



414 Nicollet Mall
Minneapolis, MN 55401

April 11, 2019

—Via Electronic Filing—

Mr. Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

RE: REPLY COMMENTS
TRANSMISSION COST RECOVERY RIDER
DOCKET NO. E002/M-17-797

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits the enclosed Reply Comments in response to the March 4, 2019 Response Comments of the Department of Commerce, Division of Energy Resources in the above-referenced docket.

Pursuant to Minn. Stat. § 216.17, subd. 3, we have electronically filed this document, and served copies on the parties on the attached service list.

If you have any questions regarding this filing please contact me at (612) 330-5941 or holly.r.hinman@xcelenergy.com or Rebecca Eilers at (612) 330-5570 or rebecca.d.eilers@xcelenergy.com.

Sincerely,

/s/

HOLLY HINMAN
REGULATORY MANAGER

Enclosures
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Dan Lipschultz
Matthew Schuerger
Katie Sieben
John Tuma

Commissioner
Commissioner
Commissioner
Commissioner

IN THE MATTER OF THE PETITION OF
NORTHERN STATES POWER COMPANY
FOR APPROVAL OF THE TRANSMISSION
COST RECOVERY RIDER REVENUE
REQUIREMENTS FOR 2017 AND 2018, AND
REVISED ADJUSTMENT FACTORS

DOCKET NO. E002/M-17-797

REPLY COMMENTS

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits this Reply to the Response Comments submitted by the Minnesota Department of Commerce, Division of Energy Resources on March 4, 2019 regarding our Petition for approval of the Transmission Cost Recovery (TCR) Rider combined revenue requirements for 2017 and 2018 and the corresponding TCR adjustment factors. We appreciate the Department's conclusions that the Company's ADMS allocation methodology is reasonable, that its explanations on net MISO Schedule 26/26A are reasonable, and that the Company's explanation regarding its TCR True Up Report is reasonable.

We confine this Reply to topics that remain at issue. Specifically, we respond to Department recommendations related to the following topics:

- Return on Equity (ROE);
- Accumulated Deferred Income Tax (ADIT) Proration; and
- MISO ROE Interest

We address each of these topics in turn below.

REPLY COMMENTS

A. ROE

i. The Department's Analysis & Recommendation

At the outset, we note that the Department's updated ROE recommendation departs substantially from the most recent ROEs approved by this Commission, which include:

- 9.70 percent for Minnesota Energy Resources Corporation (MERC) in Docket No. G011/GR-17-563 (December 26, 2018);
- 9.41 percent for Otter Tail Power Company in Docket No. E017/GR-15-1033 (May 1, 2017); and
- 9.25 percent for Minnesota Power in Docket No. E015/GR-16-664 (March 12, 2018).

Notably, each of these ROEs is higher than our currently authorized ROE of 9.2 percent for the TCR. The Commission's Order in the MERC case is particularly relevant here given that it is the most recent ROE decision from this Commission and was issued just four months ago in December 2018. The Department's updated recommendation in this docket reflects an ROE level that is *111 basis points lower* than the ROE level Ordered for MERC. As discussed below, we do not believe there has been any corresponding shift in capital market conditions to justify such a dramatic reduction in just four months. Nor should the fact that MERC is a gas utility impede the comparison. Our analysis of actual authorized ROE results for both gas and electric jurisdictions across the US indicate that, on average, the authorized returns for gas distribution companies have been similar to electric utilities.

As we evaluate the Department's updated DCF analysis, it appears that the primary driver of the Department's lower ROE recommendation is its decision to exclude one company (NextEra) from its Electric Proxy Group, despite having included NextEra in its April 2018 analysis. Our concern with the Department's methodology on this point is threefold.

First, we believe the Department's Electric Proxy Group—which is now comprised of only seven companies—is too narrow. As a result, the exclusion of just one company from the proxy group can produce dramatic swings in the recommended ROE over a short period of time regardless of overall economic conditions. This is particularly true here, where NextEra has the highest Constant Growth and second-

highest Two Growth DCF results in the proxy group. In fact, the exclusion of NextEra appears to drive almost all of the 40-basis-point reduction to the Department's recommended ROE from April 2018. This kind of volatility in long-term earnings metrics is bad for utilities and our customers, as it drives uncertainty and concern in capital markets and impairs our ability to attract investment. Our expert's proxy group, by contrast, includes approximately 15-20 companies at any given time, which provides a more representative and consistent data set.

Second, we do not believe it is appropriate to exclude NextEra from the Electric Proxy Group at this point in March 2019, when the Department's original April 2018 analysis included NextEra and when the docket at issue seeks recovery of 2018 costs. As discussed below, DCF results have actually remained fairly constant since we made our initial filing in this docket and since the Department submitted its initial ROE analysis in April 2018. The Department's updated analysis, in other words, does not actually reflect a material change in market conditions or the cost of capital. It simply reflects the Department's recent decision to eliminate the highest DCF results from its proxy group by excluding NextEra, which drives a substantial reduction to its initial recommendation and which deviates substantially from recent Commission precedent.

Third, we believe the Department's analysis puts too much emphasis on the DCF methodology in isolation and fails to consider other checks on that analysis that should reduce volatility in its recommended ROEs. In fact, the Commission has recently recognized the need to consider the results of multiple methodologies to estimate the cost of equity. In its most recent Orders for both Minnesota Power and Otter Tail Power Company, the Commission relied on the results of the Risk Premium analysis in addition to the CAPM methodology to check the reasonableness of the results of the DCF model. In its Order for Minnesota Power, the Commission stated that:

[I]t is appropriate to establish an ROE toward the higher end of the DCF-supported results to adjust for the divergence between ROEs supported by the DCF models and the models the Commission has historically relied upon for confirmation of reasonableness—the CAPM and Bond Yield Plus Risk Premium models.¹

¹ *In the Matter of the Application of Minnesota Power for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E015/GR-16-664, FINDINGS OF FACT, CONCLUSIONS, AND ORDER at 61 (March 12, 2018).

Similarly, in October 2018, the Federal Energy Regulatory Commission (FERC) issued an order indicating its plan to establish ROEs based on an equal weighting of the results of four financial models: the DCF, CAPM, Expected Earnings, and Risk Premium. In adopting this methodology, FERC explained that:

[W]e believe that the DCF methodology alone no longer captures how investors view utility returns because investors do not rely on the DCF alone and the other methods used by investors do not necessarily produce the same results as the DCF.

We believe the Commission should look to the results of other methodologies in this docket as well, particularly given the substantial shift in the Department's recommended ROE and its departure from recent Commission precedent.

ii. Concentric's Updated ROE Analysis

Concentric has refreshed each of its models in response to the Department's Comments. Table 1 below shows a comparison of the model results as of September 30, 2017, as presented in our November 8, 2017 initial Petition, and as of January 31, 2019. Attachment A provides supporting data for the January 31, 2019 updated analysis. Attachment B provides the authorized ROEs for integrated electric utilities since January 2016.

Table 1: Summary of ROE Results

	9/30/2017	1/31/19
DCF Model – 90-day average stock price		
Constant Growth	8.19%	8.74%
Risk Premium		
30 Yr. U.S. Treasