30,071.54	0.14%	4.79%	6.40%	11.34%	0.0158%
Macy's Inc	M	4,683.15	0.02%	9.96%	3.50%	13.63%	0.0030%
Mastercard Inc	MA	279,263.56	1.29%	0.46%	18.28%	18.79%	0.2430%
Mid-America Apartment Communities Inc	MAA	15,851.04	N/A	2.76%	N/A	N/A	N/A
Macerich Co/The	MAC	3,884.80	0.02%	10.91%	-0.71%	10.16%	0.0018%
Marriott International Inc/MD	MAR	41,680.36	0.19%	1.46%	7.92%	9.44%	0.0182%
Masco Corp	MAS	13,230.89	0.06%	1.03%	9.01%	10.09%	0.0062%
McDonald's Corp	MCD	149,382.67	0.69%	2.41%	8.54%	11.06%	0.0765%
Microchip Technology Inc	MCHP	22,445.13	0.10%	1.47%	7.65%	9.17%	0.0095%
McKesson Corp	MCK	23,964.99	0.11%	1.24%	2.43%	3.69%	0.0041%
Moody's Corp	MCO	41,666.27	0.19%	0.94%	9.73%	10.72%	0.0207%
Mondelez International Inc	MDLZ	75,518.79	0.35%	2.04%	7.91%	10.04%	0.0351%
Medtronic PLC	MDT	146,107.81	0.68%	1.93%	7.55%	9.56%	0.0647%
MetLife Inc	MET	43,816.38	0.20%	3.71%	9.42%	13.30%	0.0270%
MGM Resorts International	MGM	14,860.66	0.07%	1.82%	12.60%	14.54%	0.0100%
Mohawk Industries Inc	MHK	10,345.23	N/A	0.00%	4.66%	N/A	N/A
McCormick & Co Inc/MD	MKC	21,357.14	0.10%	1.41%	6.20%	7.65%	0.0076%
MarketAxess Holdings Inc	MKTX	13,924.25	N/A	0.55%	N/A	N/A	N/A
Martin Marietta Materials Inc	MLM	16,369.51	0.08%	0.79%	16.02%	16.87%	0.0128%
Marsh & McLennan Cos Inc	MMC	52,293.72	0.24%	1.69%	10.65%	12.43%	0.0301%
3M Co	MMM	94,877.61	0.44%	3.43%	7.00%	10.55%	0.0464%
Monster Beverage Corp	MNST	30,584.08	N/A	0.00%	12.20%	N/A	N/A
Altria Group Inc	MO	83,673.39	0.39%	7.31%	6.35%	13.89%	0.0539%
Mosaic Co/The	MOS	7,671.04	0.04%	0.98%	12.87%	13.91%	0.0049%
Marathon Petroleum Corp	MPC	42,099.52	0.20%	3.32%	12.05%	15.57%	0.0304%
Merck & Co Inc	MRK	221,882.07	1.03%	2.54%	10.44%	13.11%	0.1348%
Marathon Oil Corp	MRO	9,270.61	0.04%	1.73%	1.55%	3.30%	0.0014%
Morgan Stanley	MS	74,785.20	0.35%	2.84%	10.54%	13.53%	0.0469%
MSCI Inc	MSCI	19,868.94	0.09%	1.07%	12.87%	14.00%	0.0129%
Microsoft Corp	MSFT	1,093,741.86	5.07%	1.40%	9.91%	11.37%	0.5762%
Motorola Solutions Inc	MSI	28,496.61	0.13%	1.38%	7.05%	8.48%	0.0112%
M&T Bank Corp	MTB	20,922.85	0.10%	2.64%	4.31%	7.01%	0.0068%
Mettler-Toledo International Inc	MTD	17,348.03	N/A	0.00%	13.50%	N/A	N/A
Micron Technology Inc	MU	52,640.27	N/A	0.00%	5.68%	N/A	N/A
Maxim Integrated Products Inc	MXIM	15,873.94	0.07%	3.22%	6.78%	10.10%	0.0074%
Mylan NV	MYL	9,878.91	N/A	0.00%	-5.72%	N/A	N/A
Noble Energy Inc	NBL	9,211.16	0.04%	2.42%	14.84%	17.44%	0.0074%
Norwegian Cruise Line Holdings Ltd	NCLH	10,943.72	0.05%	0.15%	8.27%	8.43%	0.0043%
Nasdaq Inc	NDAQ	16,430.90	0.08%	1.86%	13.85%	15.84%	0.0121%
NextEra Energy Inc	NEE	116,494.85	0.54%	2.09%	8.12%	10.29%	0.0556%
Newmont Goldcorp Corp	NEM	32,574.38	0.15%	1.73%	5.75%	7.53%	0.0114%
Netflix Inc	NFLX	125,957.80	N/A	0.00%	40.00%	N/A	N/A
NiSource Inc	NI	10,474.14	0.05%	2.86%	4.81%	7.74%	0.0038%
NIKE Inc	NKE	139,792.24	0.65%	1.03%	13.82%	14.93%	0.0967%
Nielsen Holdings PLC	NLSN	7,170.38	0.03%	6.99%	7.55%	14.81%	0.0049%
Northrop Grumman Corp	NOC	59,404.43	0.28%	1.45%	7.34%	8.84%	0.0243%
National Oilwell Varco Inc	NOV	8,727.52	0.04%	0.88%	54.53%	55.66%	0.0225%
NRG Energy Inc	NRG	10,149.87	0.05%	0.30%	35.49%	35.84%	0.0169%
Norfolk Southern Corp	NSC	47,455.89	0.22%	1.96%	12.74%	14.82%	0.0326%
NetApp Inc	NTAP	13,294.55	0.06%	3.42%	5.24%	8.75%	0.0054%
Northern Trust Corp	NTRS	21,120.36	0.10%	2.60%	8.36%	11.07%	0.0108%
Nucor Corp	NUE	16,325.00	0.08%	2.97%	0.40%	3.38%	0.0026%
NVIDIA Corp	NVDA	122,421.18	0.57%	0.32%	10.80%	11.13%	0.0631%
NVR Inc	NVR	13,448.78	N/A	0.00%	11.81%	N/A	N/A
Newell Brands Inc	NWL	8,031.90	0.04%	4.85%	-14.30%	-9.80%	-0.0036%
News Corp	NWSA	8,144.98	0.04%	1.42%	-13.55%	-12.23%	-0.0046%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Realty Income Corp	O	26,027.85	0.12%	3.32%	5.01%	8.41%	0.0101%
ONEOK Inc	OKE	28,845.70	0.13%	5.09%	12.11%	17.51%	0.0234%
Omnicom Group Inc	OMC	16,806.74	0.08%	3.37%	4.10%	7.54%	0.0059%
Oracle Corp	ORCL	178,864.36	0.83%	1.72%	8.38%	10.17%	0.0843%
O'Reilly Automotive Inc	ORLY	32,980.21	N/A	0.00%	12.25%	N/A	N/A
Occidental Petroleum Corp	OXY	36,226.43	0.17%	7.70%	11.90%	20.06%	0.0337%
Paychex Inc	PAYX	29,938.45	0.14%	2.99%	7.25%	10.35%	0.0144%
People's United Financial Inc	PBCT	6,447.79	0.03%	4.37%	2.00%	6.41%	0.0019%
PACCAR Inc	PCAR	26,307.15	0.12%	4.48%	5.03%	9.63%	0.0117%
Public Service Enterprise Group Inc	PEG	32,011.84	0.15%	2.97%	5.18%	8.22%	0.0122%
PepsiCo Inc	PEP	191,274.70	0.89%	2.75%	4.88%	7.70%	0.0682%
Pfizer Inc	PFE	212,226.33	0.98%	3.73%	3.49%	7.28%	0.0716%
Principal Financial Group Inc	PFGB	14,822.13	0.07%	4.08%	5.26%	9.45%	0.0065%
Procter & Gamble Co/The	PG	310,504.54	1.44%	2.41%	7.33%	9.83%	0.1414%
Progressive Corp/The	PGR	40,746.62	0.19%	3.89%	8.00%	12.04%	0.0227%
Parker-Hannifin Corp	PH	23,578.24	0.11%	1.85%	8.24%	10.16%	0.0111%
PulteGroup Inc	PHM	10,634.04	0.05%	1.13%	9.30%	10.48%	0.0052%
Packaging Corp of America	PKG	10,361.79	0.05%	2.92%	10.00%	13.06%	0.0063%
PerkinElmer Inc	PKI	9,548.11	0.04%	0.33%	16.97%	17.32%	0.0077%
Prologis Inc	PLD	55,350.25	0.26%	2.42%	7.75%	10.26%	0.0263%
Philip Morris International Inc	PM	126,710.43	0.59%	5.68%	6.60%	12.46%	0.0732%
PNC Financial Services Group Inc/The	PNC	64,401.30	0.30%	2.86%	7.14%	10.10%	0.0301%
Pentair PLC	PNR	6,970.82	0.03%	1.77%	6.20%	8.02%	0.0026%
Pinnacle West Capital Corp	PNW	10,570.04	0.05%	3.20%	5.40%	8.68%	0.0043%
PPG Industries Inc	PPG	29,586.28	0.14%	1.58%	6.29%	7.92%	0.0109%
PPL Corp	PPL	24,174.42	0.11%	4.94%	1.18%	6.15%	0.0069%
Perrigo Co PLC	PRGO	7,213.62	0.03%	1.46%	-1.60%	-0.15%	-0.0001%
Prudential Financial Inc	PRU	36,638.28	0.17%	4.39%	10.67%	15.29%	0.0260%
Public Storage	PSA	38,929.30	0.18%	3.61%	3.77%	7.45%	0.0134%
Phillips 66	PSX	51,909.85	0.24%	2.97%	-0.05%	2.92%	0.0070%
PVH Corp	PVH	6,462.37	0.03%	0.17%	6.52%	6.69%	0.0020%
Quanta Services Inc	PWR	5,999.20	N/A	0.29%	N/A	N/A	N/A
Pioneer Natural Resources Co	PXD	20,562.01	0.10%	0.66%	23.85%	24.58%	0.0234%
PayPal Holdings Inc	PYPL	122,233.43	N/A	0.00%	18.76%	N/A	N/A
QUALCOMM Inc	QCOM	97,787.51	0.45%	3.10%	14.37%	17.69%	0.0801%
Qorvo Inc	QRVO	9,524.07	0.04%	0.25%	10.76%	11.02%	0.0049%
Royal Caribbean Cruises Ltd	RCL	22,814.16	0.11%	2.66%	10.06%	12.85%	0.0136%
Everest Re Group Ltd	RE	10,484.39	0.05%	2.21%	10.00%	12.33%	0.0060%
Regency Centers Corp	REG	11,277.69	0.05%	3.48%	4.88%	8.45%	0.0044%
Regeneron Pharmaceuticals Inc	REGN	33,639.46	N/A	0.00%	12.28%	N/A	N/A
Regions Financial Corp	RF	16,064.13	0.07%	3.68%	8.48%	12.32%	0.0092%
Robert Half International Inc	RHI	6,732.72	0.03%	2.15%	-2.17%	-0.03%	0.0000%
Raymond James Financial Inc	RJF	11,504.92	0.05%	1.70%	11.10%	12.89%	0.0069%
Ralph Lauren Corp	RL	7,417.90	0.03%	2.83%	6.35%	9.27%	0.0032%
ResMed Inc	RMD	21,268.84	0.10%	1.10%	14.40%	15.57%	0.0153%
Rockwell Automation Inc	ROK	20,124.14	0.09%	2.23%	12.16%	14.52%	0.0135%
Rollins Inc	ROL	12,478.80	N/A	1.23%	N/A	N/A	N/A
Roper Technologies Inc	ROP	35,044.45	0.16%	0.56%	12.77%	13.36%	0.0217%
Ross Stores Inc	ROST	39,670.98	0.18%	0.93%	9.38%	10.35%	0.0190%
Republic Services Inc	RSG	27,928.35	0.13%	1.80%	12.52%	14.43%	0.0187%
Raytheon Co	RTN	59,096.03	0.27%	1.76%	8.68%	10.51%	0.0288%
SBA Communications Corp	SBAC	27,098.15	0.13%	0.28%	28.45%	28.77%	0.0361%
Starbucks Corp	SBUX	101,218.32	0.47%	1.98%	13.17%	15.28%	0.0717%
Charles Schwab Corp/The	SCHW	53,215.42	0.25%	1.67%	3.49%	5.19%	0.0128%
Sealed Air Corp	SEE	6,454.55	0.03%	1.54%	5.16%	6.74%	0.0020%
Sherwin-Williams Co/The	SHW	52,830.42	0.24%	0.78%	11.24%	12.06%	0.0295%
SVB Financial Group	SIVB	11,418.59	N/A	0.00%	11.00%	N/A	N/A
JM Smucker Co/The	SJM	12,052.57	0.06%	3.34%	2.97%	6.36%	0.0035%
Schlumberger Ltd	SLB	45,255.69	0.21%	6.12%	27.22%	34.17%	0.0716%
SL Green Realty Corp	SLG	6,900.15	0.03%	4.09%	7.30%	11.54%	0.0037%
Snap-on Inc	SNA	8,921.86	0.04%	2.34%	6.74%	9.15%	0.0038%
Synopsys Inc	SNPS	20,401.40	N/A	0.00%	14.38%	N/A	N/A
Southern Co/The	SO	65,776.18	0.30%	3.94%	3.98%	8.00%	0.0244%
Simon Property Group Inc	SPG	46,239.01	0.21%	5.51%	3.96%	9.58%	0.0205%
S&P Global Inc	SPGI	63,052.76	0.29%	0.87%	10.47%	11.39%	0.0333%
Sempra Energy	SRE	39,655.48	0.18%	2.69%	9.25%	12.06%	0.0222%
SunTrust Banks Inc	STI	30,345.22	0.14%	3.09%	1.21%	4.32%	0.0061%
State Street Corp	STT	24,024.59	0.11%	3.00%	7.14%	10.24%	0.0114%
Seagate Technology PLC	STX	15,328.32	0.07%	4.41%	1.26%	5.69%	0.0040%
Constellation Brands Inc	STZ	36,525.81	0.17%	1.57%	5.73%	7.34%	0.0124%
Stanley Black & Decker Inc	SWK	23,003.95	0.11%	1.78%	7.69%	9.54%	0.0102%
Skyworks Solutions Inc	SWKS	15,635.29	0.07%	1.73%	12.93%	14.77%	0.0107%
Synchrony Financial	SYF	22,855.84	0.11%	2.43%	5.57%	8.07%	0.0085%
Stryker Corp	SYK	80,964.30	0.38%	0.97%	9.38%	10.40%	0.0390%
Symantec Corp	SYMC	14,140.56	0.07%	1.32%	3.35%	4.70%	0.0031%
Sysco Corp	SYYS	40,893.98	0.19%	2.09%	11.13%	13.34%	0.0253%
AT&T Inc	T	281,092.47	1.30%	5.31%	5.62%	11.08%	0.1442%
Molson Coors Brewing Co	TAP	11,500.41	0.05%	3.73%	-3.45%	0.21%	0.0001%
TransDigm Group Inc	TDG	28,090.06	N/A	0.00%	13.77%	N/A	N/A
TE Connectivity Ltd	TEL	29,990.47	0.14%	2.08%	9.16%	11.33%	0.0157%
Teleflex Inc	TFX	16,061.75	0.07%	0.39%	14.50%	14.92%	0.0111%
Target Corp	TGT	54,623.37	0.25%	2.45%	8.23%	10.77%	0.0273%
Tiffany & Co	TIF	15,040.64	0.07%	1.84%	8.42%	10.33%	0.0072%
TJX Cos Inc/The	TJX	69,694.97	0.32%	1.60%	11.07%	12.75%	0.0412%
Thermo Fisher Scientific Inc	TMO	120,935.67	0.56%	0.24%	11.70%	11.95%	0.0670%
T-Mobile US Inc	TMUS	70,721.81	0.33%	0.61%	11.27%	11.91%	0.0390%
Tapestry Inc	TPR	7,443.28	0.03%	5.27%	8.83%	14.34%	0.0049%
TripAdvisor Inc	TRIP	5,627.73	N/A	0.00%	14.28%	N/A	N/A
T Rowe Price Group Inc	TROW	27,059.84	0.13%	2.60%	7.89%	10.59%	0.0133%
Travelers Cos Inc/The	TRV	33,828.26	0.16%	2.46%	11.75%	14.36%	0.0225%
Tractor Supply Co	TSCO	11,332.56	0.05%	1.42%	10.83%	12.33%	0.0065%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Tyson Foods Inc	TSN	30,192.38	0.14%	1.81%	4.44%	6.29%	0.0088%
Take-Two Interactive Software Inc	TTWO	13,620.98	N/A	0.00%	7.59%	N/A	N/A
Twitter Inc	TWTR	23,267.41	N/A	0.00%	25.40%	N/A	N/A
Texas Instruments Inc	TXN	110,294.15	0.51%	2.70%	8.35%	11.17%	0.0571%
Textron Inc	TXT	10,520.63	0.05%	0.17%	10.29%	10.47%	0.0051%
Under Armour Inc	UAA	8,789.61	N/A	0.00%	30.48%	N/A	N/A
United Airlines Holdings Inc	UAL	22,986.49	0.11%	0.02%	17.42%	17.44%	0.0186%
UDR Inc	UDR	14,725.93	0.07%	2.72%	6.29%	9.09%	0.0062%
Universal Health Services Inc	UHS	12,163.68	0.06%	0.40%	6.15%	6.56%	0.0037%
Ulta Beauty Inc	ULTA	13,720.63	N/A	0.00%	18.04%	N/A	N/A
UnitedHealth Group Inc	UNH	239,478.89	1.11%	1.63%	12.98%	14.72%	0.1632%
Unum Group	UNM	5,680.63	0.03%	3.99%	9.00%	13.17%	0.0035%
Union Pacific Corp	UNP	114,862.31	0.53%	2.22%	12.83%	15.19%	0.0808%
United Parcel Service Inc	UPS	98,795.44	0.46%	3.33%	8.48%	11.95%	0.0547%
United Rentals Inc	URI	10,038.58	N/A	0.00%	10.80%	N/A	N/A
US Bancorp	USB	89,578.42	0.41%	2.77%	6.40%	9.26%	0.0384%
United Technologies Corp	UTX	123,948.15	0.57%	2.06%	9.75%	11.91%	0.0684%
Visa Inc	V	353,069.64	1.64%	0.62%	15.54%	16.22%	0.2652%
Varian Medical Systems Inc	VAR	11,001.05	N/A	0.00%	8.80%	N/A	N/A
VF Corp	VFC	32,765.95	0.15%	2.17%	9.93%	12.20%	0.0185%
Viacom Inc	VIAB	8,812.38	0.04%	3.72%	3.38%	7.16%	0.0029%
Valero Energy Corp	VLO	40,188.85	0.19%	3.72%	15.00%	19.00%	0.0354%
Vulcan Materials Co	VMC	18,899.82	0.09%	0.86%	17.32%	18.25%	0.0160%
Vornado Realty Trust	VNO	12,525.51	0.06%	4.30%	5.46%	9.88%	0.0057%
Verisk Analytics Inc	VRSK	23,711.96	0.11%	0.52%	18.84%	19.41%	0.0213%
VeriSign Inc	VRSN	22,310.06	N/A	0.00%	10.30%	N/A	N/A
Vertex Pharmaceuticals Inc	VRTX	50,245.29	N/A	0.00%	28.41%	N/A	N/A
Ventas Inc	VTR	24,265.12	0.11%	4.88%	4.86%	9.86%	0.0111%
Verizon Communications Inc	VZ	250,090.87	1.16%	3.99%	2.64%	6.68%	0.0774%
Wabtec Corp	WAB	13,298.13	0.06%	0.64%	53.45%	54.26%	0.0334%
Waters Corp	WAT	13,635.60	N/A	0.00%	10.84%	N/A	N/A
Walgreens Boots Alliance Inc	WBA	48,893.40	0.23%	3.35%	5.31%	8.75%	0.0198%
WellCare Health Plans Inc	WCG	14,927.17	N/A	0.00%	19.87%	N/A	N/A
Western Digital Corp	WDC	15,353.38	0.07%	3.87%	3.07%	7.00%	0.0050%
WEC Energy Group Inc	WEC	29,777.14	0.14%	2.50%	6.44%	9.02%	0.0124%
Welltower Inc	WELL	36,801.97	0.17%	3.84%	6.34%	10.30%	0.0176%
Wells Fargo & Co	WFC	220,413.63	1.02%	3.71%	9.56%	13.44%	0.1372%
Whirlpool Corp	WHR	9,613.95	0.04%	3.14%	4.07%	7.27%	0.0032%
Willis Towers Watson PLC	WLTW	24,109.07	0.11%	1.35%	14.40%	15.85%	0.0177%
Waste Management Inc	WM	47,604.11	0.22%	1.83%	7.50%	9.39%	0.0207%
Williams Cos Inc/The	WMB	27,040.81	0.13%	6.81%	8.00%	15.08%	0.0189%
Walmart Inc	WMT	333,520.75	1.54%	1.83%	7.97%	9.88%	0.1527%
Westrock Co	WRK	9,616.85	0.04%	4.84%	1.80%	6.68%	0.0030%
Western Union Co/The	WU	10,622.71	0.05%	3.17%	3.61%	6.84%	0.0034%
Weyerhaeuser Co	WY	21,765.61	0.10%	4.66%	3.80%	8.54%	0.0086%
Wynn Resorts Ltd	WYNN	13,058.12	0.06%	3.09%	13.50%	16.80%	0.0102%
Cimarex Energy Co	XEC	4,283.51	0.02%	1.82%	17.59%	19.57%	0.0039%
Xcel Energy Inc	XEL	33,958.04	0.16%	2.55%	5.61%	8.23%	0.0130%
Xilinx Inc	XLNX	22,818.15	0.11%	1.63%	9.05%	10.75%	0.0114%
Exxon Mobil Corp	XOM	285,895.85	1.32%	5.07%	8.48%	13.77%	0.1823%
DENTSPLY SIRONA Inc	XRAY	12,280.77	0.06%	0.65%	13.14%	13.84%	0.0079%
Xerox Holdings Corp	XRX	7,508.16	0.03%	2.98%	5.90%	8.96%	0.0031%
Xylem Inc/NY	XYL	13,806.43	0.06%	1.26%	14.07%	15.41%	0.0099%
Yum! Brands Inc	YUM	30,818.13	0.14%	1.65%	12.42%	14.17%	0.0202%
Zimmer Biomet Holdings Inc	ZBH	28,380.63	0.13%	0.71%	6.02%	6.75%	0.0089%
Zions Bancorp NA	ZION	8,257.98	0.04%	2.64%	6.09%	8.81%	0.0034%
Zoetis Inc	ZTS	61,089.21	0.28%	0.51%	10.23%	10.77%	0.0305%
Total Market Capitalization:		21,587,616.00					11.46%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Bloomberg Professional
- [3] Equals [1] - [2]
- [4] Source: Bloomberg Professional
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Bloomberg Professional
- [7] Source: Bloomberg Professional
- [8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
- [9] Equals Col. [5] x Col. [8]

Dividend Paying Market Risk Premium Based CAPM - 6-Month Average Risk-Free Rate

Company	Ticker	[1] Market ROE	[2] Risk-Free Rate	[3] Risk Premium	[4] Beta	[5] Unadjusted ROE	[6] Market Cap	[7] Size Adjustment	[8] Adjusted ROE
ALLETE, Inc.	ALE	11.46%	2.41%	9.05%	0.65	8.29%	4,482.05	1.28%	9.57%
Alliant Energy Corporation	LNT	11.46%	2.41%	9.05%	0.60	7.84%	12,667.24	0.81%	8.65%
Ameren Corporation	AEE	11.46%	2.41%	9.05%	0.55	7.38%	19,719.10	0.52%	7.90%
American Electric Power Company, Inc.	AEP	11.46%	2.41%	9.05%	0.55	7.38%	46,169.83	-0.30%	7.08%
Avangrid, Inc.	AGR	11.46%	2.41%	9.05%	0.40	6.03%	15,700.56	0.52%	6.55%
Avista Corporation	AVA	11.46%	2.41%	9.05%	0.60	7.84%	3,179.43	1.28%	9.12%
Black Hills Corporation	BKH	11.46%	2.41%	9.05%	0.70	8.74%	4,726.66	0.85%	9.59%
CenterPoint Energy, Inc.	CNP	11.46%	2.41%	9.05%	0.80	9.65%	14,643.33	0.52%	10.17%
CMS Energy Corporation	CMS	11.46%	2.41%	9.05%	0.55	7.38%	18,125.71	0.52%	7.90%
Consolidated Edison, Inc.	ED	11.46%	2.41%	9.05%	0.45	6.48%	30,840.03	-0.30%	6.18%
Dominion Energy, Inc.	D	11.46%	2.41%	9.05%	0.55	7.38%	65,451.94	-0.30%	7.08%
DTE Energy Company	DTE	11.46%	2.41%	9.05%	0.55	7.38%	23,956.61	0.52%	7.90%
Duke Energy Corporation	DUK	11.46%	2.41%	9.05%	0.50	6.93%	69,599.37	-0.30%	6.63%
Entergy Corporation	ETR	11.46%	2.41%	9.05%	0.60	7.84%	23,457.52	0.52%	8.36%
Eversource Energy	ES	11.46%	2.41%	9.05%	0.60	7.84%	27,474.25	0.52%	8.36%
Exelon Corporation	EXC	11.46%	2.41%	9.05%	0.70	8.74%	45,606.18	-0.30%	8.44%
Evergy, Inc. [9]	EVRG	11.46%	2.41%	9.05%	0.51	6.99%	15,240.08	0.52%	7.51%
NextEra Energy, Inc.	NEE	11.46%	2.41%	9.05%	0.55	7.38%	113,329.57	-0.30%	7.08%
NorthWestern Corporation	NWE	11.46%	2.41%	9.05%	0.60	7.84%	3,755.01	1.28%	9.12%
OGE Energy Corp.	OGE	11.46%	2.41%	9.05%	0.80	9.65%	8,772.77	0.81%	10.46%
Otter Tail Corporation	OTTR	11.46%	2.41%	9.05%	0.65	8.29%	2,159.68	1.50%	9.79%
Pinnacle West Capital Corporation	PNW	11.46%	2.41%	9.05%	0.55	7.38%	10,715.02	0.81%	8.19%
Portland General Electric Company	POR	11.46%	2.41%	9.05%	0.60	7.84%	5,051.74	0.85%	8.69%
PPL Corporation	PPL	11.46%	2.41%	9.05%	0.65	8.29%	22,995.90	0.52%	8.81%
Public Service Enterprise Group Incorporated	PEG	11.46%	2.41%	9.05%	0.65	8.29%	31,424.13	-0.30%	7.99%
Sempra Energy	SRE	11.46%	2.41%	9.05%	0.75	9.20%	39,799.45	-0.30%	8.90%
Southern Company	SO	11.46%	2.41%	9.05%	0.50	6.93%	64,563.21	-0.30%	6.63%
WEC Energy Group, Inc.	WEC	11.46%	2.41%	9.05%	0.50	6.93%	29,668.74	-0.30%	6.63%
Xcel Energy Inc.	XEL	11.46%	2.41%	9.05%	0.50	6.93%	33,303.89	-0.30%	6.63%

Median 22,995.90 8.19%

Low-End Outlier (Moody's Utility Baa + 100 basis points): 5.00%

High-End Outlier (Median \* 150%): 12.29%

Zone of reasonableness high: 10.46%

Zone of reasonableness low: 6.18%

Zone of reasonableness median: 8.19%

Zone of reasonableness upper median: 8.90%

Notes:

[1] Source: Exhibit No. LSPG-NY-703

[2] 6-month average 30-year Treasury yield as of 10/31/2019, Source: Bloomberg Professional

[3] Equals [1] - [2]

[4] Source: Value Line

[5] Equals [2] + [3] x [4]

[6] Source: Bloomberg Professional (30-day average as of 10/31/2019)

[7] Source: Duff & Phelps', Cost of Capital Navigator

[8] Equals [5] + [7]

Dividend Paying Market Risk Premium Based CAPM - Near Term Projected Risk-Free Rate

Company	Ticker	[1] Market ROE	[2] Risk-Free Rate	[3] Risk Premium	[4] Beta	[5] Unadjusted ROE	[6] Market Cap	[7] Size Adjustment	[8] Adjusted ROE
ALLETE, Inc.	ALE	11.46%	2.28%	9.17%	0.65	8.25%	4,482.05	1.28%	9.53%
Alliant Energy Corporation	LNT	11.46%	2.28%	9.17%	0.60	7.79%	12,667.24	0.81%	8.60%
Ameren Corporation	AEE	11.46%	2.28%	9.17%	0.55	7.33%	19,719.10	0.52%	7.85%
American Electric Power Company, Inc.	AEP	11.46%	2.28%	9.17%	0.55	7.33%	46,169.83	-0.30%	7.03%
Avangrid, Inc.	AGR	11.46%	2.28%	9.17%	0.40	5.95%	15,700.56	0.52%	6.47%
Avista Corporation	AVA	11.46%	2.28%	9.17%	0.60	7.79%	3,179.43	1.28%	9.07%
Black Hills Corporation	BKH	11.46%	2.28%	9.17%	0.70	8.71%	4,726.66	0.85%	9.56%
CenterPoint Energy, Inc.	CNP	11.46%	2.28%	9.17%	0.80	9.62%	14,643.33	0.52%	10.14%
CMS Energy Corporation	CMS	11.46%	2.28%	9.17%	0.55	7.33%	18,125.71	0.52%	7.85%
Consolidated Edison, Inc.	ED	11.46%	2.28%	9.17%	0.45	6.41%	30,840.03	-0.30%	6.11%
Dominion Energy, Inc.	D	11.46%	2.28%	9.17%	0.55	7.33%	65,451.94	-0.30%	7.03%
DTE Energy Company	DTE	11.46%	2.28%	9.17%	0.55	7.33%	23,956.61	0.52%	7.85%
Duke Energy Corporation	DUK	11.46%	2.28%	9.17%	0.50	6.87%	69,599.37	-0.30%	6.57%
Entergy Corporation	ETR	11.46%	2.28%	9.17%	0.60	7.79%	23,457.52	0.52%	8.31%
Eversource Energy	ES	11.46%	2.28%	9.17%	0.60	7.79%	27,474.25	0.52%	8.31%
Exelon Corporation	EXC	11.46%	2.28%	9.17%	0.70	8.71%	45,606.18	-0.30%	8.41%
Evergy, Inc. [9]	EVRG	11.46%	2.28%	9.17%	0.51	6.93%	15,240.08	0.52%	7.45%
NextEra Energy, Inc.	NEE	11.46%	2.28%	9.17%	0.55	7.33%	113,329.57	-0.30%	7.03%
NorthWestern Corporation	NWE	11.46%	2.28%	9.17%	0.60	7.79%	3,755.01	1.28%	9.07%
OGE Energy Corp.	OGE	11.46%	2.28%	9.17%	0.80	9.62%	8,772.77	0.81%	10.43%
Otter Tail Corporation	OTTR	11.46%	2.28%	9.17%	0.65	8.25%	2,159.68	1.50%	9.75%
Pinnacle West Capital Corporation	PNW	11.46%	2.28%	9.17%	0.55	7.33%	10,715.02	0.81%	8.14%

Portland General Electric Company	POR	11.46%	2.28%	9.17%	0.60	7.79%	5,051.74	0.85%	8.64%
PPL Corporation	PPL	11.46%	2.28%	9.17%	0.65	8.25%	22,995.90	0.52%	8.77%
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Sempra Energy	SRE	11.46%	2.28%	9.17%	0.75	9.16%	39,799.45	-0.30%	8.86%
Southern Company	SO	11.46%	2.28%	9.17%	0.50	6.87%	64,563.21	-0.30%	6.57%
WEC Energy Group, Inc.	WEC	11.46%	2.28%	9.17%	0.50	6.87%	29,668.74	-0.30%	6.57%
Xcel Energy Inc.	XEL	11.46%	2.28%	9.17%	0.50	6.87%	33,303.89	-0.30%	6.57%
Median							22,995.90		8.14%

Low-End Outlier (Moody's Utility Baa + 100 basis points): 5.00%  
High-End Outlier (Median \* 150%): 12.21%

Zone of reasonableness high: 10.43%  
Zone of reasonableness low: 6.11%  
Zone of reasonableness median: 8.14%  
Zone of reasonableness upper median: 8.86%

Notes:

[1] Source: Exhibit No. LSPG-NY-703

[2] Blue Chip Financial Forecasts, Vol. 38, No. 11, November 1, 2019, at 2.

[3] Equals [1] - [2]

[4] Source: Value Line

[5] Equals [2] + [3] x [4]

[6] Source: Bloomberg Professional (30-day average as of 10/31/2019)

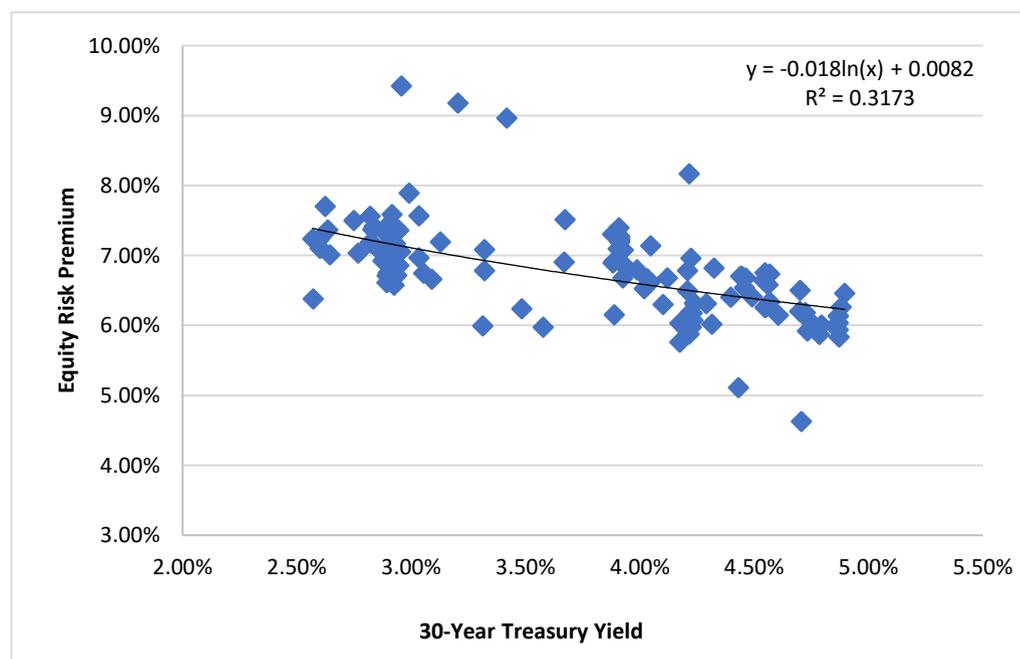
[7] Source: Duff & Phelps', Cost of Capital Navigator

[8] Equals [5] + [7]

[9] Calculated Using Bloomberg Beta Workbook

FERC Electric Rate Case Bond Yield Plus Risk Premium - 30-year Treasury Yields

[1] Constant	[2] Slope	[3] 30-Year Treasury Yield	[4] Risk Premium	[5] Return on Equity
0.82%	-1.79%			
	Current	2.41%	7.50%	9.91%
	Near Term Projected	2.28%	7.60%	9.88%
	Long Term Projected	3.70%	6.73%	10.43%
			Mean:	10.08%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Source: Current = Bloomberg Professional (six-month average)  
Near Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 11, November 1, 2019, at 2  
Long Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: Review of FERC Cases
- [7] Source: Review of FERC Cases
- [8] Source: Review of FERC Cases
- [9] Source: Review of FERC Cases
- [10] Source: Bloomberg Professional, equals 250-trading day average (i.e. lag period)
- [11] Equals [9] - [10]

FERC Electric Rate Case Bond Yield Plus Risk Premium - 30-year Treasury Yields

[6] Date of FERC Rate Case	[7] Docket No.	[8] Utility	[9] Return on Equity	[10] Average 30-Year Treasury Yield	[11] Risk Premium
4/1/2006	ER05-515	Baltimore Gas & Elec.	10.80%	4.55%	6.25%
4/1/2006	ER05-515	Baltimore Gas & Elec.	11.30%	4.55%	6.75%
8/1/2006	ER05-925	Westar Energy Inc.	10.80%	4.79%	6.01%
10/31/2006	ER04-157	Bangor Hydro-Elec. Co.	11.14%	4.88%	6.26%
4/23/2007	ER07-284	San Diego Gas & Elec.	11.35%	4.90%	6.45%
7/1/2007	ER06-1320	Wisconsin Elec. Pwr. Co.	11.00%	4.87%	6.13%
7/30/2007	ER06-787	Idaho Power Co.	10.70%	4.87%	5.83%
10/29/2007	ER07-583	Commonwealth Edison Co.	11.00%	4.87%	6.13%
11/1/2007	ER08-10	Pepco Holdings, Inc.	10.80%	4.87%	5.93%
11/16/2007	EL06-109	Duquesne Light Co.	10.90%	4.87%	6.03%
2/1/2008	ER08-374	Atlantic Path 15	10.65%	4.78%	5.87%

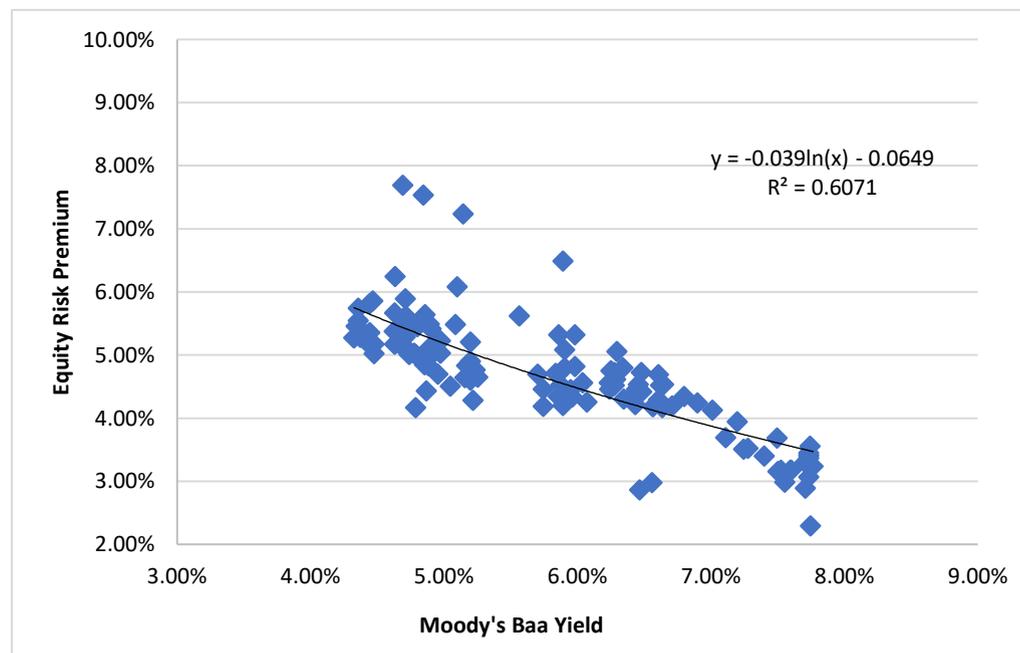
3/24/2008	ER08-396	Westar Energy Inc.	10.80%	4.74%	6.06%
3/31/2008	ER08-413	Startrans IO, LLC	10.65%	4.73%	5.92%
4/21/2008	EL05-19	Southwestern Public Service	9.33%	4.71%	4.62%
4/25/2008	ER07-562	Trans-Allegheny	11.20%	4.70%	6.50%
4/29/2008	ER08-92	Virginia Elec. & Power Co.	10.90%	4.70%	6.20%
4/7/2008	ER07-549	NSTAR Elec. Co.	10.90%	4.72%	6.18%
7/2/2008	ER07-1142	Arizona Public Service Co.	10.75%	4.61%	6.14%
4/15/2010	ER08-375	So. Cal Edison (a)	9.54%	4.43%	5.11%
8/1/2008	ER08-1207	Virginia Elec. & Power Co.	10.90%	4.57%	6.33%
8/1/2008	ER08-686	Pepco Holdings, Inc.	11.30%	4.57%	6.73%
8/12/2008	ER07-694	New England Pwr. Co.	11.14%	4.56%	6.58%
9/1/2008	ER08-1233	Public Service Elec. & Gas	11.18%	4.54%	6.64%
8/22/2008	ER08-1423	Pepco Holdings, Inc.	10.80%	4.55%	6.25%
10/20/2008	EL08-74	Central Maine Power Co.	11.14%	4.46%	6.68%
10/1/2008	ER08-1402	Duquesne Light Co.	10.90%	4.49%	6.41%
11/1/2008	ER08-1548	Northeast Utils Service Co.	11.14%	4.45%	6.69%
11/17/2008	EL08-77	Central Maine Power Co.	11.14%	4.44%	6.70%
12/18/2008	ER09-14	NSTAR Elec. Co.	11.14%	4.32%	6.82%
12/2/2008	ER09-35/36	Tallgrass / Prairie Wind	10.80%	4.40%	6.40%
2/10/2009	ER08-1584	Black Hills Power Co.	10.80%	4.12%	6.68%
3/27/2009	ER09-75	Pioneer Transmission	10.54%	4.02%	6.52%
3/16/2009	ER09-548	ITC Great Plains	10.66%	4.04%	6.62%
3/13/2009	ER09-249	Public Service Elec. & Gas	11.18%	4.05%	7.13%
3/20/2009	ER07-1069	AEP - SPP Zone	10.70%	4.03%	6.67%
4/10/2009	ER09-681	Green Power Express	10.78%	3.99%	6.79%
5/26/2009	ER08-1457	PPL Elec. Utilities Corp.	11.10%	3.91%	7.19%
5/26/2009	ER08-1457	PPL Elec. Utilities Corp.	11.14%	3.91%	7.23%
5/26/2009	ER08-1457	PPL Elec. Utilities Corp.	11.18%	3.91%	7.27%
5/29/2009	ER09-745	Baltimore Gas & Elec.	11.30%	3.91%	7.39%
5/13/2009	ER08-552	Niagara Mohawk Pwr. Co.	11.00%	3.93%	7.07%
5/14/2009	ER08-281	Oklahoma Gas & Elec.	10.60%	3.92%	6.68%
6/10/2009	ER08-1588	Kentucky Utilities Co.	11.00%	3.90%	7.10%
8/15/2009	ER09-187	So. Cal Edison (b)	10.04%	3.89%	6.15%
8/21/2009	ER07-1344	Westar Energy Inc.	10.80%	3.89%	6.91%
10/7/2009	ER08-313	Xcel Energy	10.77%	3.88%	6.89%
11/24/2009	ER09-628	National Grid Generation LLC	10.75%	3.94%	6.81%
11/19/2009	ER09-1762	Westar Energy Inc.	10.80%	3.93%	6.87%
5/5/2010	ER08-1329	AEP - PJM Zone	10.99%	4.46%	6.53%
9/15/2010	ER10-160	So. Cal Edison (c)	10.33%	4.31%	6.02%
10/7/2010	ER10-230	KCPL	10.60%	4.29%	6.31%
4/21/2011	ER10-355	AEP Transco -PJM	10.99%	4.21%	6.78%
4/21/2011	ER10-355	AEP Transco-SPP	10.70%	4.21%	6.49%
12/29/2010	ER11-1952	So. Cal Edison	10.30%	4.23%	6.07%
2/11/2011	ER11-2377	Northern Pass Transmission	10.40%	4.23%	6.17%
5/19/2011	EL10-80	Ameren	12.38%	4.22%	8.16%
5/19/2011	EL11-13	Atlantic Grid Operations	10.09%	4.22%	5.87%
6/3/2011	ER10-1377	Xcel Energy	10.40%	4.22%	6.18%
6/13/2011	ER11-3352	PJM & PSE&G	11.18%	4.22%	6.96%
6/15/2011	ER10-992	Northern States Power Co.	10.20%	4.23%	5.97%
6/30/2011	ER10-516	South Carolina Elec. & Gas	10.55%	4.24%	6.31%
10/11/2011	ER11-2895	Duke Energy Carolinas	10.20%	4.17%	6.03%
10/11/2011	ER11-4069	RITELine	9.93%	4.17%	5.76%
11/7/2011	ER08-386	PATH	10.40%	4.10%	6.30%
12/30/2011	ER12-296	PJM & PSE&G	11.18%	3.88%	7.30%
5/23/2012	ER11-2853	Public Service Colorado	10.10%	3.32%	6.78%
5/23/2012	ER11-2853	Public Service Colorado	10.40%	3.32%	7.08%
6/19/2012	ER12-1593	DATC Midwest Holdings	12.38%	3.20%	9.18%
12/31/2012	ER12-1378	Cleco Power LLC	10.50%	2.92%	7.58%
5/6/2013	ER12-778	Puget Sound Energy	9.80%	2.89%	6.91%
5/7/2013	ER12-779	Puget Sound Energy (PSANI)	10.30%	2.89%	7.41%
5/6/2013	ER11-2560	Entergy Arkansas	10.20%	2.89%	7.31%
3/19/2013	ER12-2554	Transource Missouri	9.80%	2.91%	6.89%
3/26/2013	ER11-3643	PacifiCorp	9.80%	2.90%	6.90%
6/20/2013	ER12-2681	ITC Holdings	12.38%	2.96%	9.42%
8/8/2013	ER12-1650	Maine Public Service Co.	9.75%	3.09%	6.66%

11/5/2013	ER11-3697	So. Cal Edison	9.30%	3.31%	5.99%
3/11/2014	ER13-941	San Diego Gas & Electric	9.55%	3.58%	5.97%
5/27/2014	ER14-1608	Public Service Electric & Gas	11.18%	3.67%	7.51%
6/19/2014	EL11-66	New England Transmission Owners	10.57%	3.67%	6.90%
10/28/2014	EL13-86	Public Service Co. of Colorado	9.72%	3.48%	6.24%
11/26/2014	ER15-13	Transource Wisconsin	12.38%	3.42%	8.96%
4/16/2015	ER 12-91	Duke Energy Ohio & Duke Energy Kentucky	10.88%	2.99%	7.89%
5/6/2015	ER13-685	Public Service Company of New Mexico	10.00%	2.95%	7.05%
5/13/2015	EL14-29	Niagara Mohawk Pwr. Co.	10.30%	2.95%	7.35%
5/13/2015	ER14-1661	MidAmerican Central California Transco, LLC	9.80%	2.95%	6.85%
8/3/2015	EL14-93	Westar Energy, Inc.	9.80%	2.88%	6.92%
9/15/2015	EL14-5	Kentucky Utilities Co.	10.25%	2.84%	7.41%
10/29/2015	ER15-303	FirstEnergy ATSI	10.38%	2.82%	7.56%
10/29/2015	ER15-949	Southwestern Public Service Company	10.00%	2.82%	7.18%
11/19/2015	ER15-1618	Duke Energy Florida	10.00%	2.82%	7.18%
12/7/2015	ER14-2751	Xcel Energy Southwest Trans. (General ROE)	10.20%	2.83%	7.37%
12/7/2015	ER14-2751	Xcel Energy Southwest Trans. (Zone 11)	10.00%	2.83%	7.17%
2/23/2016	EL13-48	Pepco, Delmarva ACE, BG&E	10.00%	2.89%	7.11%
3/7/2016	ER15-2237	Kanstar Transmission	9.80%	2.89%	6.91%
3/17/2016	ER15-572	New York Transco	9.50%	2.89%	6.61%
3/29/2016	ER15-2114	Transource West Virginia	10.00%	2.90%	7.10%
5/6/2016	ER15-1809	ATX Southwest	9.90%	2.87%	7.03%
7/7/2016	ER15-958	Transource Kansas	9.80%	2.77%	7.03%
9/13/2016	ER15-2069	NorthWestern Corporation	9.65%	2.65%	7.00%
9/21/2016	EL16-30	Duke Energy Carolinas & Duke Energy Progress	10.00%	2.63%	7.37%
9/28/2016	EL14-12	Midwest ISO Transmission Owners	10.32%	2.62%	7.70%
10/14/2016	ER15-2239	NextEra Energy Transmission West	9.70%	2.60%	7.10%
10/14/2016	ER16-453	Northeast Transmission West	9.85%	2.60%	7.25%
10/20/2016	ER15-1682	TransCanyon DCR	9.80%	2.59%	7.21%
11/6/2016	ER16-835	New York Power Authority	8.95%	2.57%	6.38%
11/29/2016	ER15-2594	South Central MCN	9.80%	2.57%	7.23%
9/14/2017	ER15-572	New York Transco	9.65%	2.90%	6.75%
10/10/2017	ER17-856	Rockland Electric Co.	9.50%	2.93%	6.57%
11/3/2017	ER16-2717	NextEra Energy Transmission Midwest	10.32%	2.93%	7.39%
11/20/2017	ER15-1429	Emera Maine	9.60%	2.92%	6.68%
11/21/2017	ER17-211	PJM & MAIT	9.80%	2.92%	6.88%
1/18/2018	ER16-2720	NextEra Energy Transmission Southwest	9.80%	2.88%	6.92%
1/18/2018	ER17-419	Transource Pennsylvania/Maryland	9.90%	2.88%	7.02%
4/30/2018	ER17-706	GridLiance West Transco LLC	9.60%	2.89%	6.71%
4/30/2018	ER16-2716	NextEra Energy Transmission Midatlantic	9.60%	2.89%	6.71%
5/24/2018	ER17-135	DesertLink, LLC	9.80%	2.91%	6.89%
6/14/2018	ER18-1560	Southwestern Electric Power Company	10.10%	2.93%	7.17%
6/26/2018	ER16-2719	NextEra Energy Transmission New York	9.65%	2.94%	6.71%
1/29/2019	ER18-2342	GridLiance Heartland	10.32%	3.13%	7.19%
6/11/2019	ER19-605	Republic Transmission, LLC	9.80%	3.06%	6.74%
6/28/2019	ER19-1427	Alabama Power Company	10.60%	3.03%	7.57%
6/28/2019	ER19-1396	Southwest Power Pool, Inc.	10.00%	3.03%	6.97%
10/17/2019	ER18-193	Gulf Power Company	10.25%	2.75%	7.50%

# of cases 124  
Average: 6.78%

FERC Electric Rate Case Bond Yield Plus Risk Premium - Baa Yields

[1] Constant	[2] Slope	[3] Baa Yield	[4] Risk Premium	[5] Return on Equity
-6.49%	-3.90%			
	Current	4.00%	6.06%	10.06%
	Near Term Projected	4.17%	5.90%	10.06%
	Long Term Projected	5.70%	4.68%	10.38%
			Mean:	10.16%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Source: Current = Bloomberg Professional (six-month average)  
Near Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 11, November 1, 2019, at 2  
Long Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: Review of FERC Cases
- [7] Source: Review of FERC Cases
- [8] Source: Review of FERC Cases
- [9] Source: Review of FERC Cases
- [10] Source: Bloomberg Professional, equals 250-trading day average (i.e. lag period)
- [11] Equals [9] - [10]

FERC Electric Rate Case Bond Yield Plus Risk Premium - Baa Yields

[6] Date of FERC Rate Case	[7] Docket No.	[8] Utility	[9] Return on Equity	[10] Average Moody's Baa Yield	[11] Risk Premium
4/1/2006	ER05-515	Baltimore Gas & Elec.	10.80%	5.98%	4.82%
4/1/2006	ER05-515	Baltimore Gas & Elec.	11.30%	5.98%	5.32%
8/1/2006	ER05-925	Westar Energy Inc.	10.80%	6.24%	4.56%
10/31/2006	ER04-157	Bangor Hydro-Elec. Co.	11.14%	6.34%	4.80%
4/23/2007	ER07-284	San Diego Gas & Elec.	11.35%	6.30%	5.05%
7/1/2007	ER06-1320	Wisconsin Elec. Pwr. Co.	11.00%	6.25%	4.75%
7/30/2007	ER06-787	Idaho Power Co.	10.70%	6.24%	4.46%
10/29/2007	ER07-583	Commonwealth Edison Co.	11.00%	6.28%	4.72%
11/1/2007	ER08-10	Pepco Holdings, Inc.	10.80%	6.28%	4.52%
11/16/2007	EL06-109	Duquesne Light Co.	10.90%	6.29%	4.61%
2/1/2008	ER08-374	Atlantic Path 15	10.65%	6.35%	4.30%
3/24/2008	ER08-396	Westar Energy Inc.	10.80%	6.42%	4.38%

3/31/2008	ER08-413	Startrans IO, LLC	10.65%	6.43%	4.22%
4/21/2008	EL05-19	Southwestern Public Service	9.33%	6.47%	2.86%
4/25/2008	ER07-562	Trans-Allegheny	11.20%	6.48%	4.72%
4/29/2008	ER08-92	Virginia Elec. & Power Co.	10.90%	6.48%	4.42%
4/7/2008	ER07-549	NSTAR Elec. Co.	10.90%	6.44%	4.46%
7/2/2008	ER07-1142	Arizona Public Service Co.	10.75%	6.57%	4.18%
4/15/2010	ER08-375	So. Cal Edison (a)	9.54%	6.56%	2.98%
8/1/2008	ER08-1207	Virginia Elec. & Power Co.	10.90%	6.61%	4.29%
8/1/2008	ER08-686	Pepco Holdings, Inc.	11.30%	6.61%	4.69%
8/12/2008	ER07-694	New England Pwr. Co.	11.14%	6.62%	4.52%
9/1/2008	ER08-1233	Public Service Elec. & Gas	11.18%	6.65%	4.54%
8/22/2008	ER08-1423	Pepco Holdings, Inc.	10.80%	6.64%	4.16%
10/20/2008	EL08-74	Central Maine Power Co.	11.14%	6.80%	4.34%
10/1/2008	ER08-1402	Duquesne Light Co.	10.90%	6.71%	4.19%
11/1/2008	ER08-1548	Northeast Utils Service Co.	11.14%	6.90%	4.24%
11/17/2008	EL08-77	Central Maine Power Co.	11.14%	7.01%	4.13%
12/18/2008	ER09-14	NSTAR Elec. Co.	11.14%	7.20%	3.94%
12/2/2008	ER09-35/36	Tallgrass / Prairie Wind	10.80%	7.11%	3.69%
2/10/2009	ER08-1584	Black Hills Power Co.	10.80%	7.40%	3.40%
3/27/2009	ER09-75	Pioneer Transmission	10.54%	7.55%	2.99%
3/16/2009	ER09-548	ITC Great Plains	10.66%	7.50%	3.16%
3/13/2009	ER09-249	Public Service Elec. & Gas	11.18%	7.50%	3.68%
3/20/2009	ER07-1069	AEP - SPP Zone	10.70%	7.53%	3.17%
4/10/2009	ER09-681	Green Power Express	10.78%	7.60%	3.18%
5/26/2009	ER08-1457	PPL Elec. Utilities Corp.	11.10%	7.73%	3.37%
5/26/2009	ER08-1457	PPL Elec. Utilities Corp.	11.14%	7.73%	3.41%
5/26/2009	ER08-1457	PPL Elec. Utilities Corp.	11.18%	7.73%	3.45%
5/29/2009	ER09-745	Baltimore Gas & Elec.	11.30%	7.74%	3.56%
5/13/2009	ER08-552	Niagara Mohawk Pwr. Co.	11.00%	7.70%	3.30%
5/14/2009	ER08-281	Oklahoma Gas & Elec.	10.60%	7.71%	2.89%
6/10/2009	ER08-1588	Kentucky Utilities Co.	11.00%	7.77%	3.23%
8/15/2009	ER09-187	So. Cal Edison (b)	10.04%	7.75%	2.29%
8/21/2009	ER07-1344	Westar Energy Inc.	10.80%	7.73%	3.07%
10/7/2009	ER08-313	Xcel Energy	10.77%	7.59%	3.18%
11/24/2009	ER09-628	National Grid Generation LLC	10.75%	7.25%	3.50%
11/19/2009	ER09-1762	Westar Energy Inc.	10.80%	7.28%	3.52%
5/5/2010	ER08-1329	AEP - PJM Zone	10.99%	6.46%	4.53%
9/15/2010	ER10-160	So. Cal Edison (c)	10.33%	6.07%	4.26%
10/7/2010	ER10-230	KCPL	10.60%	6.04%	4.56%
4/21/2011	ER10-355	AEP Transco -PJM	10.99%	5.90%	5.09%
4/21/2011	ER10-355	AEP Transco-SPP	10.70%	5.90%	4.80%
12/29/2010	ER11-1952	So. Cal Edison	10.30%	5.96%	4.34%
2/11/2011	ER11-2377	Northern Pass Transmission	10.40%	5.95%	4.45%
5/19/2011	EL10-80	Ameren	12.38%	5.89%	6.49%
5/19/2011	EL11-13	Atlantic Grid Operations	10.09%	5.89%	4.20%
6/3/2011	ER10-1377	Xcel Energy	10.40%	5.87%	4.53%
6/13/2011	ER11-3352	PJM & PSE&G	11.18%	5.86%	5.32%
6/15/2011	ER10-992	Northern States Power Co.	10.20%	5.86%	4.34%
6/30/2011	ER10-516	South Carolina Elec. & Gas	10.55%	5.84%	4.71%
10/11/2011	ER11-2895	Duke Energy Carolinas	10.20%	5.74%	4.46%
10/11/2011	ER11-4069	RITELine	9.93%	5.74%	4.19%
11/7/2011	ER08-386	PATH	10.40%	5.70%	4.70%
12/30/2011	ER12-296	PJM & PSE&G	11.18%	5.56%	5.62%
5/23/2012	ER11-2853	Public Service Colorado	10.10%	5.20%	4.90%
5/23/2012	ER11-2853	Public Service Colorado	10.40%	5.20%	5.20%
6/19/2012	ER12-1593	DATC Midwest Holdings	12.38%	5.14%	7.24%
12/31/2012	ER12-1378	Cleco Power LLC	10.50%	4.86%	5.64%
5/6/2013	ER12-778	Puget Sound Energy	9.80%	4.70%	5.10%
5/7/2013	ER12-779	Puget Sound Energy (PSANI)	10.30%	4.70%	5.60%
5/6/2013	ER11-2560	Entergy Arkansas	10.20%	4.70%	5.50%
3/19/2013	ER12-2554	Transource Missouri	9.80%	4.78%	5.02%
3/26/2013	ER11-3643	PacifiCorp	9.80%	4.77%	5.03%
6/20/2013	ER12-2681	ITC Holdings	12.38%	4.69%	7.69%
8/8/2013	ER12-1650	Maine Public Service Co.	9.75%	4.74%	5.01%
11/5/2013	ER11-3697	So. Cal Edison	9.30%	4.87%	4.43%

3/11/2014	ER13-941	San Diego Gas & Electric	9.55%	5.05%	4.50%
5/27/2014	ER14-1608	Public Service Electric & Gas	11.18%	5.10%	6.08%
6/19/2014	EL11-66	New England Transmission Owners	10.57%	5.08%	5.49%
10/28/2014	EL13-86	Public Service Co. of Colorado	9.72%	4.88%	4.84%
11/26/2014	ER15-13	Transource Wisconsin	12.38%	4.84%	7.54%
4/16/2015	ER 12-91	Duke Energy Ohio & Duke Energy Kentucky	10.88%	4.63%	6.25%
5/6/2015	ER13-685	Public Service Company of New Mexico	10.00%	4.63%	5.37%
5/13/2015	EL14-29	Niagara Mohawk Pwr. Co.	10.30%	4.63%	5.67%
5/13/2015	ER14-1661	MidAmerican Central California Transco, LLC	9.80%	4.63%	5.17%
8/3/2015	EL14-93	Westar Energy, Inc.	9.80%	4.73%	5.07%
9/15/2015	EL14-5	Kentucky Utilities Co.	10.25%	4.80%	5.45%
10/29/2015	ER15-303	FirstEnergy ATSI	10.38%	4.89%	5.49%
10/29/2015	ER15-949	Southwestern Public Service Company	10.00%	4.89%	5.11%
11/19/2015	ER15-1618	Duke Energy Florida	10.00%	4.94%	5.06%
12/7/2015	ER14-2751	Xcel Energy Southwest Trans. (General ROE)	10.20%	4.97%	5.23%
12/7/2015	ER14-2751	Xcel Energy Southwest Trans. (Zone 11)	10.00%	4.97%	5.03%
2/23/2016	EL13-48	Pepco, Delmarva ACE, BG&E	10.00%	5.17%	4.83%
3/7/2016	ER15-2237	Kanstar Transmission	9.80%	5.20%	4.60%
3/17/2016	ER15-572	New York Transco	9.50%	5.22%	4.28%
3/29/2016	ER15-2114	Transource West Virginia	10.00%	5.23%	4.77%
5/6/2016	ER15-1809	ATX Southwest	9.90%	5.25%	4.65%
7/7/2016	ER15-958	Transource Kansas	9.80%	5.16%	4.64%
9/13/2016	ER15-2069	NorthWestern Corporation	9.65%	4.95%	4.70%
9/21/2016	EL16-30	Duke Energy Carolinas & Duke Energy Progress	10.00%	4.93%	5.07%
9/28/2016	EL14-12	Midwest ISO Transmission Owners	10.32%	4.90%	5.42%
10/14/2016	ER15-2239	NextEra Energy Transmission West	9.70%	4.85%	4.85%
10/14/2016	ER16-453	Northeast Transmission West	9.85%	4.85%	5.00%
10/20/2016	ER15-1682	TransCanyon DCR	9.80%	4.84%	4.96%
11/6/2016	ER16-835	New York Power Authority	8.95%	4.79%	4.16%
11/29/2016	ER15-2594	South Central MCN	9.80%	4.74%	5.06%
9/14/2017	ER15-572	New York Transco	9.65%	4.48%	5.17%
10/10/2017	ER17-856	Rockland Electric Co.	9.50%	4.48%	5.02%
11/3/2017	ER16-2717	NextEra Energy Transmission Midwest	10.32%	4.47%	5.85%
11/20/2017	ER15-1429	Emera Maine	9.60%	4.45%	5.15%
11/21/2017	ER17-211	PJM & MAIT	9.80%	4.45%	5.35%
1/18/2018	ER16-2720	NextEra Energy Transmission Southwest	9.80%	4.36%	5.44%
1/18/2018	ER17-419	Transource Pennsylvania/Maryland	9.90%	4.36%	5.54%
4/30/2018	ER17-706	GridLiance West Transco LLC	9.60%	4.33%	5.27%
4/30/2018	ER16-2716	NextEra Energy Transmission Midatlantic	9.60%	4.33%	5.27%
5/24/2018	ER17-135	DesertLink, LLC	9.80%	4.34%	5.46%
6/14/2018	ER18-1560	Southwestern Electric Power Company	10.10%	4.36%	5.74%
6/26/2018	ER16-2719	NextEra Energy Transmission New York	9.65%	4.37%	5.28%
1/29/2019	ER18-2342	GridLiance Heartland	10.32%	4.72%	5.60%
6/11/2019	ER19-605	Republic Transmission, LLC	9.80%	4.73%	5.07%
6/28/2019	ER19-1427	Alabama Power Company	10.60%	4.71%	5.89%
6/28/2019	ER19-1396	Southwest Power Pool, Inc.	10.00%	4.71%	5.29%
10/17/2019	ER18-193	Gulf Power Company	10.25%	4.44%	5.81%

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Average: 4.70%

## Expected Earnings Analysis

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Expected ROE 2022-2024	Shares Outstanding 2019	Shares Outstanding 2022-24	% Increase	Adjustment Factor	Adjusted ROE
ALLETE, Inc.	ALE	9.5%	51.75	51.75	0.00%	1.000	9.50%
Alliant Energy Corporation	LNT	10.0%	240.00	250.00	0.82%	1.004	10.04%
Ameren Corporation	AEE	10.5%	246.50	255.00	0.68%	1.003	10.54%
American Electric Power Company, Inc.	AEP	10.5%	494.65	518.00	0.93%	1.005	10.55%
Avangrid, Inc.	AGR	6.0%	309.00	309.00	0.00%	1.000	6.00%
Avista Corporation	AVA	8.0%	67.00	71.00	1.17%	1.006	8.05%
Black Hills Corporation	BKH	9.5%	61.50	62.50	0.32%	1.002	9.52%
CenterPoint Energy, Inc.	CNP	10.0%	503.00	540.00	1.43%	1.007	10.07%
CMS Energy Corporation	CMS	14.0%	285.00	297.00	0.83%	1.004	14.06%
Consolidated Edison, Inc.	ED	8.5%	334.00	344.00	0.59%	1.003	8.53%
Dominion Energy, Inc.	D	13.0%	808.00	860.00	1.26%	1.006	13.08%
DTE Energy Company	DTE	10.5%	192.00	200.00	0.82%	1.004	10.54%
Duke Energy Corporation	DUK	8.5%	733.00	755.00	0.59%	1.003	8.53%
Entergy Corporation	ETR	11.0%	199.00	210.00	1.08%	1.005	11.06%
Eversource Energy	ES	9.0%	324.00	350.00	1.56%	1.008	9.07%
Exelon Corporation	EXC	9.0%	972.00	988.00	0.33%	1.002	9.01%
Evergy, Inc.	EVRG	8.5%	225.00	212.00	-1.18%	0.994	8.45%
NextEra Energy, Inc.	NEE	13.5%	535.00	535.00	0.00%	1.000	13.50%
NorthWestern Corporation	NWE	9.0%	50.50	51.10	0.24%	1.001	9.01%
OGE Energy Corp.	OGE	11.5%	200.00	200.00	0.00%	1.000	11.50%
Otter Tail Corporation	OTTR	11.0%	40.25	41.80	0.76%	1.004	11.04%
Pinnacle West Capital Corporation	PNW	10.5%	112.30	114.00	0.30%	1.002	10.52%
Portland General Electric Company	POR	9.0%	89.40	90.00	0.13%	1.001	9.01%
PPL Corporation	PPL	13.0%	770.00	780.00	0.26%	1.001	13.02%
Public Service Enterprise Group Incorporated	PEG	11.0%	505.00	505.00	0.00%	1.000	11.00%
Sempra Energy	SRE	12.0%	290.00	320.00	1.99%	1.010	12.12%
Southern Company	SO	12.5%	1050.00	1090.00	0.75%	1.004	12.55%
WEC Energy Group, Inc.	WEC	12.0%	315.50	315.50	0.00%	1.000	12.00%
Xcel Energy Inc.	XEL	11.0%	525.00	530.00	0.19%	1.001	11.01%
						Median	10.54%

Low-End Outlier (Moody's Utility Baa + 100 basis points): 5.00%  
High-End Outlier (Median \* 150%): 15.80%

Zone of reasonableness high: 14.06%  
Zone of reasonableness low: 6.00%  
Zone of reasonableness median: 10.54%  
Zone of reasonableness upper median: 11.50%

## Notes:

[1] Source: Value Line

[2] Source: Value Line

[3] Source: Value Line

[4] Equals  $=(\frac{[3]}{[2]})^{(1/5)}-1$ [5] Equals  $(2 \times (1 + [4])) / (2 + [4])$ [6] Equals  $[1] \times [5]$

## Two-Step DCF Results

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Dividend Yield	Yahoo First Call Earnings Growth	Long-Term Growth Rate	Weighted Growth Rate	Expected Dividend Yield	DCF Result
ALLETE, Inc.	ALE	2.77%	7.00%	4.26%	6.09%	2.87%	8.96%
Alliant Energy Corporation	LNT	2.82%	5.15%	4.26%	4.85%	2.90%	7.75%
Ameren Corporation	AEE	2.52%	4.70%	4.26%	4.55%	2.58%	7.13%
American Electric Power Company, Inc.	AEP	3.00%	6.05%	4.26%	5.45%	3.10%	8.55%
Avangrid, Inc.	AGR	3.50%	6.00%	4.26%	5.42%	3.61%	9.03%
Avista Corporation	AVA	3.41%	3.30%	4.26%	3.62%	3.47%	7.09%
Black Hills Corporation	BKH	2.65%	3.01%	4.26%	3.43%	2.69%	6.12%
CenterPoint Energy, Inc.	CNP	3.96%	4.88%	4.26%	4.67%	4.05%	8.73%
CMS Energy Corporation	CMS	2.57%	7.37%	4.26%	6.33%	2.66%	9.00%
Consolidated Edison, Inc.	ED	3.34%	3.31%	4.26%	3.63%	3.39%	7.02%
Dominion Energy, Inc.	D	4.75%	4.60%	4.26%	4.49%	4.86%	9.35%
DTE Energy Company	DTE	2.98%	3.66%	4.26%	3.86%	3.03%	6.89%
Duke Energy Corporation	DUK	4.15%	4.06%	4.26%	4.13%	4.24%	8.36%
Entergy Corporation	ETR	3.43%	-1.60%	4.26%	0.35%	3.40%	3.75%
Eversource Energy	ES	2.74%	5.60%	4.26%	5.15%	2.81%	7.97%
Exelon Corporation	EXC	3.05%	-2.24%	4.26%	-0.07%	3.02%	2.94%
Evergy, Inc.	EVRG	3.07%	6.70%	4.26%	5.89%	3.18%	9.06%
NextEra Energy, Inc.	NEE	2.35%	7.99%	4.26%	6.75%	2.45%	9.19%
NorthWestern Corporation	NWE	3.19%	3.11%	4.26%	3.49%	3.24%	6.73%
OGE Energy Corp.	OGE	3.46%	3.40%	4.26%	3.69%	3.52%	7.21%
Otter Tail Corporation	OTTR	2.68%	9.00%	4.26%	7.42%	2.80%	10.22%
Pinnacle West Capital Corporation	PNW	3.15%	5.11%	4.26%	4.83%	3.23%	8.06%
Portland General Electric Company	POR	2.80%	4.40%	4.26%	4.35%	2.86%	7.21%
PPL Corporation	PPL	5.41%	0.50%	4.26%	1.75%	5.42%	7.17%
Public Service Enterprise Group Incorporated	PEG	3.13%	3.95%	4.26%	4.05%	3.19%	7.25%
Sempra Energy	SRE	2.80%	9.75%	4.26%	7.92%	2.94%	10.86%
Southern Company	SO	4.35%	1.32%	4.26%	2.30%	4.38%	6.68%
WEC Energy Group, Inc.	WEC	2.70%	6.12%	4.26%	5.50%	2.79%	8.29%
Xcel Energy Inc.	XEL	2.66%	5.20%	4.26%	4.89%	2.72%	7.61%
Mean		3.22%	4.53%	4.26%			7.73%
Median		3.05%	4.70%	4.26%			7.75%
						Low-End Outlier (7.25%):	7.25%
						High-End Outlier (Median * 150%):	11.62%
						Zone of reasonableness high:	10.86%
						Zone of reasonableness low:	7.61%
						Zone of reasonableness median:	8.84%

## Notes

[1] Source: Bloomberg (6-month average of dividend yield as of October 31, 2019 using an average of the monthly high and low stock prices and indicated dividend for each month)

[2] Source: Yahoo! Finance.

[3] Source: EIA AEO 2019, SSA 2019 OASDI Trustees Report, Blue Chip Financial Forecasts Vol. 38, No. 6, June 1, 2019, at 14

[4] Equals  $(2/3) \times \text{Col. [2]} + (1/3) \times \text{Col. [3]}$

[5] Equals  $\text{Col. [1]} \times (1 + 0.5 \times \text{Col. [2]})$

[6] Equals  $\text{Col. [4]} + \text{Col. [5]}$

## Adjusted Two-Step DCF Results

Company	Ticker	[1] Dividend Yield	[2] Yahoo First Call Earnings Growth	[3] Long-Term Growth Rate	[4] Weighted Growth Rate	[5] Expected Dividend Yield	[6] DCF Result
ALLETE, Inc.	ALE	2.77%	7.00%	5.16%	6.39%	2.87%	9.26%
Alliant Energy Corporation	LNT	2.82%	5.15%	5.16%	5.15%	2.90%	8.05%
Ameren Corporation	AEE	2.52%	4.70%	5.16%	4.85%	2.58%	7.44%
American Electric Power Company, Inc.	AEP	3.00%	6.05%	5.16%	5.75%	3.10%	8.85%
Avangrid, Inc.	AGR	3.50%	6.00%	5.16%	5.72%	3.61%	9.33%
Avista Corporation	AVA	3.41%	3.30%	5.16%	3.92%	3.47%	7.39%
Black Hills Corporation	BKH	2.65%	3.01%	5.16%	3.73%	2.69%	6.42%
CenterPoint Energy, Inc.	CNP	3.96%	4.88%	5.16%	4.97%	4.05%	9.03%
CMS Energy Corporation	CMS	2.57%	7.37%	5.16%	6.63%	2.66%	9.30%
Consolidated Edison, Inc.	ED	3.34%	3.31%	5.16%	3.93%	3.39%	7.32%
Dominion Energy, Inc.	D	4.75%	4.60%	5.16%	4.79%	4.86%	9.65%
DTE Energy Company	DTE	2.98%	3.66%	5.16%	4.16%	3.03%	7.19%
Duke Energy Corporation	DUK	4.15%	4.06%	5.16%	4.43%	4.24%	8.66%
Entergy Corporation	ETR	3.43%	-1.60%	5.16%	0.65%	3.40%	4.05%
Eversource Energy	ES	2.74%	5.60%	5.16%	5.45%	2.81%	8.27%
Exelon Corporation	EXC	3.05%	-2.24%	5.16%	0.23%	3.02%	3.24%
Evergy, Inc.	EVRG	3.07%	6.70%	5.16%	6.19%	3.18%	9.36%
NextEra Energy, Inc.	NEE	2.35%	7.99%	5.16%	7.05%	2.45%	9.49%
NorthWestern Corporation	NWE	3.19%	3.11%	5.16%	3.79%	3.24%	7.04%
OGE Energy Corp.	OGE	3.46%	3.40%	5.16%	3.99%	3.52%	7.51%
Otter Tail Corporation	OTTR	2.68%	9.00%	5.16%	7.72%	2.80%	10.52%
Pinnacle West Capital Corporation	PNW	3.15%	5.11%	5.16%	5.13%	3.23%	8.36%
Portland General Electric Company	POR	2.80%	4.40%	5.16%	4.65%	2.86%	7.52%
PPL Corporation	PPL	5.41%	0.50%	5.16%	2.05%	5.42%	7.47%
Public Service Enterprise Group Incorporated	PEG	3.13%	3.95%	5.16%	4.35%	3.19%	7.55%
Sempra Energy	SRE	2.80%	9.75%	5.16%	8.22%	2.94%	11.16%
Southern Company	SO	4.35%	1.32%	5.16%	2.60%	4.38%	6.98%
WEC Energy Group, Inc.	WEC	2.70%	6.12%	5.16%	5.80%	2.79%	8.59%
Xcel Energy Inc.	XEL	2.66%	5.20%	5.16%	5.19%	2.72%	7.91%
Mean		3.22%	4.53%	5.16%			8.03%
Median		3.05%	4.70%	5.16%			8.05%
						Low-End Outlier (7.25%):	7.25%
						High-End Outlier (Median * 150%):	12.08%
						Zone of reasonableness high:	11.16%
						Zone of reasonableness low:	7.32%
						Zone of reasonableness median:	8.59%

## Notes

[1] Source: Bloomberg (6-month average of dividend yield as of October 31, 2019 using an average of the monthly high and low stock prices and indicated dividend for each month)

[2] Source: Yahoo! Finance.

[3] Source: Federal Reserve, Bureau of Economic Analysis, Blue Chip Financial Forecasts Vol. 38, No. 6, June 1, 2019, at 14

[4] Equals  $(2/3) \times \text{Col. [2]} + (1/3) \times \text{Col. [3]}$

[5] Equals  $\text{Col. [1]} \times (1 + 0.5 \times \text{Col. [2]})$

[6] Equals  $\text{Col. [4]} + \text{Col. [5]}$

Ex-Ante Market Risk Premium - Opinion No. 569 Method  
Market DCF Method Based - Bloomberg

[1]	[2]	[3]
S&P 500	Current 30-Year	
Est. Required	Treasury (6-month	Implied Market
Market Return	average)	Risk Premium
11.24%	2.41%	8.83%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	23,442.18	0.11%	0.86%	13.53%	14.45%	0.0161%
American Airlines Group Inc	AAL	13,168.02	0.06%	1.33%	4.73%	6.09%	0.0038%
Advance Auto Parts Inc	AAP	11,598.96	0.06%	0.15%	15.31%	15.47%	0.0085%
Apple Inc	AAPL	1,105,306.60	5.26%	1.29%	11.28%	12.63%	0.6641%
AbbVie Inc	ABBV	117,636.43	0.56%	5.41%	6.05%	11.62%	0.0650%
AmerisourceBergen Corp	ABC	17,786.83	0.08%	1.88%	6.32%	8.26%	0.0070%
ABIOMED Inc	ABMD	9,373.30	N/A	0.00%	24.00%	N/A	N/A
Abbott Laboratories	ABT	147,860.58	0.70%	1.51%	9.44%	11.02%	0.0775%
Accenture PLC	ACN	117,931.32	0.56%	1.73%	10.03%	11.85%	0.0664%
Adobe Inc	ADBE	134,539.97	N/A	0.00%	16.00%	N/A	N/A
Analog Devices Inc	ADI	39,389.78	0.19%	1.96%	9.72%	11.77%	0.0220%
Archer-Daniels-Midland Co	ADM	23,403.09	0.11%	3.34%	0.10%	3.44%	0.0038%
Automatic Data Processing Inc	ADP	70,310.48	0.33%	1.99%	12.55%	14.67%	0.0490%
Alliance Data Systems Corp	ADS	5,109.76	0.02%	2.47%	10.07%	12.66%	0.0031%
Autodesk Inc	ADSK	32,358.43	N/A	0.00%	47.95%	N/A	N/A
Ameren Corp	AEE	19,685.49	0.09%	2.51%	4.99%	7.56%	0.0071%
American Electric Power Co Inc	AEP	46,624.11	0.22%	2.87%	5.77%	8.72%	0.0193%
AES Corp/VA	AES	11,318.64	0.05%	3.23%	8.37%	11.74%	0.0063%
Aflac Inc	AFL	39,020.40	0.19%	2.04%	3.78%	5.86%	0.0109%
Allergan PLC	AGN	57,781.16	0.27%	1.68%	8.00%	9.74%	0.0268%
American International Group Inc	AIG	46,070.34	0.22%	2.42%	11.00%	13.55%	0.0297%
Apartment Investment & Management Co	AIV	8,170.76	0.04%	3.61%	3.37%	7.04%	0.0027%
Assurant Inc	AIZ	7,706.77	N/A	1.96%	N/A	N/A	N/A
Arthur J Gallagher & Co	AJG	17,014.63	0.08%	1.88%	9.83%	11.81%	0.0096%
Akamai Technologies Inc	AKAM	14,270.99	N/A	0.00%	12.80%	N/A	N/A
Albemarle Corp	ALB	6,437.61	0.03%	2.35%	7.73%	10.16%	0.0031%
Align Technology Inc	ALGN	20,150.62	N/A	0.00%	20.19%	N/A	N/A
Alaska Air Group Inc	ALK	8,558.79	0.04%	1.99%	19.55%	21.73%	0.0088%
Allstate Corp/The	ALL	34,475.41	0.16%	1.81%	9.00%	10.90%	0.0179%
Allegion PLC	ALLE	10,782.04	0.05%	0.92%	10.46%	11.43%	0.0059%
Alexion Pharmaceuticals Inc	ALXN	23,324.04	N/A	0.00%	12.73%	N/A	N/A
Applied Materials Inc	AMAT	50,122.88	0.24%	1.53%	4.91%	6.48%	0.0154%
Amcor PLC	AMCR	15,374.40	0.07%	5.36%	6.55%	12.08%	0.0088%
Advanced Micro Devices Inc	AMD	37,785.38	N/A	0.00%	23.90%	N/A	N/A
AMETEK Inc	AME	20,927.89	0.10%	0.62%	9.50%	10.15%	0.0101%
Affiliated Managers Group Inc	AMG	4,045.09	0.02%	1.60%	7.06%	8.72%	0.0017%
Amgen Inc	AMGN	126,709.64	0.60%	2.72%	7.92%	10.74%	0.0647%
Ameriprise Financial Inc	AMP	19,747.03	0.09%	2.52%	3.20%	5.76%	0.0054%
American Tower Corp	AMT	96,540.77	N/A	1.73%	20.21%	N/A	N/A
Amazon.com Inc	AMZN	880,863.09	N/A	0.00%	33.98%	N/A	N/A
Arista Networks Inc	ANET	18,744.90	N/A	0.00%	21.39%	N/A	N/A
ANSYS Inc	ANSS	18,514.78	N/A	0.00%	11.50%	N/A	N/A
Anthem Inc	ANTM	68,228.92	0.32%	1.19%	14.30%	15.58%	0.0505%
Aon PLC	AON	45,225.98	0.22%	0.89%	10.88%	11.82%	0.0254%
AO Smith Corp	AOS	8,167.56	0.04%	1.85%	8.00%	9.92%	0.0039%
Apache Corp	APA	8,144.95	N/A	4.61%	-17.34%	N/A	N/A
Air Products & Chemicals Inc	APD	46,992.94	0.22%	2.14%	12.03%	14.30%	0.0320%
Amphenol Corp	APH	29,747.01	0.14%	0.92%	8.70%	9.66%	0.0137%
Aptiv PLC	APTIV	22,861.05	0.11%	0.99%	5.97%	6.99%	0.0076%
Alexandria Real Estate Equities Inc	ARE	18,280.18	0.09%	2.51%	4.82%	7.39%	0.0064%
Arconic Inc	ARNC	12,091.97	0.06%	0.40%	10.90%	11.32%	0.0065%
Atmos Energy Corp	ATO	13,295.21	0.06%	1.87%	7.50%	9.44%	0.0060%
Activision Blizzard Inc	ATVI	42,976.46	0.20%	0.65%	9.04%	9.72%	0.0199%
AvalonBay Communities Inc	AVB	30,397.73	0.14%	2.79%	7.10%	9.98%	0.0144%
Broadcom Inc	AVGO	116,165.04	0.55%	3.54%	13.48%	17.27%	0.0954%
Avery Dennison Corp	AVY	10,676.68	0.05%	1.74%	4.90%	6.68%	0.0034%
American Water Works Co Inc	AWK	22,284.28	0.11%	1.60%	8.75%	10.43%	0.0111%
American Express Co	AXP	95,966.80	0.46%	1.39%	9.52%	10.97%	0.0501%
AutoZone Inc	AZO	27,267.71	N/A	0.00%	10.18%	N/A	N/A
Boeing Co/The	BA	191,298.37	0.91%	2.40%	8.81%	11.31%	0.1029%
Bank of America Corp	BAC	281,277.01	1.34%	2.11%	9.35%	11.56%	0.1546%
Baxter International Inc	BAX	39,159.64	0.19%	1.50%	11.96%	13.55%	0.0252%
BB&T Corp	BBT	40,652.40	0.19%	3.22%	5.67%	8.98%	0.0174%
Best Buy Co Inc	BBY	18,932.47	0.09%	2.78%	6.60%	9.48%	0.0085%
Becton Dickinson and Co	BDX	69,108.26	0.33%	1.34%	12.19%	13.61%	0.0447%
Franklin Resources Inc	BEN	13,755.72	0.07%	4.16%	10.00%	14.37%	0.0094%
Brown-Forman Corp	BF/B	30,718.71	0.15%	1.06%	6.44%	7.53%	0.0110%
Biogen Inc	BIIB	53,899.79	N/A	0.00%	2.20%	N/A	N/A
Bank of New York Mellon Corp/The	BK	43,112.80	0.21%	2.52%	6.83%	9.44%	0.0194%
Booking Holdings Inc	BKNG	87,097.11	N/A	0.00%	19.03%	N/A	N/A
Baker Hughes Co	BKR	21,984.15	N/A	3.33%	32.26%	N/A	N/A
BlackRock Inc	BLK	71,813.02	0.34%	2.86%	9.11%	12.10%	0.0413%
Ball Corp	BLL	23,230.34	0.11%	0.70%	6.70%	7.43%	0.0082%
Bristol-Myers Squibb Co	BMY	93,472.07	0.44%	2.87%	15.60%	18.69%	0.0831%
Broadridge Financial Solutions Inc	BR	14,331.74	0.07%	1.71%	7.80%	9.58%	0.0065%
Berkshire Hathaway Inc	BRK/B	521,096.48	N/A	0.00%	6.18%	N/A	N/A
Boston Scientific Corp	BSX	58,086.99	N/A	0.00%	8.88%	N/A	N/A
BorgWarner Inc	BWA	8,606.63	N/A	1.63%	-0.60%	N/A	N/A
Boston Properties Inc	BXP	21,207.29	0.10%	2.81%	2.31%	5.15%	0.0052%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Citigroup Inc	C	156,884.75	0.75%	2.66%	11.85%	14.67%	0.1094%
Conagra Brands Inc	CAG	13,163.99	0.06%	3.14%	7.60%	10.86%	0.0068%
Cardinal Health Inc	CAH	14,459.39	0.07%	4.07%	3.56%	7.70%	0.0053%
Caterpillar Inc	CAT	76,156.33	0.36%	2.73%	12.98%	15.88%	0.0575%
Chubb Ltd	CB	69,077.10	0.33%	1.98%	10.73%	12.82%	0.0421%
Cboe Global Markets Inc	CBOE	12,860.20	0.06%	1.16%	10.00%	11.22%	0.0069%
CBRE Group Inc	CBRE	18,010.78	N/A	0.00%	7.80%	N/A	N/A
CBS Corp	CBS	13,593.63	0.06%	2.08%	7.63%	9.80%	0.0063%
Crown Castle International Corp	CCI	57,736.64	0.27%	3.31%	17.70%	21.30%	0.0585%
Carnival Corp	CCL	28,921.68	0.14%	4.66%	7.96%	12.80%	0.0176%
Cadence Design Systems Inc	CDNS	18,336.75	N/A	0.00%	9.35%	N/A	N/A
CDW Corp/DE	CDW	18,510.44	0.09%	0.98%	13.55%	14.60%	0.0128%
Celanese Corp	CE	14,643.90	0.07%	1.99%	4.96%	6.99%	0.0049%
Celgene Corp	CELG	76,565.32	N/A	0.00%	15.65%	N/A	N/A
Cerner Corp	CERN	21,082.22	0.10%	0.28%	13.60%	13.90%	0.0139%
CF Industries Holdings Inc	CF	9,860.53	0.05%	2.65%	19.80%	22.71%	0.0107%
Citizens Financial Group Inc	CFG	15,719.56	0.07%	3.86%	5.50%	9.47%	0.0071%
Church & Dwight Co Inc	CHD	17,163.41	0.08%	1.32%	8.29%	9.66%	0.0079%
CH Robinson Worldwide Inc	CHRW	10,239.98	0.05%	2.67%	10.00%	12.81%	0.0062%
Charter Communications Inc	CHTR	112,562.38	N/A	0.00%	31.69%	N/A	N/A
Cigna Corp	CI	66,641.49	0.32%	0.03%	11.32%	11.35%	0.0360%
Cincinnati Financial Corp	CINF	18,495.57	N/A	2.09%	N/A	N/A	N/A
Colgate-Palmolive Co	CL	58,859.24	0.28%	2.53%	4.07%	6.65%	0.0186%
Clorox Co/The	CLX	18,534.18	0.09%	2.74%	3.61%	6.39%	0.0056%
Comerica Inc	CMA	9,430.58	0.04%	4.12%	9.65%	13.97%	0.0063%
Comcast Corp	CMCSA	203,897.40	0.97%	1.85%	10.13%	12.08%	0.1171%
CME Group Inc	CME	73,678.17	0.35%	2.61%	8.26%	10.97%	0.0384%
Chipotle Mexican Grill Inc	CMG	21,629.12	N/A	0.00%	23.12%	N/A	N/A
Cummins Inc	CMI	26,424.56	0.13%	2.80%	6.24%	9.13%	0.0115%
CMS Energy Corp	CMS	18,143.21	0.09%	2.39%	7.35%	9.83%	0.0085%
Centene Corp	CNC	21,964.30	N/A	0.00%	14.90%	N/A	N/A
CenterPoint Energy Inc	CNP	14,569.33	0.07%	3.99%	5.72%	9.82%	0.0068%
Capital One Financial Corp	COF	43,858.56	0.21%	1.72%	4.97%	6.73%	0.0140%
Cabot Oil & Gas Corp	COG	7,603.72	N/A	1.86%	28.01%	N/A	N/A
Cooper Cos Inc/The	COO	14,425.92	0.07%	0.03%	6.82%	6.85%	0.0047%
ConocoPhillips	COP	60,569.23	0.29%	2.33%	0.80%	3.14%	0.0090%
Costco Wholesale Corp	COST	130,626.48	0.62%	0.91%	9.28%	10.23%	0.0635%
Coty Inc	COTY	8,817.26	0.04%	3.70%	7.03%	10.86%	0.0046%
Campbell Soup Co	CPB	13,947.95	0.07%	3.10%	7.00%	10.21%	0.0068%
Capri Holdings Ltd	CPRI	4,709.57	N/A	0.00%	5.52%	N/A	N/A
Copart Inc	CPRT	19,193.15	N/A	0.00%	N/A	N/A	N/A
salesforce.com Inc	CRM	137,241.73	N/A	0.00%	21.63%	N/A	N/A
Cisco Systems Inc	CSCO	201,624.36	0.96%	3.04%	6.48%	9.62%	0.0922%
CSX Corp	CSX	54,974.79	0.26%	1.36%	12.12%	13.56%	0.0355%
Cintas Corp	CTAS	27,807.25	0.13%	0.84%	11.07%	11.95%	0.0158%
CenturyLink Inc	CTL	14,114.55	0.07%	7.73%	4.95%	12.87%	0.0086%
Cognizant Technology Solutions Corp	CTSH	33,368.66	0.16%	1.32%	11.25%	12.64%	0.0201%
Corteva Inc	CTVA	19,753.74	N/A	1.58%	95.20%	N/A	N/A
Citrix Systems Inc	CTXS	14,250.00	0.07%	1.29%	7.80%	9.14%	0.0062%
CVS Health Corp	CVS	86,339.98	0.41%	3.01%	6.23%	9.33%	0.0383%
Chevron Corp	CVX	220,482.32	1.05%	4.10%	1.48%	5.61%	0.0588%
Concho Resources Inc	CXO	13,573.46	0.06%	0.74%	13.81%	14.60%	0.0094%
Dominion Energy Inc	D	66,319.59	0.32%	4.43%	4.70%	9.23%	0.0291%
Delta Air Lines Inc	DAL	35,622.60	0.17%	2.72%	11.87%	14.75%	0.0250%
DuPont de Nemours Inc	DD	48,826.57	0.23%	1.65%	5.31%	7.00%	0.0163%
Deere & Co	DE	54,831.96	0.26%	1.72%	6.51%	8.28%	0.0216%
Discover Financial Services	DFS	25,158.96	0.12%	2.08%	7.19%	9.35%	0.0112%
Dollar General Corp	DG	41,218.33	0.20%	0.80%	10.68%	11.52%	0.0226%
Quest Diagnostics Inc	DGX	13,638.08	0.06%	2.07%	4.62%	6.75%	0.0044%
DR Horton Inc	DHI	19,051.29	0.09%	1.15%	12.85%	14.07%	0.0127%
Danaher Corp	DHR	98,993.51	0.47%	0.49%	14.87%	15.39%	0.0725%
Walt Disney Co/The	DIS	234,035.16	1.11%	1.36%	2.63%	4.00%	0.0446%
Discovery Inc	DISCA	19,406.06	N/A	0.00%	12.37%	N/A	N/A
DISH Network Corp	DISH	16,945.94	N/A	0.00%	-8.61%	N/A	N/A
Digital Realty Trust Inc	DLR	27,628.91	0.13%	3.40%	18.50%	22.21%	0.0292%
Dollar Tree Inc	DLTR	26,123.37	N/A	0.00%	8.39%	N/A	N/A
Dover Corp	DOV	15,091.72	0.07%	1.87%	10.80%	12.77%	0.0092%
Dow Inc	DOW	37,524.77	0.18%	5.07%	12.90%	18.29%	0.0326%
Duke Realty Corp	DRE	12,701.14	0.06%	2.48%	4.74%	7.28%	0.0044%
Darden Restaurants Inc	DRI	13,764.47	0.07%	3.15%	8.72%	12.01%	0.0079%
DTE Energy Co	DTE	24,458.82	0.12%	2.99%	5.63%	8.70%	0.0101%
Duke Energy Corp	DUK	68,677.94	0.33%	4.03%	5.01%	9.14%	0.0298%
DaVita Inc	DVA	8,106.19	N/A	0.00%	18.24%	N/A	N/A
Devon Energy Corp	DVN	8,197.18	0.04%	1.53%	7.01%	8.60%	0.0034%
DXC Technology Co	DXC	7,248.50	0.03%	2.99%	3.77%	6.81%	0.0023%
Electronic Arts Inc	EA	28,409.80	N/A	0.00%	-0.86%	N/A	N/A
eBay Inc	EBAY	28,676.76	0.14%	1.58%	12.48%	14.15%	0.0193%
Ecolab Inc	ECL	55,268.50	0.26%	0.96%	12.10%	13.12%	0.0345%
Consolidated Edison Inc	ED	30,630.34	0.15%	3.21%	3.88%	7.15%	0.0104%
Equifax Inc	EFX	16,553.31	0.08%	1.15%	11.67%	12.88%	0.0101%
Edison International	EIX	22,556.01	0.11%	3.90%	5.06%	9.07%	0.0097%
Estee Lauder Cos Inc/The	EL	67,266.50	0.32%	0.99%	11.18%	12.22%	0.0391%
Eastman Chemical Co	EMN	10,417.04	0.05%	3.15%	5.34%	8.58%	0.0042%
Emerson Electric Co	EMR	43,149.37	0.21%	2.80%	7.93%	10.84%	0.0222%
EOG Resources Inc	EOG	40,245.76	0.19%	1.48%	7.48%	9.01%	0.0172%
Equinix Inc	EQIX	48,073.83	0.23%	1.74%	18.62%	20.52%	0.0469%
Equity Residential	EQR	32,924.28	0.16%	2.56%	8.58%	11.25%	0.0176%
Eversource Energy	ES	27,098.44	0.13%	2.56%	6.39%	9.03%	0.0116%
Essex Property Trust Inc	ESS	21,617.29	0.10%	2.38%	8.39%	10.87%	0.0112%
E*TRADE Financial Corp	ETFC	9,477.78	N/A	1.34%	-0.29%	N/A	N/A
Eaton Corp PLC	ETN	36,011.27	0.17%	3.25%	8.53%	11.92%	0.0204%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Entergy Corp	ETR	24,185.12	N/A	3.01%	-1.04%	N/A	N/A
Evergy Inc	EVRG	15,048.73	0.07%	3.01%	7.61%	10.73%	0.0077%
Edwards Lifesciences Corp	EW	49,718.92	N/A	0.00%	16.00%	N/A	N/A
Exelon Corp	EXC	44,123.12	0.21%	3.18%	2.10%	5.31%	0.0112%
Expeditors International of Washington I	EXPD	12,452.33	0.06%	1.34%	9.73%	11.14%	0.0066%
Expedia Group Inc	EXPE	19,852.41	N/A	0.96%	21.45%	N/A	N/A
Extra Space Storage Inc	EXR	14,528.87	0.07%	3.16%	4.93%	8.17%	0.0056%
Ford Motor Co	F	34,058.47	0.16%	6.98%	3.06%	10.15%	0.0164%
Diamondback Energy Inc	FANG	13,982.61	N/A	0.72%	26.69%	N/A	N/A
Fastenal Co	FAST	20,612.57	0.10%	2.42%	14.20%	16.79%	0.0165%
Facebook Inc	FB	546,537.22	N/A	0.00%	19.35%	N/A	N/A
Fortune Brands Home & Security Inc	FBHS	8,408.15	0.04%	1.44%	9.05%	10.56%	0.0042%
Freepoint-McMoRan Inc	FCX	14,247.75	N/A	2.04%	-2.36%	N/A	N/A
FedEx Corp	FDX	39,830.57	0.19%	1.73%	19.52%	21.42%	0.0406%
FirstEnergy Corp	FE	26,092.17	0.12%	3.15%	0.49%	3.64%	0.0045%
F5 Networks Inc	FFIV	8,697.68	N/A	0.00%	8.34%	N/A	N/A
Fidelity National Information Services I	FIS	80,827.42	0.38%	1.06%	8.97%	10.08%	0.0387%
Fiserv Inc	FISV	72,126.58	N/A	0.00%	14.00%	N/A	N/A
Fifth Third Bancorp	FITB	20,896.39	0.10%	3.25%	5.05%	8.38%	0.0083%
FLIR Systems Inc	FLIR	6,991.85	0.03%	1.31%	13.10%	14.50%	0.0048%
Flowserve Corp	FLS	6,391.21	0.03%	1.59%	14.51%	16.21%	0.0049%
FleetCor Technologies Inc	FLT	25,470.01	N/A	0.00%	15.57%	N/A	N/A
FMC Corp	FMC	11,859.80	0.06%	1.75%	9.50%	11.33%	0.0064%
Fox Corp	FOXA	19,672.08	0.09%	1.31%	6.63%	7.99%	0.0075%
First Republic Bank/CA	FRC	17,538.97	0.08%	0.71%	9.43%	10.16%	0.0085%
Federal Realty Investment Trust	FRT	10,271.85	0.05%	3.05%	5.71%	8.85%	0.0043%
TechnipFMC PLC	FTI	8,809.08	0.04%	2.63%	18.55%	21.42%	0.0090%
Fortinet Inc	FTNT	13,946.06	N/A	0.00%	16.50%	N/A	N/A
Fortive Corp	FTV	23,170.49	0.11%	0.43%	9.35%	9.81%	0.0108%
General Dynamics Corp	GD	51,149.32	0.24%	2.28%	8.28%	10.65%	0.0259%
General Electric Co	GE	87,160.82	0.41%	0.42%	5.70%	6.13%	0.0254%
Gilead Sciences Inc	GILD	80,656.86	0.38%	3.94%	7.91%	12.00%	0.0460%
General Mills Inc	GIS	30,739.47	0.15%	3.89%	6.50%	10.52%	0.0154%
Globe Life Inc	GL	10,618.90	0.05%	0.70%	8.07%	8.80%	0.0044%
Corning Inc	GLW	22,788.72	0.11%	2.75%	8.38%	11.24%	0.0122%
General Motors Co	GM	53,093.62	0.25%	4.13%	12.00%	16.38%	0.0414%
Alphabet Inc	GOOGL	868,659.08	N/A	0.00%	12.38%	N/A	N/A
Genuine Parts Co	GPC	14,904.17	0.07%	2.94%	3.73%	6.72%	0.0048%
Global Payments Inc	GP	50,846.71	0.24%	0.02%	17.13%	17.16%	0.0415%
Gap Inc/The	GPS	6,110.31	0.03%	6.00%	5.03%	11.18%	0.0032%
Garmin Ltd	GRMN	18,569.76	0.09%	2.38%	6.96%	9.42%	0.0083%
Goldman Sachs Group Inc/The	GS	79,839.31	0.38%	1.96%	1.84%	3.82%	0.0145%
WW Grainger Inc	GW	16,636.05	0.08%	1.84%	10.53%	12.46%	0.0099%
Halliburton Co	HAL	16,897.73	0.08%	3.74%	4.40%	8.22%	0.0066%
Hasbro Inc	HAS	12,285.69	0.06%	2.78%	9.40%	12.31%	0.0072%
Huntington Bancshares Inc/OH	HBAN	14,592.83	0.07%	4.11%	5.24%	9.46%	0.0066%
Hanesbrands Inc	HBI	5,499.07	0.03%	4.10%	4.90%	9.10%	0.0024%
HCA Healthcare Inc	HCA	45,534.84	0.22%	0.90%	10.25%	11.19%	0.0242%
HCP Inc	HCP	18,475.57	0.09%	3.93%	3.04%	7.03%	0.0062%
Home Depot Inc/The	HD	256,901.01	1.22%	2.31%	9.32%	11.73%	0.1434%
Hess Corp	HES	20,019.60	N/A	1.60%	-9.53%	N/A	N/A
HollyFrontier Corp	HFC	9,041.92	N/A	2.43%	-5.47%	N/A	N/A
Hartford Financial Services Group Inc/Th	HIG	20,639.07	0.10%	2.17%	9.50%	11.77%	0.0116%
Huntington Ingalls Industries Inc	HI	9,327.55	N/A	1.52%	40.00%	N/A	N/A
Hilton Worldwide Holdings Inc	HLT	27,358.52	0.13%	0.62%	12.21%	12.87%	0.0167%
Harley-Davidson Inc	HOG	6,098.43	0.03%	3.87%	5.80%	9.78%	0.0028%
Hologic Inc	HOLX	12,913.56	N/A	0.00%	9.30%	N/A	N/A
Honeywell International Inc	HON	123,421.37	0.59%	1.93%	7.64%	9.64%	0.0566%
Helmerich & Payne Inc	HP	4,103.76	N/A	7.59%	-4.23%	N/A	N/A
Hewlett Packard Enterprise Co	HPE	21,424.92	0.10%	2.75%	6.52%	9.35%	0.0095%
HP Inc	HPQ	25,740.84	0.12%	3.68%	0.69%	4.38%	0.0054%
H&R Block Inc	HRB	5,015.99	0.02%	4.13%	10.00%	14.34%	0.0034%
Hormel Foods Corp	HRL	21,834.03	0.10%	2.05%	3.03%	5.11%	0.0053%
Henry Schein Inc	HSIC	9,278.80	N/A	0.00%	1.25%	N/A	N/A
Host Hotels & Resorts Inc	HST	11,963.12	N/A	5.15%	27.24%	N/A	N/A
Hershey Co/The	HSY	30,684.28	0.15%	2.04%	7.90%	10.02%	0.0146%
Humana Inc	HUM	39,743.27	0.19%	0.74%	13.38%	14.17%	0.0268%
International Business Machines Corp	IBM	118,436.30	0.56%	4.83%	1.89%	6.76%	0.0381%
Intercontinental Exchange Inc	ICE	52,522.05	0.25%	1.16%	8.80%	10.01%	0.0250%
IDEXX Laboratories Inc	IDXX	24,448.89	N/A	0.00%	18.53%	N/A	N/A
IDEX Corp	IEX	11,829.59	0.06%	1.24%	11.10%	12.41%	0.0070%
International Flavors & Fragrances Inc	IFF	13,027.61	0.06%	2.40%	12.65%	15.20%	0.0094%
Illumina Inc	ILMN	43,441.44	N/A	0.00%	22.26%	N/A	N/A
Incyte Corp	INCY	18,076.14	N/A	0.00%	43.15%	N/A	N/A
IHS Markit Ltd	INFO	28,077.18	N/A	0.00%	12.00%	N/A	N/A
Intel Corp	INTC	245,905.50	1.17%	2.22%	6.15%	8.44%	0.0987%
Intuit Inc	INTU	66,968.96	0.32%	0.80%	15.69%	16.54%	0.0527%
International Paper Co	IP	17,159.09	0.08%	4.61%	4.55%	9.26%	0.0076%
Interpublic Group of Cos Inc/The	IPG	8,433.17	0.04%	4.32%	10.28%	14.82%	0.0059%
IPG Photonics Corp	IPGP	7,121.65	N/A	0.00%	1.92%	N/A	N/A
IQVIA Holdings Inc	IQV	28,017.48	N/A	0.00%	17.75%	N/A	N/A
Ingersoll-Rand PLC	IR	30,402.44	0.14%	1.70%	9.41%	11.19%	0.0162%
Iron Mountain Inc	IRM	9,417.10	0.04%	7.50%	3.81%	11.45%	0.0051%
Intuitive Surgical Inc	ISRG	63,906.37	N/A	0.00%	14.05%	N/A	N/A
Gartner Inc	IT	13,782.91	N/A	0.00%	13.08%	N/A	N/A
Illinois Tool Works Inc	ITW	54,182.64	0.26%	2.42%	6.87%	9.37%	0.0241%
Invesco Ltd	IVZ	7,634.49	0.04%	7.35%	5.64%	13.20%	0.0048%
JB Hunt Transport Services Inc	JBHT	12,551.66	0.06%	0.88%	11.40%	12.33%	0.0074%
Johnson Controls International plc	JCI	34,477.97	0.16%	2.54%	7.57%	10.20%	0.0167%
Jacobs Engineering Group Inc	JEC	12,679.91	0.06%	0.66%	15.62%	16.33%	0.0098%
Jack Henry & Associates Inc	JKHY	10,893.05	0.05%	1.12%	9.20%	10.37%	0.0054%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Johnson & Johnson	JNJ	347,512.43	1.65%	2.84%	5.31%	8.23%	0.1360%
Juniper Networks Inc	JNPR	8,583.15	0.04%	3.04%	7.36%	10.51%	0.0043%
JPMorgan Chase & Co	JPM	399,429.82	1.90%	2.72%	4.80%	7.59%	0.1441%
Nordstrom Inc	JWN	5,561.44	0.03%	4.23%	5.83%	10.19%	0.0027%
Kellogg Co	K	21,669.71	0.10%	3.57%	1.68%	5.28%	0.0054%
KeyCorp	KEY	17,764.03	0.08%	3.95%	4.89%	8.93%	0.0075%
Keysight Technologies Inc	KEYS	18,928.49	N/A	0.00%	N/A	N/A	N/A
Kraft Heinz Co/The	KHC	39,442.32	N/A	4.95%	-1.87%	N/A	N/A
Kimco Realty Corp	KIM	9,103.33	0.04%	5.26%	3.99%	9.35%	0.0040%
KLA Corp	KLAC	26,786.55	0.13%	1.94%	13.60%	15.67%	0.0200%
Kimberly-Clark Corp	KMB	45,552.01	0.22%	3.09%	4.88%	8.04%	0.0174%
Kinder Morgan Inc/DE	KMI	45,254.01	0.22%	4.98%	11.90%	17.18%	0.0370%
CarMax Inc	KMX	15,319.95	N/A	0.00%	10.68%	N/A	N/A
Coca-Cola Co/The	KO	233,204.87	1.11%	2.95%	6.04%	9.08%	0.1007%
Kroger Co/The	KR	19,751.95	0.09%	2.44%	4.75%	7.25%	0.0068%
Kohl's Corp	KSS	8,156.84	0.04%	5.22%	6.17%	11.55%	0.0045%
Kansas City Southern	KSU	13,954.06	0.07%	1.06%	12.73%	13.86%	0.0092%
Loews Corp	L	14,574.51	N/A	0.51%	N/A	N/A	N/A
L Brands Inc	LB	4,709.71	0.02%	7.05%	9.23%	16.60%	0.0037%
Leidos Holdings Inc	LDOS	12,207.05	0.06%	1.55%	10.00%	11.63%	0.0068%
Leggett & Platt Inc	LEG	6,744.42	N/A	3.08%	N/A	N/A	N/A
Lennar Corp	LEN	18,455.35	0.09%	0.27%	10.52%	10.80%	0.0095%
Laboratory Corp of America Holdings	LH	16,098.03	N/A	0.00%	8.20%	N/A	N/A
L3Harris Technologies Inc	LHX	45,919.42	N/A	1.39%	N/A	N/A	N/A
Linde PLC	LIN	107,226.32	0.51%	1.82%	12.63%	14.57%	0.0743%
LKQ Corp	LKQ	10,475.89	N/A	0.00%	13.50%	N/A	N/A
Eli Lilly & Co	LLY	109,406.90	0.52%	2.22%	10.25%	12.59%	0.0655%
Lockheed Martin Corp	LMT	106,250.66	0.51%	2.37%	9.36%	11.84%	0.0598%
Lincoln National Corp	LNC	11,306.88	0.05%	2.66%	9.00%	11.78%	0.0063%
Alliant Energy Corp	LNT	12,669.37	0.06%	2.67%	5.67%	8.41%	0.0051%
Lowe's Cos Inc	LOW	86,140.45	0.41%	1.88%	15.05%	17.07%	0.0699%
Lam Research Corp	LRCX	39,322.18	0.19%	1.67%	15.89%	17.68%	0.0331%
Southwest Airlines Co	LUV	30,170.83	0.14%	1.28%	7.55%	8.88%	0.0127%
Las Vegas Sands Corp	LVS	47,495.38	0.23%	5.11%	4.16%	9.37%	0.0212%
Lamb Weston Holdings Inc	LW	11,398.73	0.05%	1.06%	7.68%	8.78%	0.0048%
LyondellBasell Industries NV	LYB	30,071.54	0.14%	4.79%	6.40%	11.34%	0.0162%
Macy's Inc	M	4,683.15	0.02%	9.96%	3.50%	13.63%	0.0030%
Mastercard Inc	MA	279,263.56	1.33%	0.46%	18.28%	18.79%	0.2495%
Mid-America Apartment Communities Inc	MAA	15,851.04	N/A	2.76%	N/A	N/A	N/A
Macerich Co/The	MAC	3,884.80	N/A	10.91%	-0.71%	N/A	N/A
Marriott International Inc/MD	MAR	41,680.36	0.20%	1.46%	7.92%	9.44%	0.0187%
Masco Corp	MAS	13,230.89	0.06%	1.03%	9.01%	10.09%	0.0064%
McDonald's Corp	MCD	149,382.67	0.71%	2.41%	8.54%	11.06%	0.0786%
Microchip Technology Inc	MCHP	22,445.13	0.11%	1.47%	7.65%	9.17%	0.0098%
McKesson Corp	MCK	23,964.99	0.11%	1.24%	2.43%	3.69%	0.0042%
Moody's Corp	MCO	41,666.27	0.20%	0.94%	9.73%	10.72%	0.0212%
Mondelez International Inc	MDLZ	75,518.79	0.36%	2.04%	7.91%	10.04%	0.0361%
Medtronic PLC	MDT	146,107.81	0.69%	1.93%	7.55%	9.56%	0.0664%
MetLife Inc	MET	43,816.38	0.21%	3.71%	9.42%	13.30%	0.0277%
MGM Resorts International	MGM	14,860.66	0.07%	1.82%	12.60%	14.54%	0.0103%
Mohawk Industries Inc	MHK	10,345.23	N/A	0.00%	4.66%	N/A	N/A
McCormick & Co Inc/MD	MKC	21,357.14	0.10%	1.41%	6.20%	7.65%	0.0078%
MarketAxess Holdings Inc	MKTX	13,924.25	N/A	0.55%	N/A	N/A	N/A
Martin Marietta Materials Inc	MLM	16,369.51	0.08%	0.79%	16.02%	16.87%	0.0131%
Marsh & McLennan Cos Inc	MMC	52,293.72	0.25%	1.69%	10.65%	12.43%	0.0309%
3M Co	MMM	94,877.61	0.45%	3.43%	7.00%	10.55%	0.0476%
Monster Beverage Corp	MNST	30,584.08	N/A	0.00%	12.20%	N/A	N/A
Altria Group Inc	MO	83,673.39	0.40%	7.31%	6.35%	13.89%	0.0553%
Mosaic Co/The	MOS	7,671.04	0.04%	0.98%	12.87%	13.91%	0.0051%
Marathon Petroleum Corp	MPC	42,099.52	0.20%	3.32%	12.05%	15.57%	0.0312%
Merck & Co Inc	MRK	221,882.07	1.06%	2.54%	10.44%	13.11%	0.1384%
Marathon Oil Corp	MRO	9,270.61	0.04%	1.73%	1.55%	3.30%	0.0015%
Morgan Stanley	MS	74,785.20	0.36%	2.84%	10.54%	13.53%	0.0481%
MSCI Inc	MSCI	19,868.94	0.09%	1.07%	12.87%	14.00%	0.0132%
Microsoft Corp	MSFT	1,093,741.86	5.20%	1.40%	9.91%	11.37%	0.5915%
Motorola Solutions Inc	MSI	28,496.61	0.14%	1.38%	7.05%	8.48%	0.0115%
M&T Bank Corp	MTB	20,922.85	0.10%	2.64%	4.31%	7.01%	0.0070%
Mettler-Toledo International Inc	MTD	17,348.03	N/A	0.00%	13.50%	N/A	N/A
Micron Technology Inc	MU	52,640.27	N/A	0.00%	5.68%	N/A	N/A
Maxim Integrated Products Inc	MXIM	15,873.94	0.08%	3.22%	6.78%	10.10%	0.0076%
Mylan NV	MYL	9,878.91	N/A	0.00%	-5.72%	N/A	N/A
Noble Energy Inc	NBL	9,211.16	0.04%	2.42%	14.84%	17.44%	0.0076%
Norwegian Cruise Line Holdings Ltd	NCLH	10,943.72	0.05%	0.15%	8.27%	8.43%	0.0044%
Nasdaq Inc	NDAQ	16,430.90	0.08%	1.86%	13.85%	15.84%	0.0124%
NextEra Energy Inc	NEE	116,494.85	0.55%	2.09%	8.12%	10.29%	0.0570%
Newmont Goldcorp Corp	NEM	32,574.38	0.15%	1.73%	5.75%	7.53%	0.0117%
Netflix Inc	NFLX	125,957.80	N/A	0.00%	40.00%	N/A	N/A
NiSource Inc	NI	10,474.14	0.05%	2.86%	4.81%	7.74%	0.0039%
NIKE Inc	NKE	139,792.24	0.66%	1.03%	13.82%	14.93%	0.0992%
Nielsen Holdings PLC	NLSN	7,170.38	0.03%	6.99%	7.55%	14.81%	0.0050%
Northrop Grumman Corp	NOC	59,404.43	0.28%	1.45%	7.34%	8.84%	0.0250%
National Oilwell Varco Inc	NOV	8,727.52	N/A	0.88%	54.53%	N/A	N/A
NRG Energy Inc	NRG	10,149.87	N/A	0.30%	35.49%	N/A	N/A
Norfolk Southern Corp	NSC	47,455.89	0.23%	1.96%	12.74%	14.82%	0.0335%
NetApp Inc	NTAP	13,294.55	0.06%	3.42%	5.24%	8.75%	0.0055%
Northern Trust Corp	NTRS	21,120.36	0.10%	2.60%	8.36%	11.07%	0.0111%
Nucor Corp	NUE	16,325.00	0.08%	2.97%	0.40%	3.38%	0.0026%
NVIDIA Corp	NVDA	122,421.18	0.58%	0.32%	10.80%	11.13%	0.0648%
NVR Inc	NVR	13,448.78	N/A	0.00%	11.81%	N/A	N/A
Newell Brands Inc	NWL	8,031.90	N/A	4.85%	-14.30%	N/A	N/A
News Corp	NWSA	8,144.98	N/A	1.42%	-13.55%	N/A	N/A

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Realty Income Corp	O	26,027.85	0.12%	3.32%	5.01%	8.41%	0.0104%
ONEOK Inc	OKE	28,845.70	0.14%	5.09%	12.11%	17.51%	0.0240%
Omnicom Group Inc	OMC	16,806.74	0.08%	3.37%	4.10%	7.54%	0.0060%
Oracle Corp	ORCL	178,864.36	0.85%	1.72%	8.38%	10.17%	0.0865%
O'Reilly Automotive Inc	ORLY	32,980.21	N/A	0.00%	12.25%	N/A	N/A
Occidental Petroleum Corp	OXY	36,226.43	0.17%	7.70%	11.90%	20.06%	0.0346%
Paychex Inc	PAYX	29,938.45	0.14%	2.99%	7.25%	10.35%	0.0147%
People's United Financial Inc	PBCT	6,447.79	0.03%	4.37%	2.00%	6.41%	0.0020%
PACCAR Inc	PCAR	26,307.15	0.13%	4.48%	5.03%	9.63%	0.0120%
Public Service Enterprise Group Inc	PEG	32,011.84	0.15%	2.97%	5.18%	8.22%	0.0125%
PepsiCo Inc	PEP	191,274.70	0.91%	2.75%	4.88%	7.70%	0.0700%
Pfizer Inc	PFE	212,226.33	1.01%	3.73%	3.49%	7.28%	0.0735%
Principal Financial Group Inc	PFG	14,822.13	0.07%	4.08%	5.26%	9.45%	0.0067%
Procter & Gamble Co/The	PG	310,504.54	1.48%	2.41%	7.33%	9.83%	0.1451%
Progressive Corp/The	PGR	40,746.62	0.19%	3.89%	8.00%	12.04%	0.0233%
Parker-Hannifin Corp	PH	23,578.24	0.11%	1.85%	8.24%	10.16%	0.0114%
PulteGroup Inc	PHM	10,634.04	0.05%	1.13%	9.30%	10.48%	0.0053%
Packaging Corp of America	PKG	10,361.79	0.05%	2.92%	10.00%	13.06%	0.0064%
PerkinElmer Inc	PKI	9,548.11	0.05%	0.33%	16.97%	17.32%	0.0079%
Prologis Inc	PLD	55,350.25	0.26%	2.42%	7.75%	10.26%	0.0270%
Philip Morris International Inc	PM	126,710.43	0.60%	5.68%	6.60%	12.46%	0.0751%
PNC Financial Services Group Inc/The	PNC	64,401.30	0.31%	2.86%	7.14%	10.10%	0.0309%
Pentair PLC	PNR	6,970.82	0.03%	1.77%	6.20%	8.02%	0.0027%
Pinnacle West Capital Corp	PNW	10,570.04	0.05%	3.20%	5.40%	8.68%	0.0044%
PPG Industries Inc	PPG	29,586.28	0.14%	1.58%	6.29%	7.92%	0.0111%
PPL Corp	PPL	24,174.42	0.11%	4.94%	1.18%	6.15%	0.0071%
Perrigo Co PLC	PRGO	7,213.62	N/A	1.46%	-1.60%	N/A	N/A
Prudential Financial Inc	PRU	36,638.28	0.17%	4.39%	10.67%	15.29%	0.0266%
Public Storage	PSA	38,929.30	0.19%	3.61%	3.77%	7.45%	0.0138%
Phillips 66	PSX	51,909.85	N/A	2.97%	-0.05%	N/A	N/A
PVH Corp	PVH	6,462.37	0.03%	0.17%	6.52%	6.69%	0.0021%
Quanta Services Inc	PWR	5,999.20	N/A	0.29%	N/A	N/A	N/A
Pioneer Natural Resources Co	PXD	20,562.01	N/A	0.66%	23.85%	N/A	N/A
PayPal Holdings Inc	PYPL	122,233.43	N/A	0.00%	18.76%	N/A	N/A
QUALCOMM Inc	QCOM	97,787.51	0.47%	3.10%	14.37%	17.69%	0.0823%
Qorvo Inc	QRVO	9,524.07	0.05%	0.25%	10.76%	11.02%	0.0050%
Royal Caribbean Cruises Ltd	RCL	22,814.16	0.11%	2.66%	10.06%	12.85%	0.0139%
Everest Re Group Ltd	RE	10,484.39	0.05%	2.21%	10.00%	12.33%	0.0061%
Regency Centers Corp	REG	11,277.69	0.05%	3.48%	4.88%	8.45%	0.0045%
Regeneron Pharmaceuticals Inc	REGN	33,639.46	N/A	0.00%	12.28%	N/A	N/A
Regions Financial Corp	RF	16,064.13	0.08%	3.68%	8.48%	12.32%	0.0094%
Robert Half International Inc	RHI	6,732.72	N/A	2.15%	-2.17%	N/A	N/A
Raymond James Financial Inc	RJF	11,504.92	0.05%	1.70%	11.10%	12.89%	0.0071%
Ralph Lauren Corp	RL	7,417.90	0.04%	2.83%	6.35%	9.27%	0.0033%
ResMed Inc	RMD	21,268.84	0.10%	1.10%	14.40%	15.57%	0.0158%
Rockwell Automation Inc	ROK	20,124.14	0.10%	2.23%	12.16%	14.52%	0.0139%
Rollins Inc	ROL	12,478.80	N/A	1.23%	N/A	N/A	N/A
Roper Technologies Inc	ROP	35,044.45	0.17%	0.56%	12.77%	13.36%	0.0223%
Ross Stores Inc	ROST	39,670.98	0.19%	0.93%	9.38%	10.35%	0.0195%
Republic Services Inc	RSG	27,928.35	0.13%	1.80%	12.52%	14.43%	0.0192%
Raytheon Co	RTN	59,096.03	0.28%	1.76%	8.68%	10.51%	0.0295%
SBA Communications Corp	SBAC	27,098.15	N/A	0.28%	28.45%	N/A	N/A
Starbucks Corp	SBUX	101,218.32	0.48%	1.98%	13.17%	15.28%	0.0736%
Charles Schwab Corp/The	SCHW	53,215.42	0.25%	1.67%	3.49%	5.19%	0.0131%
Sealed Air Corp	SEE	6,454.55	0.03%	1.54%	5.16%	6.74%	0.0021%
Sherwin-Williams Co/The	SHW	52,830.42	0.25%	0.78%	11.24%	12.06%	0.0303%
SVB Financial Group	SIVB	11,418.59	N/A	0.00%	11.00%	N/A	N/A
JM Smucker Co/The	SJM	12,052.57	0.06%	3.34%	2.97%	6.36%	0.0036%
Schlumberger Ltd	SLB	45,255.69	N/A	6.12%	27.22%	N/A	N/A
SL Green Realty Corp	SLG	6,900.15	0.03%	4.09%	7.30%	11.54%	0.0038%
Snap-on Inc	SNA	8,921.86	0.04%	2.34%	6.74%	9.15%	0.0039%
Synopsys Inc	SNPS	20,401.40	N/A	0.00%	14.38%	N/A	N/A
Southern Co/The	SO	65,776.18	0.31%	3.94%	3.98%	8.00%	0.0250%
Simon Property Group Inc	SPG	46,239.01	0.22%	5.51%	3.96%	9.58%	0.0211%
S&P Global Inc	SPGI	63,052.76	0.30%	0.87%	10.47%	11.39%	0.0341%
Sempra Energy	SRE	39,655.48	0.19%	2.69%	9.25%	12.06%	0.0227%
SunTrust Banks Inc	STI	30,345.22	0.14%	3.09%	1.21%	4.32%	0.0062%
State Street Corp	STT	24,024.59	0.11%	3.00%	7.14%	10.24%	0.0117%
Seagate Technology PLC	STX	15,328.32	0.07%	4.41%	1.26%	5.69%	0.0041%
Constellation Brands Inc	STZ	36,525.81	0.17%	1.57%	5.73%	7.34%	0.0128%
Stanley Black & Decker Inc	SWK	23,003.95	0.11%	1.78%	7.69%	9.54%	0.0104%
Skyworks Solutions Inc	SWKS	15,635.29	0.07%	1.73%	12.93%	14.77%	0.0110%
Synchrony Financial	SYF	22,855.84	0.11%	2.43%	5.57%	8.07%	0.0088%
Stryker Corp	SYK	80,964.30	0.39%	0.97%	9.38%	10.40%	0.0400%
Symantec Corp	SYMC	14,140.56	0.07%	1.32%	3.35%	4.70%	0.0032%
Sysco Corp	SYYS	40,893.98	0.19%	2.09%	11.13%	13.34%	0.0259%
AT&T Inc	T	281,092.47	1.34%	5.31%	5.62%	11.08%	0.1481%
Molson Coors Brewing Co	TAP	11,500.41	N/A	3.73%	-3.45%	N/A	N/A
TransDigm Group Inc	TDG	28,090.06	N/A	0.00%	13.77%	N/A	N/A
TE Connectivity Ltd	TEL	29,990.47	0.14%	2.08%	9.16%	11.33%	0.0162%
Teleflex Inc	TFX	16,061.75	0.08%	0.39%	14.50%	14.92%	0.0114%
Target Corp	TGT	54,623.37	0.26%	2.45%	8.23%	10.77%	0.0280%
Tiffany & Co	TIF	15,040.64	0.07%	1.84%	8.42%	10.33%	0.0074%
TJX Cos Inc/The	TJX	69,694.97	0.33%	1.60%	11.07%	12.75%	0.0423%
Thermo Fisher Scientific Inc	TMO	120,935.67	0.58%	0.24%	11.70%	11.95%	0.0687%
T-Mobile US Inc	TMUS	70,721.81	0.34%	0.61%	11.27%	11.91%	0.0401%
Tapestry Inc	TPR	7,443.28	0.04%	5.27%	8.83%	14.34%	0.0051%
TripAdvisor Inc	TRIP	5,627.73	N/A	0.00%	14.28%	N/A	N/A
T Rowe Price Group Inc	TROW	27,059.84	0.13%	2.60%	7.89%	10.59%	0.0136%
Travelers Cos Inc/The	TRV	33,828.26	0.16%	2.46%	11.75%	14.36%	0.0231%
Tractor Supply Co	TSCO	11,332.56	0.05%	1.42%	10.83%	12.33%	0.0066%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Tyson Foods Inc	TSN	30,192.38	0.14%	1.81%	4.44%	6.29%	0.0090%
Take-Two Interactive Software Inc	TTWO	13,620.98	N/A	0.00%	7.59%	N/A	N/A
Twitter Inc	TWTR	23,267.41	N/A	0.00%	25.40%	N/A	N/A
Texas Instruments Inc	TXN	110,294.15	0.52%	2.70%	8.35%	11.17%	0.0586%
Textron Inc	TXT	10,520.63	0.05%	0.17%	10.29%	10.47%	0.0052%
Under Armour Inc	UAA	8,789.61	N/A	0.00%	30.48%	N/A	N/A
United Airlines Holdings Inc	UAL	22,986.49	0.11%	0.02%	17.42%	17.44%	0.0191%
UDR Inc	UDR	14,725.93	0.07%	2.72%	6.29%	9.09%	0.0064%
Universal Health Services Inc	UHS	12,163.68	0.06%	0.40%	6.15%	6.56%	0.0038%
Ulta Beauty Inc	ULTA	13,720.63	N/A	0.00%	18.04%	N/A	N/A
UnitedHealth Group Inc	UNH	239,478.89	1.14%	1.63%	12.98%	14.72%	0.1676%
Unum Group	UNM	5,680.63	0.03%	3.99%	9.00%	13.17%	0.0036%
Union Pacific Corp	UNP	114,862.31	0.55%	2.22%	12.83%	15.19%	0.0830%
United Parcel Service Inc	UPS	98,795.44	0.47%	3.33%	8.48%	11.95%	0.0562%
United Rentals Inc	URI	10,038.58	N/A	0.00%	10.80%	N/A	N/A
US Bancorp	USB	89,578.42	0.43%	2.77%	6.40%	9.26%	0.0394%
United Technologies Corp	UTX	123,948.15	0.59%	2.06%	9.75%	11.91%	0.0702%
Visa Inc	V	353,069.64	1.68%	0.62%	15.54%	16.22%	0.2723%
Varian Medical Systems Inc	VAR	11,001.05	N/A	0.00%	8.80%	N/A	N/A
VF Corp	VFC	32,765.95	0.16%	2.17%	9.93%	12.20%	0.0190%
Viacom Inc	VIAB	8,812.38	0.04%	3.72%	3.38%	7.16%	0.0030%
Valero Energy Corp	VLO	40,188.85	0.19%	3.72%	15.00%	19.00%	0.0363%
Vulcan Materials Co	VMC	18,899.82	0.09%	0.86%	17.32%	18.25%	0.0164%
Vornado Realty Trust	VNO	12,525.51	0.06%	4.30%	5.46%	9.88%	0.0059%
Verisk Analytics Inc	VRSK	23,711.96	0.11%	0.52%	18.84%	19.41%	0.0219%
VeriSign Inc	VRSN	22,310.06	N/A	0.00%	10.30%	N/A	N/A
Vertex Pharmaceuticals Inc	VRTX	50,245.29	N/A	0.00%	28.41%	N/A	N/A
Ventas Inc	VTR	24,265.12	0.12%	4.88%	4.86%	9.86%	0.0114%
Verizon Communications Inc	VZ	250,090.87	1.19%	3.99%	2.64%	6.68%	0.0795%
Wabtec Corp	WAB	13,298.13	N/A	0.64%	53.45%	N/A	N/A
Waters Corp	WAT	13,635.60	N/A	0.00%	10.84%	N/A	N/A
Walgreens Boots Alliance Inc	WBA	48,893.40	0.23%	3.35%	5.31%	8.75%	0.0203%
WellCare Health Plans Inc	WCG	14,927.17	N/A	0.00%	19.87%	N/A	N/A
Western Digital Corp	WDC	15,353.38	0.07%	3.87%	3.07%	7.00%	0.0051%
WEC Energy Group Inc	WEC	29,777.14	0.14%	2.50%	6.44%	9.02%	0.0128%
Welltower Inc	WELL	36,801.97	0.18%	3.84%	6.34%	10.30%	0.0180%
Wells Fargo & Co	WFC	220,413.63	1.05%	3.71%	9.56%	13.44%	0.1409%
Whirlpool Corp	WHR	9,613.95	0.05%	3.14%	4.07%	7.27%	0.0033%
Willis Towers Watson PLC	WLTW	24,109.07	0.11%	1.35%	14.40%	15.85%	0.0182%
Waste Management Inc	WM	47,604.11	0.23%	1.83%	7.50%	9.39%	0.0213%
Williams Cos Inc/The	WMB	27,040.81	0.13%	6.81%	8.00%	15.08%	0.0194%
Walmart Inc	WMT	333,520.75	1.59%	1.83%	7.97%	9.88%	0.1567%
Westrock Co	WRK	9,616.85	0.05%	4.84%	1.80%	6.68%	0.0031%
Western Union Co/The	WU	10,622.71	0.05%	3.17%	3.61%	6.84%	0.0035%
Weyerhaeuser Co	WY	21,765.61	0.10%	4.66%	3.80%	8.54%	0.0088%
Wynn Resorts Ltd	WYNN	13,058.12	0.06%	3.09%	13.50%	16.80%	0.0104%
Cimarex Energy Co	XEC	4,283.51	0.02%	1.82%	17.59%	19.57%	0.0040%
Xcel Energy Inc	XEL	33,958.04	0.16%	2.55%	5.61%	8.23%	0.0133%
Xilinx Inc	XLNX	22,818.15	0.11%	1.63%	9.05%	10.75%	0.0117%
Exxon Mobil Corp	XOM	285,895.85	1.36%	5.07%	8.48%	13.77%	0.1872%
DENTSPLY SIRONA Inc	XRAY	12,280.77	0.06%	0.65%	13.14%	13.84%	0.0081%
Xerox Holdings Corp	XRX	7,508.16	0.04%	2.98%	5.90%	8.96%	0.0032%
Xylem Inc/NY	XYL	13,806.43	0.07%	1.26%	14.07%	15.41%	0.0101%
Yum! Brands Inc	YUM	30,818.13	0.15%	1.65%	12.42%	14.17%	0.0208%
Zimmer Biomet Holdings Inc	ZBH	28,380.63	0.13%	0.71%	6.02%	6.75%	0.0091%
Zions Bancorp NA	ZION	8,257.98	0.04%	2.64%	6.09%	8.81%	0.0035%
Zoetis Inc	ZTS	61,089.21	0.29%	0.51%	10.23%	10.77%	0.0313%
Total Market Capitalization:		21,026,828.48					11.24%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Bloomberg Professional
- [3] Equals [1] - [2]
- [4] Source: Bloomberg Professional
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Bloomberg Professional
- [7] Source: Bloomberg Professional
- [8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
- [9] Equals Col. [5] x Col. [8]

Ex-Ante Market Risk Premium - S&P 500  
Market DCF Method Based - Bloomberg

[1]	[2]	[3]
S&P 500	Current 30-Year	
Est. Required	Treasury (6-month	Implied Market
Market Return	average)	Risk Premium
12.81%	2.41%	10.40%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	23,442.18	0.09%	0.86%	13.53%	14.45%	0.0127%
American Airlines Group Inc	AAL	13,168.02	0.05%	1.33%	4.73%	6.09%	0.0030%
Advance Auto Parts Inc	AAP	11,598.96	0.04%	0.15%	15.31%	15.47%	0.0067%
Apple Inc	AAPL	1,105,306.60	4.15%	1.29%	11.28%	12.63%	0.5248%
AbbVie Inc	ABBV	117,636.43	0.44%	5.41%	6.05%	11.62%	0.0514%
AmerisourceBergen Corp	ABC	17,786.83	0.07%	1.88%	6.32%	8.26%	0.0055%
ABIOMED Inc	ABMD	9,373.30	0.04%	0.00%	24.00%	24.00%	0.0085%
Abbott Laboratories	ABT	147,860.58	0.56%	1.51%	9.44%	11.02%	0.0612%
Accenture PLC	ACN	117,931.32	0.44%	1.73%	10.03%	11.85%	0.0525%
Adobe Inc	ADBE	134,539.97	0.51%	0.00%	16.00%	16.00%	0.0809%
Analog Devices Inc	ADI	39,389.78	0.15%	1.96%	9.72%	11.77%	0.0174%
Archer-Daniels-Midland Co	ADM	23,403.09	0.09%	3.34%	0.10%	3.44%	0.0030%
Automatic Data Processing Inc	ADP	70,310.48	0.26%	1.99%	12.55%	14.67%	0.0388%
Alliance Data Systems Corp	ADS	5,109.76	0.02%	2.47%	10.07%	12.66%	0.0024%
Autodesk Inc	ADSK	32,358.43	0.12%	0.00%	47.95%	47.95%	0.0583%
Ameren Corp	AEE	19,685.49	0.07%	2.51%	4.99%	7.56%	0.0056%
American Electric Power Co Inc	AEP	46,624.11	0.18%	2.87%	5.77%	8.72%	0.0153%
AES Corp/VA	AES	11,318.64	0.04%	3.23%	8.37%	11.74%	0.0050%
Aflac Inc	AFL	39,020.40	0.15%	2.04%	3.78%	5.86%	0.0086%
Allergan PLC	AGN	57,781.16	0.22%	1.68%	8.00%	9.74%	0.0212%
American International Group Inc	AIG	46,070.34	0.17%	2.42%	11.00%	13.55%	0.0235%
Apartment Investment & Management Co	AIV	8,170.76	0.03%	3.61%	3.37%	7.04%	0.0022%
Assurant Inc	AIZ	7,706.77	N/A	1.96%	N/A	N/A	N/A
Arthur J Gallagher & Co	AJG	17,014.63	0.06%	1.88%	9.83%	11.81%	0.0075%
Akamai Technologies Inc	AKAM	14,270.99	0.05%	0.00%	12.80%	12.80%	0.0069%
Albemarle Corp	ALB	6,437.61	0.02%	2.35%	7.73%	10.16%	0.0025%
Align Technology Inc	ALGN	20,150.62	0.08%	0.00%	20.19%	20.19%	0.0153%
Alaska Air Group Inc	ALK	8,558.79	0.03%	1.99%	19.55%	21.73%	0.0070%
Allstate Corp/The	ALL	34,475.41	0.13%	1.81%	9.00%	10.90%	0.0141%
Allegion PLC	ALLE	10,782.04	0.04%	0.92%	10.46%	11.43%	0.0046%
Alexion Pharmaceuticals Inc	ALXN	23,324.04	0.09%	0.00%	12.73%	12.73%	0.0112%
Applied Materials Inc	AMAT	50,122.88	0.19%	1.53%	4.91%	6.48%	0.0122%
Amcor PLC	AMCR	15,374.40	0.06%	5.36%	6.55%	12.08%	0.0070%
Advanced Micro Devices Inc	AMD	37,785.38	0.14%	0.00%	23.90%	23.90%	0.0339%
AMETEK Inc	AME	20,927.89	0.08%	0.62%	9.50%	10.15%	0.0080%
Affiliated Managers Group Inc	AMG	4,045.09	0.02%	1.60%	7.06%	8.72%	0.0013%
Amgen Inc	AMGN	126,709.64	0.48%	2.72%	7.92%	10.74%	0.0511%
Ameriprise Financial Inc	AMP	19,747.03	0.07%	2.52%	3.20%	5.76%	0.0043%
American Tower Corp	AMT	96,540.77	0.36%	1.73%	20.21%	22.10%	0.0802%
Amazon.com Inc	AMZN	880,863.09	3.31%	0.00%	33.98%	33.98%	1.1249%
Arista Networks Inc	ANET	18,744.90	0.07%	0.00%	21.39%	21.39%	0.0151%
ANSYS Inc	ANSS	18,514.78	0.07%	0.00%	11.50%	11.50%	0.0080%
Anthem Inc	ANTM	68,228.92	0.26%	1.19%	14.30%	15.58%	0.0399%
Aon PLC	AON	45,225.98	0.17%	0.89%	10.88%	11.82%	0.0201%
AO Smith Corp	AOS	8,167.56	0.03%	1.85%	8.00%	9.92%	0.0030%
Apache Corp	APA	8,144.95	0.03%	4.61%	-17.34%	-13.13%	-0.0040%
Air Products & Chemicals Inc	APD	46,992.94	0.18%	2.14%	12.03%	14.30%	0.0253%
Amphenol Corp	APH	29,747.01	0.11%	0.92%	8.70%	9.66%	0.0108%
Aptiv PLC	APTIV	22,861.05	0.09%	0.99%	5.97%	6.99%	0.0060%
Alexandria Real Estate Equities Inc	ARE	18,280.18	0.07%	2.51%	4.82%	7.39%	0.0051%
Arconic Inc	ARNC	12,091.97	0.05%	0.40%	10.90%	11.32%	0.0051%
Atmos Energy Corp	ATO	13,295.21	0.05%	1.87%	7.50%	9.44%	0.0047%
Activision Blizzard Inc	ATVI	42,976.46	0.16%	0.65%	9.04%	9.72%	0.0157%
AvalonBay Communities Inc	AVB	30,397.73	0.11%	2.79%	7.10%	9.98%	0.0114%
Broadcom Inc	AVGO	116,165.04	0.44%	3.54%	13.48%	17.27%	0.0754%
Avery Dennison Corp	AVY	10,676.68	0.04%	1.74%	4.90%	6.68%	0.0027%
American Water Works Co Inc	AWK	22,284.28	0.08%	1.60%	8.75%	10.43%	0.0087%
American Express Co	AXP	95,966.80	0.36%	1.39%	9.52%	10.97%	0.0396%
AutoZone Inc	AZO	27,267.71	0.10%	0.00%	10.18%	10.18%	0.0104%
Boeing Co/The	BA	191,298.37	0.72%	2.40%	8.81%	11.31%	0.0813%
Bank of America Corp	BAC	281,277.01	1.06%	2.11%	9.35%	11.56%	0.1222%
Baxter International Inc	BAX	39,159.64	0.15%	1.50%	11.96%	13.55%	0.0199%
BB&T Corp	BBT	40,652.40	0.15%	3.22%	5.67%	8.98%	0.0137%
Best Buy Co Inc	BBY	18,932.47	0.07%	2.78%	6.60%	9.48%	0.0067%
Becton Dickinson and Co	BDX	69,108.26	0.26%	1.34%	12.19%	13.61%	0.0354%
Franklin Resources Inc	BEN	13,755.72	0.05%	4.16%	10.00%	14.37%	0.0074%
Brown-Forman Corp	BF/B	30,718.71	0.12%	1.06%	6.44%	7.53%	0.0087%
Biogen Inc	BIIB	53,899.79	0.20%	0.00%	2.20%	2.20%	0.0045%
Bank of New York Mellon Corp/The	BK	43,112.80	0.16%	2.52%	6.83%	9.44%	0.0153%
Booking Holdings Inc	BKNG	87,097.11	0.33%	0.00%	19.03%	19.03%	0.0623%
Baker Hughes Co	BKR	21,984.15	0.08%	3.33%	32.26%	36.13%	0.0298%
BlackRock Inc	BLK	71,813.02	0.27%	2.86%	9.11%	12.10%	0.0327%
Ball Corp	BLL	23,230.34	0.09%	0.70%	6.70%	7.43%	0.0065%
Bristol-Myers Squibb Co	BMY	93,472.07	0.35%	2.87%	15.60%	18.69%	0.0657%
Broadridge Financial Solutions Inc	BR	14,331.74	0.05%	1.71%	7.80%	9.58%	0.0052%
Berkshire Hathaway Inc	BRK/B	521,096.48	1.96%	0.00%	6.18%	6.18%	0.1210%
Boston Scientific Corp	BSX	58,086.99	0.22%	0.00%	8.88%	8.88%	0.0194%
BorgWarner Inc	BWA	8,606.63	0.03%	1.63%	-0.60%	1.03%	0.0003%
Boston Properties Inc	BXP	21,207.29	0.08%	2.81%	2.31%	5.15%	0.0041%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Citigroup Inc	C	156,884.75	0.59%	2.66%	11.85%	14.67%	0.0865%
Conagra Brands Inc	CAG	13,163.99	0.05%	3.14%	7.60%	10.86%	0.0054%
Cardinal Health Inc	CAH	14,459.39	0.05%	4.07%	3.56%	7.70%	0.0042%
Caterpillar Inc	CAT	76,156.33	0.29%	2.73%	12.98%	15.88%	0.0455%
Chubb Ltd	CB	69,077.10	0.26%	1.98%	10.73%	12.82%	0.0333%
Cboe Global Markets Inc	CBOE	12,860.20	0.05%	1.16%	10.00%	11.22%	0.0054%
CBRE Group Inc	CBRE	18,010.78	0.07%	0.00%	7.80%	7.80%	0.0053%
CBS Corp	CBS	13,593.63	0.05%	2.08%	7.63%	9.80%	0.0050%
Crown Castle International Corp	CCI	57,736.64	0.22%	3.31%	17.70%	21.30%	0.0462%
Carnival Corp	CCL	28,921.68	0.11%	4.66%	7.96%	12.80%	0.0139%
Cadence Design Systems Inc	CDNS	18,336.75	0.07%	0.00%	9.35%	9.35%	0.0064%
CDW Corp/DE	CDW	18,510.44	0.07%	0.98%	13.55%	14.60%	0.0102%
Celanese Corp	CE	14,643.90	0.06%	1.99%	4.96%	6.99%	0.0038%
Celgene Corp	CELG	76,565.32	0.29%	0.00%	15.65%	15.65%	0.0450%
Cerner Corp	CERN	21,082.22	0.08%	0.28%	13.60%	13.90%	0.0110%
CF Industries Holdings Inc	CF	9,860.53	0.04%	2.65%	19.80%	22.71%	0.0084%
Citizens Financial Group Inc	CFG	15,719.56	0.06%	3.86%	5.50%	9.47%	0.0056%
Church & Dwight Co Inc	CHD	17,163.41	0.06%	1.32%	8.29%	9.66%	0.0062%
CH Robinson Worldwide Inc	CHRW	10,239.98	0.04%	2.67%	10.00%	12.81%	0.0049%
Charter Communications Inc	CHTR	112,562.38	0.42%	0.00%	31.69%	31.69%	0.1341%
Cigna Corp	CI	66,641.49	0.25%	0.03%	11.32%	11.35%	0.0284%
Cincinnati Financial Corp	CINF	18,495.57	N/A	2.09%	N/A	N/A	N/A
Colgate-Palmolive Co	CL	58,859.24	0.22%	2.53%	4.07%	6.65%	0.0147%
Clorox Co/The	CLX	18,534.18	0.07%	2.74%	3.61%	6.39%	0.0045%
Comerica Inc	CMA	9,430.58	0.04%	4.12%	9.65%	13.97%	0.0050%
Comcast Corp	CMCSA	203,897.40	0.77%	1.85%	10.13%	12.08%	0.0926%
CME Group Inc	CME	73,678.17	0.28%	2.61%	8.26%	10.97%	0.0304%
Chipotle Mexican Grill Inc	CMG	21,629.12	0.08%	0.00%	23.12%	23.12%	0.0188%
Cummins Inc	CMI	26,424.56	0.10%	2.80%	6.24%	9.13%	0.0091%
CMS Energy Corp	CMS	18,143.21	0.07%	2.39%	7.35%	9.83%	0.0067%
Centene Corp	CNC	21,964.30	0.08%	0.00%	14.90%	14.90%	0.0123%
CenterPoint Energy Inc	CNP	14,569.33	0.05%	3.99%	5.72%	9.82%	0.0054%
Capital One Financial Corp	COF	43,858.56	0.16%	1.72%	4.97%	6.73%	0.0111%
Cabot Oil & Gas Corp	COG	7,603.72	0.03%	1.86%	28.01%	30.14%	0.0086%
Cooper Cos Inc/The	COO	14,425.92	0.05%	0.03%	6.82%	6.85%	0.0037%
ConocoPhillips	COP	60,569.23	0.23%	2.33%	0.80%	3.14%	0.0071%
Costco Wholesale Corp	COST	130,626.48	0.49%	0.91%	9.28%	10.23%	0.0502%
Coty Inc	COTY	8,817.26	0.03%	3.70%	7.03%	10.86%	0.0036%
Campbell Soup Co	CPB	13,947.95	0.05%	3.10%	7.00%	10.21%	0.0054%
Capri Holdings Ltd	CPRI	4,709.57	0.02%	0.00%	5.52%	5.52%	0.0010%
Copart Inc	CPRT	19,193.15	N/A	0.00%	N/A	N/A	N/A
salesforce.com Inc	CRM	137,241.73	0.52%	0.00%	21.63%	21.63%	0.1116%
Cisco Systems Inc	CSCO	201,624.36	0.76%	3.04%	6.48%	9.62%	0.0729%
CSX Corp	CSX	54,974.79	0.21%	1.36%	12.12%	13.56%	0.0280%
Cintas Corp	CTAS	27,807.25	0.10%	0.84%	11.07%	11.95%	0.0125%
CenturyLink Inc	CTL	14,114.55	0.05%	7.73%	4.95%	12.87%	0.0068%
Cognizant Technology Solutions Corp	CTSH	33,368.66	0.13%	1.32%	11.25%	12.64%	0.0159%
Corteva Inc	CTVA	19,753.74	0.07%	1.58%	95.20%	97.54%	0.0724%
Citrix Systems Inc	CTXS	14,250.00	0.05%	1.29%	7.80%	9.14%	0.0049%
CVS Health Corp	CVS	86,339.98	0.32%	3.01%	6.23%	9.33%	0.0303%
Chevron Corp	CVX	220,482.32	0.83%	4.10%	1.48%	5.61%	0.0464%
Concho Resources Inc	CXO	13,573.46	0.05%	0.74%	13.81%	14.60%	0.0074%
Dominion Energy Inc	D	66,319.59	0.25%	4.43%	4.70%	9.23%	0.0230%
Delta Air Lines Inc	DAL	35,622.60	0.13%	2.72%	11.87%	14.75%	0.0197%
DuPont de Nemours Inc	DD	48,826.57	0.18%	1.65%	5.31%	7.00%	0.0128%
Deere & Co	DE	54,831.96	0.21%	1.72%	6.51%	8.28%	0.0171%
Discover Financial Services	DFS	25,158.96	0.09%	2.08%	7.19%	9.35%	0.0088%
Dollar General Corp	DG	41,218.33	0.15%	0.80%	10.68%	11.52%	0.0178%
Quest Diagnostics Inc	DGX	13,638.08	0.05%	2.07%	4.62%	6.75%	0.0035%
DR Horton Inc	DHI	19,051.29	0.07%	1.15%	12.85%	14.07%	0.0101%
Danaher Corp	DHR	98,993.51	0.37%	0.49%	14.87%	15.39%	0.0573%
Walt Disney Co/The	DIS	234,035.16	0.88%	1.36%	2.63%	4.00%	0.0352%
Discovery Inc	DISCA	19,406.06	0.07%	0.00%	12.37%	12.37%	0.0090%
DISH Network Corp	DISH	16,945.94	0.06%	0.00%	-8.61%	-8.61%	-0.0055%
Digital Realty Trust Inc	DLR	27,628.91	0.10%	3.40%	18.50%	22.21%	0.0231%
Dollar Tree Inc	DLTR	26,123.37	0.10%	0.00%	8.39%	8.39%	0.0082%
Dover Corp	DOV	15,091.72	0.06%	1.87%	10.80%	12.77%	0.0072%
Dow Inc	DOW	37,524.77	0.14%	5.07%	12.90%	18.29%	0.0258%
Duke Realty Corp	DRE	12,701.14	0.05%	2.48%	4.74%	7.28%	0.0035%
Darden Restaurants Inc	DRI	13,764.47	0.05%	3.15%	8.72%	12.01%	0.0062%
DTE Energy Co	DTE	24,458.82	0.09%	2.99%	5.63%	8.70%	0.0080%
Duke Energy Corp	DUK	68,677.94	0.26%	4.03%	5.01%	9.14%	0.0236%
DaVita Inc	DVA	8,106.19	0.03%	0.00%	18.24%	18.24%	0.0056%
Devon Energy Corp	DVN	8,197.18	0.03%	1.53%	7.01%	8.60%	0.0026%
DXC Technology Co	DXC	7,248.50	0.03%	2.99%	3.77%	6.81%	0.0019%
Electronic Arts Inc	EA	28,409.80	0.11%	0.00%	-0.86%	-0.86%	-0.0009%
eBay Inc	EBAY	28,676.76	0.11%	1.58%	12.48%	14.15%	0.0153%
Ecolab Inc	ECL	55,268.50	0.21%	0.96%	12.10%	13.12%	0.0272%
Consolidated Edison Inc	ED	30,630.34	0.12%	3.21%	3.88%	7.15%	0.0082%
Equifax Inc	EFX	16,553.31	0.06%	1.15%	11.67%	12.88%	0.0080%
Edison International	EIX	22,556.01	0.08%	3.90%	5.06%	9.07%	0.0077%
Estee Lauder Cos Inc/The	EL	67,266.50	0.25%	0.99%	11.18%	12.22%	0.0309%
Eastman Chemical Co	EMN	10,417.04	0.04%	3.15%	5.34%	8.58%	0.0034%
Emerson Electric Co	EMR	43,149.37	0.16%	2.80%	7.93%	10.84%	0.0176%
EOG Resources Inc	EOG	40,245.76	0.15%	1.48%	7.48%	9.01%	0.0136%
Equinix Inc	EQIX	48,073.83	0.18%	1.74%	18.62%	20.52%	0.0371%
Equity Residential	EQR	32,924.28	0.12%	2.56%	8.58%	11.25%	0.0139%
Eversource Energy	ES	27,098.44	0.10%	2.56%	6.39%	9.03%	0.0092%
Essex Property Trust Inc	ESS	21,617.29	0.08%	2.38%	8.39%	10.87%	0.0088%
E*TRADE Financial Corp	ETFC	9,477.78	0.04%	1.34%	-0.29%	1.06%	0.0004%
Eaton Corp PLC	ETN	36,011.27	0.14%	3.25%	8.53%	11.92%	0.0161%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Entergy Corp	ETR	24,185.12	0.09%	3.01%	-1.04%	1.96%	0.0018%
Evergy Inc	EVRG	15,048.73	0.06%	3.01%	7.61%	10.73%	0.0061%
Edwards Lifesciences Corp	EW	49,718.92	0.19%	0.00%	16.00%	16.00%	0.0299%
Exelon Corp	EXC	44,123.12	0.17%	3.18%	2.10%	5.31%	0.0088%
Expeditors International of Washington I	EXPD	12,452.33	0.05%	1.34%	9.73%	11.14%	0.0052%
Expedia Group Inc	EXPE	19,852.41	0.07%	0.96%	21.45%	22.51%	0.0168%
Extra Space Storage Inc	EXR	14,528.87	0.05%	3.16%	4.93%	8.17%	0.0045%
Ford Motor Co	F	34,058.47	0.13%	6.98%	3.06%	10.15%	0.0130%
Diamondback Energy Inc	FANG	13,982.61	0.05%	0.72%	26.69%	27.50%	0.0145%
Fastenal Co	FAST	20,612.57	0.08%	2.42%	14.20%	16.79%	0.0130%
Facebook Inc	FB	546,537.22	2.05%	0.00%	19.35%	19.35%	0.3974%
Fortune Brands Home & Security Inc	FBHS	8,408.15	0.03%	1.44%	9.05%	10.56%	0.0033%
Freepoint-McMoRan Inc	FCX	14,247.75	0.05%	2.04%	-2.36%	-0.35%	-0.0002%
FedEx Corp	FDX	39,830.57	0.15%	1.73%	19.52%	21.42%	0.0321%
FirstEnergy Corp	FE	26,092.17	0.10%	3.15%	0.49%	3.64%	0.0036%
F5 Networks Inc	FFIV	8,697.68	0.03%	0.00%	8.34%	8.34%	0.0027%
Fidelity National Information Services I	FIS	80,827.42	0.30%	1.06%	8.97%	10.08%	0.0306%
Fiserv Inc	FISV	72,126.58	0.27%	0.00%	14.00%	14.00%	0.0380%
Fifth Third Bancorp	FITB	20,896.39	0.08%	3.25%	5.05%	8.38%	0.0066%
FLIR Systems Inc	FLIR	6,991.85	0.03%	1.31%	13.10%	14.50%	0.0038%
Flowserve Corp	FLS	6,391.21	0.02%	1.59%	14.51%	16.21%	0.0039%
FleetCor Technologies Inc	FLT	25,470.01	0.10%	0.00%	15.57%	15.57%	0.0149%
FMC Corp	FMC	11,859.80	0.04%	1.75%	9.50%	11.33%	0.0051%
Fox Corp	FOXA	19,672.08	0.07%	1.31%	6.63%	7.99%	0.0059%
First Republic Bank/CA	FRC	17,538.97	0.07%	0.71%	9.43%	10.16%	0.0067%
Federal Realty Investment Trust	FRT	10,271.85	0.04%	3.05%	5.71%	8.85%	0.0034%
TechnipFMC PLC	FTI	8,809.08	0.03%	2.63%	18.55%	21.42%	0.0071%
Fortinet Inc	FTNT	13,946.06	0.05%	0.00%	16.50%	16.50%	0.0086%
Fortive Corp	FTV	23,170.49	0.09%	0.43%	9.35%	9.81%	0.0085%
General Dynamics Corp	GD	51,149.32	0.19%	2.28%	8.28%	10.65%	0.0205%
General Electric Co	GE	87,160.82	0.33%	0.42%	5.70%	6.13%	0.0201%
Gilead Sciences Inc	GILD	80,656.86	0.30%	3.94%	7.91%	12.00%	0.0364%
General Mills Inc	GIS	30,739.47	0.12%	3.89%	6.50%	10.52%	0.0122%
Globe Life Inc	GL	10,618.90	0.04%	0.70%	8.07%	8.80%	0.0035%
Corning Inc	GLW	22,788.72	0.09%	2.75%	8.38%	11.24%	0.0096%
General Motors Co	GM	53,093.62	0.20%	4.13%	12.00%	16.38%	0.0327%
Alphabet Inc	GOOGL	868,659.08	3.26%	0.00%	12.38%	12.38%	0.4042%
Genuine Parts Co	GPC	14,904.17	0.06%	2.94%	3.73%	6.72%	0.0038%
Global Payments Inc	GP	50,846.71	0.19%	0.02%	17.13%	17.16%	0.0328%
Gap Inc/The	GPS	6,110.31	0.02%	6.00%	5.03%	11.18%	0.0026%
Garmin Ltd	GRMN	18,569.76	0.07%	2.38%	6.96%	9.42%	0.0066%
Goldman Sachs Group Inc/The	GS	79,839.31	0.30%	1.96%	1.84%	3.82%	0.0114%
WW Grainger Inc	GW	16,636.05	0.06%	1.84%	10.53%	12.46%	0.0078%
Halliburton Co	HAL	16,897.73	0.06%	3.74%	4.40%	8.22%	0.0052%
Hasbro Inc	HAS	12,285.69	0.05%	2.78%	9.40%	12.31%	0.0057%
Huntington Bancshares Inc/OH	HBAN	14,592.83	0.05%	4.11%	5.24%	9.46%	0.0052%
Hanesbrands Inc	HBI	5,499.07	0.02%	4.10%	4.90%	9.10%	0.0019%
HCA Healthcare Inc	HCA	45,534.84	0.17%	0.90%	10.25%	11.19%	0.0192%
HCP Inc	HCP	18,475.57	0.07%	3.93%	3.04%	7.03%	0.0049%
Home Depot Inc/The	HD	256,901.01	0.97%	2.31%	9.32%	11.73%	0.1133%
Hess Corp	HES	20,019.60	0.08%	1.60%	-9.53%	-8.01%	-0.0060%
HollyFrontier Corp	HFC	9,041.92	0.03%	2.43%	-5.47%	-3.10%	-0.0011%
Hartford Financial Services Group Inc/Th	HIG	20,639.07	0.08%	2.17%	9.50%	11.77%	0.0091%
Huntington Ingalls Industries Inc	HI	9,327.55	0.04%	1.52%	40.00%	41.82%	0.0147%
Hilton Worldwide Holdings Inc	HLT	27,358.52	0.10%	0.62%	12.21%	12.87%	0.0132%
Harley-Davidson Inc	HOG	6,098.43	0.02%	3.87%	5.80%	9.78%	0.0022%
Hologic Inc	HOLX	12,913.56	0.05%	0.00%	9.30%	9.30%	0.0045%
Honeywell International Inc	HON	123,421.37	0.46%	1.93%	7.64%	9.64%	0.0447%
Helmerich & Payne Inc	HP	4,103.76	0.02%	7.59%	-4.23%	3.20%	0.0005%
Hewlett Packard Enterprise Co	HPE	21,424.92	0.08%	2.75%	6.52%	9.35%	0.0075%
HP Inc	HPQ	25,740.84	0.10%	3.68%	0.69%	4.38%	0.0042%
H&R Block Inc	HRB	5,015.99	0.02%	4.13%	10.00%	14.34%	0.0027%
Hormel Foods Corp	HRL	21,834.03	0.08%	2.05%	3.03%	5.11%	0.0042%
Henry Schein Inc	HSIC	9,278.80	0.03%	0.00%	1.25%	1.25%	0.0004%
Host Hotels & Resorts Inc	HST	11,963.12	0.04%	5.15%	27.24%	33.09%	0.0149%
Hershey Co/The	HSY	30,684.28	0.12%	2.04%	7.90%	10.02%	0.0116%
Humana Inc	HUM	39,743.27	0.15%	0.74%	13.38%	14.17%	0.0212%
International Business Machines Corp	IBM	118,436.30	0.45%	4.83%	1.89%	6.76%	0.0301%
Intercontinental Exchange Inc	ICE	52,522.05	0.20%	1.16%	8.80%	10.01%	0.0198%
IDEXX Laboratories Inc	IDXX	24,448.89	0.09%	0.00%	18.53%	18.53%	0.0170%
IDEX Corp	IEX	11,829.59	0.04%	1.24%	11.10%	12.41%	0.0055%
International Flavors & Fragrances Inc	IFF	13,027.61	0.05%	2.40%	12.65%	15.20%	0.0074%
Illumina Inc	ILMN	43,441.44	0.16%	0.00%	22.26%	22.26%	0.0363%
Incyte Corp	INCY	18,076.14	0.07%	0.00%	43.15%	43.15%	0.0293%
IHS Markit Ltd	INFO	28,077.18	0.11%	0.00%	12.00%	12.00%	0.0127%
Intel Corp	INTC	245,905.50	0.92%	2.22%	6.15%	8.44%	0.0780%
Intuit Inc	INTU	66,968.96	0.25%	0.80%	15.69%	16.54%	0.0416%
International Paper Co	IP	17,159.09	0.06%	4.61%	4.55%	9.26%	0.0060%
Interpublic Group of Cos Inc/The	IPG	8,433.17	0.03%	4.32%	10.28%	14.82%	0.0047%
IPG Photonics Corp	IPGP	7,121.65	0.03%	0.00%	1.92%	1.92%	0.0005%
IQVIA Holdings Inc	IQV	28,017.48	0.11%	0.00%	17.75%	17.75%	0.0187%
Ingersoll-Rand PLC	IR	30,402.44	0.11%	1.70%	9.41%	11.19%	0.0128%
Iron Mountain Inc	IRM	9,417.10	0.04%	7.50%	3.81%	11.45%	0.0041%
Intuitive Surgical Inc	ISRG	63,906.37	0.24%	0.00%	14.05%	14.05%	0.0338%
Gartner Inc	IT	13,782.91	0.05%	0.00%	13.08%	13.08%	0.0068%
Illinois Tool Works Inc	ITW	54,182.64	0.20%	2.42%	6.87%	9.37%	0.0191%
Invesco Ltd	IVZ	7,634.49	0.03%	7.35%	5.64%	13.20%	0.0038%
JB Hunt Transport Services Inc	JBHT	12,551.66	0.05%	0.88%	11.40%	12.33%	0.0058%
Johnson Controls International plc	JCI	34,477.97	0.13%	2.54%	7.57%	10.20%	0.0132%
Jacobs Engineering Group Inc	JEC	12,679.91	0.05%	0.66%	15.62%	16.33%	0.0078%
Jack Henry & Associates Inc	JKHY	10,893.05	0.04%	1.12%	9.20%	10.37%	0.0042%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Johnson & Johnson	JNJ	347,512.43	1.31%	2.84%	5.31%	8.23%	0.1075%
Juniper Networks Inc	JNPR	8,583.15	0.03%	3.04%	7.36%	10.51%	0.0034%
JPMorgan Chase & Co	JPM	399,429.82	1.50%	2.72%	4.80%	7.59%	0.1139%
Nordstrom Inc	JWN	5,561.44	0.02%	4.23%	5.83%	10.19%	0.0021%
Kellogg Co	K	21,669.71	0.08%	3.57%	1.68%	5.28%	0.0043%
KeyCorp	KEY	17,764.03	0.07%	3.95%	4.89%	8.93%	0.0060%
Keysight Technologies Inc	KEYS	18,928.49	N/A	0.00%	N/A	N/A	N/A
Kraft Heinz Co/The	KHC	39,442.32	0.15%	4.95%	-1.87%	3.03%	0.0045%
Kimco Realty Corp	KIM	9,103.33	0.03%	5.26%	3.99%	9.35%	0.0032%
KLA Corp	KLAC	26,786.55	0.10%	1.94%	13.60%	15.67%	0.0158%
Kimberly-Clark Corp	KMB	45,552.01	0.17%	3.09%	4.88%	8.04%	0.0138%
Kinder Morgan Inc/DE	KMI	45,254.01	0.17%	4.98%	11.90%	17.18%	0.0292%
CarMax Inc	KMX	15,319.95	0.06%	0.00%	10.68%	10.68%	0.0061%
Coca-Cola Co/The	KO	233,204.87	0.88%	2.95%	6.04%	9.08%	0.0796%
Kroger Co/The	KR	19,751.95	0.07%	2.44%	4.75%	7.25%	0.0054%
Kohl's Corp	KSS	8,156.84	0.03%	5.22%	6.17%	11.55%	0.0035%
Kansas City Southern	KSU	13,954.06	0.05%	1.06%	12.73%	13.86%	0.0073%
Loews Corp	L	14,574.51	N/A	0.51%	N/A	N/A	N/A
L Brands Inc	LB	4,709.71	0.02%	7.05%	9.23%	16.60%	0.0029%
Leidos Holdings Inc	LDOS	12,207.05	0.05%	1.55%	10.00%	11.63%	0.0053%
Leggett & Platt Inc	LEG	6,744.42	N/A	3.08%	N/A	N/A	N/A
Lennar Corp	LEN	18,455.35	0.07%	0.27%	10.52%	10.80%	0.0075%
Laboratory Corp of America Holdings	LH	16,098.03	0.06%	0.00%	8.20%	8.20%	0.0050%
L3Harris Technologies Inc	LHX	45,919.42	N/A	1.39%	N/A	N/A	N/A
Linde PLC	LIN	107,226.32	0.40%	1.82%	12.63%	14.57%	0.0587%
LKQ Corp	LKQ	10,475.89	0.04%	0.00%	13.50%	13.50%	0.0053%
Eli Lilly & Co	LLY	109,406.90	0.41%	2.22%	10.25%	12.59%	0.0518%
Lockheed Martin Corp	LMT	106,250.66	0.40%	2.37%	9.36%	11.84%	0.0473%
Lincoln National Corp	LNC	11,306.88	0.04%	2.66%	9.00%	11.78%	0.0050%
Alliant Energy Corp	LNT	12,669.37	0.05%	2.67%	5.67%	8.41%	0.0040%
Lowe's Cos Inc	LOW	86,140.45	0.32%	1.88%	15.05%	17.07%	0.0553%
Lam Research Corp	LRCX	39,322.18	0.15%	1.67%	15.89%	17.68%	0.0261%
Southwest Airlines Co	LUV	30,170.83	0.11%	1.28%	7.55%	8.88%	0.0101%
Las Vegas Sands Corp	LVS	47,495.38	0.18%	5.11%	4.16%	9.37%	0.0167%
Lamb Weston Holdings Inc	LW	11,398.73	0.04%	1.06%	7.68%	8.78%	0.0038%
LyondellBasell Industries NV	LYB	30,071.54	0.11%	4.79%	6.40%	11.34%	0.0128%
Macy's Inc	M	4,683.15	0.02%	9.96%	3.50%	13.63%	0.0024%
Mastercard Inc	MA	279,263.56	1.05%	4.46%	18.28%	18.79%	0.1972%
Mid-America Apartment Communities Inc	MAA	15,851.04	N/A	2.76%	N/A	N/A	N/A
Macerich Co/The	MAC	3,884.80	0.01%	10.91%	-0.71%	10.16%	0.0015%
Marriott International Inc/MD	MAR	41,680.36	0.16%	1.46%	7.92%	9.44%	0.0148%
Masco Corp	MAS	13,230.89	0.05%	1.03%	9.01%	10.09%	0.0050%
McDonald's Corp	MCD	149,382.67	0.56%	2.41%	8.54%	11.06%	0.0621%
Microchip Technology Inc	MCHP	22,445.13	0.08%	1.47%	7.65%	9.17%	0.0077%
McKesson Corp	MCK	23,964.99	0.09%	1.24%	2.43%	3.69%	0.0033%
Moody's Corp	MCO	41,666.27	0.16%	0.94%	9.73%	10.72%	0.0168%
Mondelez International Inc	MDLZ	75,518.79	0.28%	2.04%	7.91%	10.04%	0.0285%
Medtronic PLC	MDT	146,107.81	0.55%	1.93%	7.55%	9.56%	0.0525%
MetLife Inc	MET	43,816.38	0.16%	3.71%	9.42%	13.30%	0.0219%
MGM Resorts International	MGM	14,860.66	0.06%	1.82%	12.60%	14.54%	0.0081%
Mohawk Industries Inc	MHK	10,345.23	0.04%	0.00%	4.66%	4.66%	0.0018%
McCormick & Co Inc/MD	MKC	21,357.14	0.08%	1.41%	6.20%	7.65%	0.0061%
MarketAxess Holdings Inc	MKTX	13,924.25	N/A	0.55%	N/A	N/A	N/A
Martin Marietta Materials Inc	MLM	16,369.51	0.06%	0.79%	16.02%	16.87%	0.0104%
Marsh & McLennan Cos Inc	MMC	52,293.72	0.20%	1.69%	10.65%	12.43%	0.0244%
3M Co	MMM	94,877.61	0.36%	3.43%	7.00%	10.55%	0.0376%
Monster Beverage Corp	MNST	30,584.08	0.11%	0.00%	12.20%	12.20%	0.0140%
Altria Group Inc	MO	83,673.39	0.31%	7.31%	6.35%	13.89%	0.0437%
Mosaic Co/The	MOS	7,671.04	0.03%	0.98%	12.87%	13.91%	0.0040%
Marathon Petroleum Corp	MPC	42,099.52	0.16%	3.32%	12.05%	15.57%	0.0246%
Merck & Co Inc	MRK	221,882.07	0.83%	2.54%	10.44%	13.11%	0.1094%
Marathon Oil Corp	MRO	9,270.61	0.03%	1.73%	1.55%	3.30%	0.0011%
Morgan Stanley	MS	74,785.20	0.28%	2.84%	10.54%	13.53%	0.0380%
MSCI Inc	MSCI	19,868.94	0.07%	1.07%	12.87%	14.00%	0.0105%
Microsoft Corp	MSFT	1,093,741.86	4.11%	1.40%	9.91%	11.37%	0.4675%
Motorola Solutions Inc	MSI	28,496.61	0.11%	1.38%	7.05%	8.48%	0.0091%
M&T Bank Corp	MTB	20,922.85	0.08%	2.64%	4.31%	7.01%	0.0055%
Mettler-Toledo International Inc	MTD	17,348.03	0.07%	0.00%	13.50%	13.50%	0.0088%
Micron Technology Inc	MU	52,640.27	0.20%	0.00%	5.68%	5.68%	0.0112%
Maxim Integrated Products Inc	MXIM	15,873.94	0.06%	3.22%	6.78%	10.10%	0.0060%
Mylan NV	MYL	9,878.91	0.04%	0.00%	-5.72%	-5.72%	-0.0021%
Noble Energy Inc	NBL	9,211.16	0.03%	2.42%	14.84%	17.44%	0.0060%
Norwegian Cruise Line Holdings Ltd	NCLH	10,943.72	0.04%	0.15%	8.27%	8.43%	0.0035%
Nasdaq Inc	NDAQ	16,430.90	0.06%	1.86%	13.85%	15.84%	0.0098%
NextEra Energy Inc	NEE	116,494.85	0.44%	2.09%	8.12%	10.29%	0.0451%
Newmont Goldcorp Corp	NEM	32,574.38	0.12%	1.73%	5.75%	7.53%	0.0092%
Netflix Inc	NFLX	125,957.80	0.47%	0.00%	40.00%	40.00%	0.1894%
NiSource Inc	NI	10,474.14	0.04%	2.86%	4.81%	7.74%	0.0030%
NIKE Inc	NKE	139,792.24	0.53%	1.03%	13.82%	14.93%	0.0784%
Nielsen Holdings PLC	NLSN	7,170.38	0.03%	6.99%	7.55%	14.81%	0.0040%
Northrop Grumman Corp	NOC	59,404.43	0.22%	1.45%	7.34%	8.84%	0.0197%
National Oilwell Varco Inc	NOV	8,727.52	0.03%	0.88%	54.53%	55.66%	0.0183%
NRG Energy Inc	NRG	10,149.87	0.04%	0.30%	35.49%	35.84%	0.0137%
Norfolk Southern Corp	NSC	47,455.89	0.18%	1.96%	12.74%	14.82%	0.0264%
NetApp Inc	NTAP	13,294.55	0.05%	3.42%	5.24%	8.75%	0.0044%
Northern Trust Corp	NTRS	21,120.36	0.08%	2.60%	8.36%	11.07%	0.0088%
Nucor Corp	NUE	16,325.00	0.06%	2.97%	0.40%	3.38%	0.0021%
NVIDIA Corp	NVDA	122,421.18	0.46%	0.32%	10.80%	11.13%	0.0512%
NVR Inc	NVR	13,448.78	0.05%	0.00%	11.81%	11.81%	0.0060%
Newell Brands Inc	NWL	8,031.90	0.03%	4.85%	-14.30%	-9.80%	-0.0030%
News Corp	NWSA	8,144.98	0.03%	1.42%	-13.55%	-12.23%	-0.0037%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Realty Income Corp	O	26,027.85	0.10%	3.32%	5.01%	8.41%	0.0082%
ONEOK Inc	OKE	28,845.70	0.11%	5.09%	12.11%	17.51%	0.0190%
Omnicom Group Inc	OMC	16,806.74	0.06%	3.37%	4.10%	7.54%	0.0048%
Oracle Corp	ORCL	178,864.36	0.67%	1.72%	8.38%	10.17%	0.0684%
O'Reilly Automotive Inc	ORLY	32,980.21	0.12%	0.00%	12.25%	12.25%	0.0152%
Occidental Petroleum Corp	OXY	36,226.43	0.14%	7.70%	11.90%	20.06%	0.0273%
Paychex Inc	PAYX	29,938.45	0.11%	2.99%	7.25%	10.35%	0.0116%
People's United Financial Inc	PBCT	6,447.79	0.02%	4.37%	2.00%	6.41%	0.0016%
PACCAR Inc	PCAR	26,307.15	0.10%	4.48%	5.03%	9.63%	0.0095%
Public Service Enterprise Group Inc	PEG	32,011.84	0.12%	2.97%	5.18%	8.22%	0.0099%
PepsiCo Inc	PEP	191,274.70	0.72%	2.75%	4.88%	7.70%	0.0553%
Pfizer Inc	PFE	212,226.33	0.80%	3.73%	3.49%	7.28%	0.0581%
Principal Financial Group Inc	PFG	14,822.13	0.06%	4.08%	5.26%	9.45%	0.0053%
Procter & Gamble Co/The	PG	310,504.54	1.17%	2.41%	7.33%	9.83%	0.1147%
Progressive Corp/The	PGR	40,746.62	0.15%	3.89%	8.00%	12.04%	0.0184%
Parker-Hannifin Corp	PH	23,578.24	0.09%	1.85%	8.24%	10.16%	0.0090%
PulteGroup Inc	PHM	10,634.04	0.04%	1.13%	9.30%	10.48%	0.0042%
Packaging Corp of America	PKG	10,361.79	0.04%	2.92%	10.00%	13.06%	0.0051%
PerkinElmer Inc	PKI	9,548.11	0.04%	0.33%	16.97%	17.32%	0.0062%
Prologis Inc	PLD	55,350.25	0.21%	2.42%	7.75%	10.26%	0.0213%
Philip Morris International Inc	PM	126,710.43	0.48%	5.68%	6.60%	12.46%	0.0594%
PNC Financial Services Group Inc/The	PNC	64,401.30	0.24%	2.86%	7.14%	10.10%	0.0244%
Pentair PLC	PNR	6,970.82	0.03%	1.77%	6.20%	8.02%	0.0021%
Pinnacle West Capital Corp	PNW	10,570.04	0.04%	3.20%	5.40%	8.68%	0.0034%
PPG Industries Inc	PPG	29,586.28	0.11%	1.58%	6.29%	7.92%	0.0088%
PPL Corp	PPL	24,174.42	0.09%	4.94%	1.18%	6.15%	0.0056%
Perrigo Co PLC	PRGO	7,213.62	0.03%	1.46%	-1.60%	-0.15%	0.0000%
Prudential Financial Inc	PRU	36,638.28	0.14%	4.39%	10.67%	15.29%	0.0211%
Public Storage	PSA	38,929.30	0.15%	3.61%	3.77%	7.45%	0.0109%
Phillips 66	PSX	51,909.85	0.20%	2.97%	-0.05%	2.92%	0.0057%
PVH Corp	PVH	6,462.37	0.02%	0.17%	6.52%	6.69%	0.0016%
Quanta Services Inc	PWR	5,999.20	N/A	0.29%	N/A	N/A	N/A
Pioneer Natural Resources Co	PXD	20,562.01	0.08%	0.66%	23.85%	24.58%	0.0190%
PayPal Holdings Inc	PYPL	122,233.43	0.46%	0.00%	18.76%	18.76%	0.0862%
QUALCOMM Inc	QCOM	97,787.51	0.37%	3.10%	14.37%	17.69%	0.0650%
Qorvo Inc	QRVO	9,524.07	0.04%	0.25%	10.76%	11.02%	0.0039%
Royal Caribbean Cruises Ltd	RCL	22,814.16	0.09%	2.66%	10.06%	12.85%	0.0110%
Everest Re Group Ltd	RE	10,484.39	0.04%	2.21%	10.00%	12.33%	0.0049%
Regency Centers Corp	REG	11,277.69	0.04%	3.48%	4.88%	8.45%	0.0036%
Regeneron Pharmaceuticals Inc	REGN	33,639.46	0.13%	0.00%	12.28%	12.28%	0.0155%
Regions Financial Corp	RF	16,064.13	0.06%	3.68%	8.48%	12.32%	0.0074%
Robert Half International Inc	RHI	6,732.72	0.03%	2.15%	-2.17%	-0.03%	0.0000%
Raymond James Financial Inc	RJF	11,504.92	0.04%	1.70%	11.10%	12.89%	0.0056%
Ralph Lauren Corp	RL	7,417.90	0.03%	2.83%	6.35%	9.27%	0.0026%
ResMed Inc	RMD	21,268.84	0.08%	1.10%	14.40%	15.57%	0.0124%
Rockwell Automation Inc	ROK	20,124.14	0.08%	2.23%	12.16%	14.52%	0.0110%
Rollins Inc	ROL	12,478.80	N/A	1.23%	N/A	N/A	N/A
Roper Technologies Inc	ROP	35,044.45	0.13%	0.56%	12.77%	13.36%	0.0176%
Ross Stores Inc	ROST	39,670.98	0.15%	0.93%	9.38%	10.35%	0.0154%
Republic Services Inc	RSG	27,928.35	0.10%	1.80%	12.52%	14.43%	0.0151%
Raytheon Co	RTN	59,096.03	0.22%	1.76%	8.68%	10.51%	0.0233%
SBA Communications Corp	SBAC	27,098.15	0.10%	0.28%	28.45%	28.77%	0.0293%
Starbucks Corp	SBUX	101,218.32	0.38%	1.98%	13.17%	15.28%	0.0581%
Charles Schwab Corp/The	SCHW	53,215.42	0.20%	1.67%	3.49%	5.19%	0.0104%
Sealed Air Corp	SEE	6,454.55	0.02%	1.54%	5.16%	6.74%	0.0016%
Sherwin-Williams Co/The	SHW	52,830.42	0.20%	0.78%	11.24%	12.06%	0.0239%
SVB Financial Group	SIVB	11,418.59	0.04%	0.00%	11.00%	11.00%	0.0047%
JM Smucker Co/The	SJM	12,052.57	0.05%	3.34%	2.97%	6.36%	0.0029%
Schlumberger Ltd	SLB	45,255.69	0.17%	6.12%	27.22%	34.17%	0.0581%
SL Green Realty Corp	SLG	6,900.15	0.03%	4.09%	7.30%	11.54%	0.0030%
Snap-on Inc	SNA	8,921.86	0.03%	2.34%	6.74%	9.15%	0.0031%
Synopsys Inc	SNPS	20,401.40	0.08%	0.00%	14.38%	14.38%	0.0110%
Southern Co/The	SO	65,776.18	0.25%	3.94%	3.98%	8.00%	0.0198%
Simon Property Group Inc	SPG	46,239.01	0.17%	5.51%	3.96%	9.58%	0.0167%
S&P Global Inc	SPGI	63,052.76	0.24%	0.87%	10.47%	11.39%	0.0270%
Sempra Energy	SRE	39,655.48	0.15%	2.69%	9.25%	12.06%	0.0180%
SunTrust Banks Inc	STI	30,345.22	0.11%	3.09%	1.21%	4.32%	0.0049%
State Street Corp	STT	24,024.59	0.09%	3.00%	7.14%	10.24%	0.0092%
Seagate Technology PLC	STX	15,328.32	0.06%	4.41%	1.26%	5.69%	0.0033%
Constellation Brands Inc	STZ	36,525.81	0.14%	1.57%	5.73%	7.34%	0.0101%
Stanley Black & Decker Inc	SWK	23,003.95	0.09%	1.78%	7.69%	9.54%	0.0082%
Skyworks Solutions Inc	SWKS	15,635.29	0.06%	1.73%	12.93%	14.77%	0.0087%
Synchrony Financial	SYF	22,855.84	0.09%	2.43%	5.57%	8.07%	0.0069%
Stryker Corp	SYK	80,964.30	0.30%	0.97%	9.38%	10.40%	0.0316%
Symantec Corp	SYMC	14,140.56	0.05%	1.32%	3.35%	4.70%	0.0025%
Sysco Corp	SYI	40,893.98	0.15%	2.09%	11.13%	13.34%	0.0205%
AT&T Inc	T	281,092.47	1.06%	5.31%	5.62%	11.08%	0.1170%
Molson Coors Brewing Co	TAP	11,500.41	0.04%	3.73%	-3.45%	0.21%	0.0001%
TransDigm Group Inc	TDG	28,090.06	0.11%	0.00%	13.77%	13.77%	0.0145%
TE Connectivity Ltd	TEL	29,990.47	0.11%	2.08%	9.16%	11.33%	0.0128%
Teleflex Inc	TFX	16,061.75	0.06%	0.39%	14.50%	14.92%	0.0090%
Target Corp	TGT	54,623.37	0.21%	2.45%	8.23%	10.77%	0.0221%
Tiffany & Co	TIF	15,040.64	0.06%	1.84%	8.42%	10.33%	0.0058%
TJX Cos Inc/The	TJX	69,694.97	0.26%	1.60%	11.07%	12.75%	0.0334%
Thermo Fisher Scientific Inc	TMO	120,935.67	0.45%	0.24%	11.70%	11.95%	0.0543%
T-Mobile US Inc	TMUS	70,721.81	0.27%	0.61%	11.27%	11.91%	0.0317%
Tapestry Inc	TPR	7,443.28	0.03%	5.27%	8.83%	14.34%	0.0040%
TripAdvisor Inc	TRIP	5,627.73	0.02%	0.00%	14.28%	14.28%	0.0030%
T Rowe Price Group Inc	TROW	27,059.84	0.10%	2.60%	7.89%	10.59%	0.0108%
Travelers Cos Inc/The	TRV	33,828.26	0.13%	2.46%	11.75%	14.36%	0.0183%
Tractor Supply Co	TSCO	11,332.56	0.04%	1.42%	10.83%	12.33%	0.0053%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Tyson Foods Inc	TSN	30,192.38	0.11%	1.81%	4.44%	6.29%	0.0071%
Take-Two Interactive Software Inc	TTWO	13,620.98	0.05%	0.00%	7.59%	7.59%	0.0039%
Twitter Inc	TWTR	23,267.41	0.09%	0.00%	25.40%	25.40%	0.0222%
Texas Instruments Inc	TXN	110,294.15	0.41%	2.70%	8.35%	11.17%	0.0463%
Textron Inc	TXT	10,520.63	0.04%	0.17%	10.29%	10.47%	0.0041%
Under Armour Inc	UAA	8,789.61	0.03%	0.00%	30.48%	30.48%	0.0101%
United Airlines Holdings Inc	UAL	22,986.49	0.09%	0.02%	17.42%	17.44%	0.0151%
UDR Inc	UDR	14,725.93	0.06%	2.72%	6.29%	9.09%	0.0050%
Universal Health Services Inc	UHS	12,163.68	0.05%	0.40%	6.15%	6.56%	0.0030%
Ulta Beauty Inc	ULTA	13,720.63	0.05%	0.00%	18.04%	18.04%	0.0093%
UnitedHealth Group Inc	UNH	239,478.89	0.90%	1.63%	12.98%	14.72%	0.1324%
Unum Group	UNM	5,680.63	0.02%	3.99%	9.00%	13.17%	0.0028%
Union Pacific Corp	UNP	114,862.31	0.43%	2.22%	12.83%	15.19%	0.0656%
United Parcel Service Inc	UPS	98,795.44	0.37%	3.33%	8.48%	11.95%	0.0444%
United Rentals Inc	URI	10,038.58	0.04%	0.00%	10.80%	10.80%	0.0041%
US Bancorp	USB	89,578.42	0.34%	2.77%	6.40%	9.26%	0.0312%
United Technologies Corp	UTX	123,948.15	0.47%	2.06%	9.75%	11.91%	0.0555%
Visa Inc	V	353,069.64	1.33%	0.62%	15.54%	16.22%	0.2152%
Varian Medical Systems Inc	VAR	11,001.05	0.04%	0.00%	8.80%	8.80%	0.0036%
VF Corp	VFC	32,765.95	0.12%	2.17%	9.93%	12.20%	0.0150%
Viacom Inc	VIAB	8,812.38	0.03%	3.72%	3.38%	7.16%	0.0024%
Valero Energy Corp	VLO	40,188.85	0.15%	3.72%	15.00%	19.00%	0.0287%
Vulcan Materials Co	VMC	18,899.82	0.07%	0.86%	17.32%	18.25%	0.0130%
Vornado Realty Trust	VNO	12,525.51	0.05%	4.30%	5.46%	9.88%	0.0046%
Verisk Analytics Inc	VRSK	23,711.96	0.09%	0.52%	18.84%	19.41%	0.0173%
VeriSign Inc	VRSN	22,310.06	0.08%	0.00%	10.30%	10.30%	0.0086%
Vertex Pharmaceuticals Inc	VRTX	50,245.29	0.19%	0.00%	28.41%	28.41%	0.0536%
Ventas Inc	VTR	24,265.12	0.09%	4.88%	4.86%	9.86%	0.0090%
Verizon Communications Inc	VZ	250,090.87	0.94%	3.99%	2.64%	6.68%	0.0628%
Wabtec Corp	WAB	13,298.13	0.05%	0.64%	53.45%	54.26%	0.0271%
Waters Corp	WAT	13,635.60	0.05%	0.00%	10.84%	10.84%	0.0056%
Walgreens Boots Alliance Inc	WBA	48,893.40	0.18%	3.35%	5.31%	8.75%	0.0161%
WellCare Health Plans Inc	WCG	14,927.17	0.06%	0.00%	19.87%	19.87%	0.0111%
Western Digital Corp	WDC	15,353.38	0.06%	3.87%	3.07%	7.00%	0.0040%
WEC Energy Group Inc	WEC	29,777.14	0.11%	2.50%	6.44%	9.02%	0.0101%
Welltower Inc	WELL	36,801.97	0.14%	3.84%	6.34%	10.30%	0.0142%
Wells Fargo & Co	WFC	220,413.63	0.83%	3.71%	9.56%	13.44%	0.1113%
Whirlpool Corp	WHR	9,613.95	0.04%	3.14%	4.07%	7.27%	0.0026%
Willis Towers Watson PLC	WLTW	24,109.07	0.09%	1.35%	14.40%	15.85%	0.0144%
Waste Management Inc	WM	47,604.11	0.18%	1.83%	7.50%	9.39%	0.0168%
Williams Cos Inc/The	WMB	27,040.81	0.10%	6.81%	8.00%	15.08%	0.0153%
Walmart Inc	WMT	333,520.75	1.25%	1.83%	7.97%	9.88%	0.1239%
Westrock Co	WRK	9,616.85	0.04%	4.84%	1.80%	6.68%	0.0024%
Western Union Co/The	WU	10,622.71	0.04%	3.17%	3.61%	6.84%	0.0027%
Weyerhaeuser Co	WY	21,765.61	0.08%	4.66%	3.80%	8.54%	0.0070%
Wynn Resorts Ltd	WYNN	13,058.12	0.05%	3.09%	13.50%	16.80%	0.0082%
Cimarex Energy Co	XEC	4,283.51	0.02%	1.82%	17.59%	19.57%	0.0032%
Xcel Energy Inc	XEL	33,958.04	0.13%	2.55%	5.61%	8.23%	0.0105%
Xilinx Inc	XLNX	22,818.15	0.09%	1.63%	9.05%	10.75%	0.0092%
Exxon Mobil Corp	XOM	285,895.85	1.07%	5.07%	8.48%	13.77%	0.1479%
DENTSPLY SIRONA Inc	XRAY	12,280.77	0.05%	0.65%	13.14%	13.84%	0.0064%
Xerox Holdings Corp	XRX	7,508.16	0.03%	2.98%	5.90%	8.96%	0.0025%
Xylem Inc/NY	XYL	13,806.43	0.05%	1.26%	14.07%	15.41%	0.0080%
Yum! Brands Inc	YUM	30,818.13	0.12%	1.65%	12.42%	14.17%	0.0164%
Zimmer Biomet Holdings Inc	ZBH	28,380.63	0.11%	0.71%	6.02%	6.75%	0.0072%
Zions Bancorp NA	ZION	8,257.98	0.03%	2.64%	6.09%	8.81%	0.0027%
Zoetis Inc	ZTS	61,089.21	0.23%	0.51%	10.23%	10.77%	0.0247%
Total Market Capitalization:		26,607,265.08					12.81%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Bloomberg Professional
- [3] Equals [1] - [2]
- [4] Source: Bloomberg Professional
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Bloomberg Professional
- [7] Source: Bloomberg Professional
- [8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
- [9] Equals Col. [5] x Col. [8]

Opinion No. 569 Market Risk Premium Based CAPM - 6-Month Average Risk-Free Rate

Company	Ticker	[1] Market ROE	[2] Risk-Free Rate	[3] Risk Premium	[4] Beta	[5] Unadjusted ROE	[6] Market Cap	[7] Size Adjustment	[8] Adjusted ROE
ALLETE, Inc.	ALE	11.24%	2.41%	8.83%	0.65	8.15%	4,482.05	1.28%	9.43%
Alliant Energy Corporation	LNT	11.24%	2.41%	8.83%	0.60	7.71%	12,667.24	0.81%	8.52%
Ameren Corporation	AEE	11.24%	2.41%	8.83%	0.55	7.26%	19,719.10	0.52%	7.78%
American Electric Power Company, Inc.	AEP	11.24%	2.41%	8.83%	0.55	7.26%	46,169.83	-0.30%	6.96%
Avangrid, Inc.	AGR	11.24%	2.41%	8.83%	0.40	5.94%	15,700.56	0.52%	6.46%
Avista Corporation	AVA	11.24%	2.41%	8.83%	0.60	7.71%	3,179.43	1.28%	8.99%
Black Hills Corporation	BKH	11.24%	2.41%	8.83%	0.70	8.59%	4,726.66	0.85%	9.44%
CenterPoint Energy, Inc.	CNP	11.24%	2.41%	8.83%	0.80	9.47%	14,643.33	0.52%	9.99%
CMS Energy Corporation	CMS	11.24%	2.41%	8.83%	0.55	7.26%	18,125.71	0.52%	7.78%
Consolidated Edison, Inc.	ED	11.24%	2.41%	8.83%	0.45	6.38%	30,840.03	-0.30%	6.08%
Dominion Energy, Inc.	D	11.24%	2.41%	8.83%	0.55	7.26%	65,451.94	-0.30%	6.96%
DTE Energy Company	DTE	11.24%	2.41%	8.83%	0.55	7.26%	23,956.61	0.52%	7.78%
Duke Energy Corporation	DUK	11.24%	2.41%	8.83%	0.50	6.82%	69,599.37	-0.30%	6.52%
Entergy Corporation	ETR	11.24%	2.41%	8.83%	0.60	7.71%	23,457.52	0.52%	8.23%
Eversource Energy	ES	11.24%	2.41%	8.83%	0.60	7.71%	27,474.25	0.52%	8.23%
Exelon Corporation	EXC	11.24%	2.41%	8.83%	0.70	8.59%	45,606.18	-0.30%	8.29%
Evergy, Inc. [9]	EVRG	11.24%	2.41%	8.83%	0.51	6.88%	15,240.08	0.52%	7.40%
NextEra Energy, Inc.	NEE	11.24%	2.41%	8.83%	0.55	7.26%	113,329.57	-0.30%	6.96%
NorthWestern Corporation	NWE	11.24%	2.41%	8.83%	0.60	7.71%	3,755.01	1.28%	8.99%
OGE Energy Corp.	OGE	11.24%	2.41%	8.83%	0.80	9.47%	8,772.77	0.81%	10.28%
Otter Tail Corporation	OTTR	11.24%	2.41%	8.83%	0.65	8.15%	2,159.68	1.50%	9.65%
Pinnacle West Capital Corporation	PNW	11.24%	2.41%	8.83%	0.55	7.26%	10,715.02	0.81%	8.07%
Portland General Electric Company	POR	11.24%	2.41%	8.83%	0.60	7.71%	5,051.74	0.85%	8.56%
PPL Corporation	PPL	11.24%	2.41%	8.83%	0.65	8.15%	22,995.90	0.52%	8.67%
Public Service Enterprise Group Incorporated	PEG	11.24%	2.41%	8.83%	0.65	8.15%	31,424.13	-0.30%	7.85%
Sempra Energy	SRE	11.24%	2.41%	8.83%	0.75	9.03%	39,799.45	-0.30%	8.73%
Southern Company	SO	11.24%	2.41%	8.83%	0.50	6.82%	64,563.21	-0.30%	6.52%
WEC Energy Group, Inc.	WEC	11.24%	2.41%	8.83%	0.50	6.82%	29,668.74	-0.30%	6.52%
Xcel Energy Inc.	XEL	11.24%	2.41%	8.83%	0.50	6.82%	33,303.89	-0.30%	6.52%
Median							22,995.90		8.07%
Low-End Outlier (7.25%):									7.25%
High-End Outlier (Median * 150%):									12.11%
Zone of reasonableness high:									10.28%
Zone of reasonableness low:									7.40%
Zone of reasonableness median:									8.54%

Notes:

[1] Source: Exhibit No. LSPG-NY-710  
[2] 6-month average 30-year Treasury yield as of 10/31/2019, Source: Bloomberg Professional  
[3] Equals [1] - [2]

[4] Source: Value Line

[5] Equals [2] + [3] x [4]

[6] Source: Bloomberg Professional (30-day average as of 10/31/2019)

[7] Source: Duff & Phelps', Cost of Capital Navigator

[8] Equals [5] + [7]

[9] Calculated Using Bloomberg Beta Workbook

S&P 500 Market Risk Premium Based CAPM - 6-Month Average Risk-Free Rate

Company	Ticker	[1] Market ROE	[2] Risk-Free Rate	[3] Risk Premium	[4] Beta	[5] Unadjusted ROE	[6] Market Cap	[7] Size Adjustment	[8] Adjusted ROE
ALLETE, Inc.	ALE	12.81%	2.41%	10.40%	0.65	9.17%	4,482.05	1.28%	10.45%
Alliant Energy Corporation	LNT	12.81%	2.41%	10.40%	0.60	8.65%	12,667.24	0.81%	9.46%
Ameren Corporation	AEE	12.81%	2.41%	10.40%	0.55	8.13%	19,719.10	0.52%	8.65%
American Electric Power Company, Inc.	AEP	12.81%	2.41%	10.40%	0.55	8.13%	46,169.83	-0.30%	7.83%
Avangrid, Inc.	AGR	12.81%	2.41%	10.40%	0.40	6.57%	15,700.56	0.52%	7.09%
Avista Corporation	AVA	12.81%	2.41%	10.40%	0.60	8.65%	3,179.43	1.28%	9.93%
Black Hills Corporation	BKH	12.81%	2.41%	10.40%	0.70	9.69%	4,726.66	0.85%	10.54%
CenterPoint Energy, Inc.	CNP	12.81%	2.41%	10.40%	0.80	10.73%	14,643.33	0.52%	11.25%
CMS Energy Corporation	CMS	12.81%	2.41%	10.40%	0.55	8.13%	18,125.71	0.52%	8.65%
Consolidated Edison, Inc.	ED	12.81%	2.41%	10.40%	0.45	7.09%	30,840.03	-0.30%	6.79%
Dominion Energy, Inc.	D	12.81%	2.41%	10.40%	0.55	8.13%	65,451.94	-0.30%	7.83%
DTE Energy Company	DTE	12.81%	2.41%	10.40%	0.55	8.13%	23,956.61	0.52%	8.65%
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NorthWestern Corporation	NWE	12.81%	2.41%	10.40%	0.60	8.65%	3,755.01	1.28%	9.93%
OGE Energy Corp.	OGE	12.81%	2.41%	10.40%	0.80	10.73%	8,772.77	0.81%	11.54%
Otter Tail Corporation	OTTR	12.81%	2.41%	10.40%	0.65	9.17%	2,159.68	1.50%	10.67%
Pinnacle West Capital Corporation	PNW	12.81%	2.41%	10.40%	0.55	8.13%	10,715.02	0.81%	8.94%
Portland General Electric Company	POR	12.81%	2.41%	10.40%	0.60	8.65%	5,051.74	0.85%	9.50%
PPL Corporation	PPL	12.81%	2.41%	10.40%	0.65	9.17%	22,995.90	0.52%	9.69%
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Sempra Energy	SRE	12.81%	2.41%	10.40%	0.75	10.21%	39,799.45	-0.30%	9.91%
Southern Company	SO	12.81%	2.41%	10.40%	0.50	7.61%	64,563.21	-0.30%	7.31%
WEC Energy Group, Inc.	WEC	12.81%	2.41%	10.40%	0.50	7.61%	29,668.74	-0.30%	7.31%
Xcel Energy Inc.	XEL	12.81%	2.41%	10.40%	0.50	7.61%	33,303.89	-0.30%	7.31%

Median 22,995.90 8.94%

Low-End Outlier (7.25%): 7.25%  
High-End Outlier (Median \* 150%): 13.41%

Zone of reasonableness high: 11.54%  
Zone of reasonableness low: 7.31%  
Zone of reasonableness median: 9.17%

Notes:

[1] Source: Exhibit No. LSPG-NY-711  
[2] 6-month average 30-year Treasury yield as of 10/31/2019, Source: Bloomberg Professional  
[3] Equals [1] - [2]

[4] Source: Value Line

[5] Equals [2] + [3] x [4]

[6] Source: Bloomberg Professional (30-day average as of 10/31/2019)

[7] Source: Duff & Phelps', Cost of Capital Navigator

[8] Equals [5] + [7]

[9] Calculated Using Bloomberg Beta Workbook

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**LS POWER GRID NEW YORK  
CORPORATION I**

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)

Docket No. ER20-\_\_\_-000

**AFFIDAVIT**

Robert B. Hevert, being duly sworn, deposes and states: that the foregoing Direct Testimony and Exhibits of Robert B. Hevert was prepared by me or under my direct supervision, and that the statements contained therein and the Exhibits attached thereto are true and correct to the best of my knowledge and belief.

  
\_\_\_\_\_  
Robert B. Hevert

Subscribed and sworn before me this 18<sup>th</sup> day of December 2019.



Sara A. Derstine  
Notary Public  
My commission expires: November 8, 2024

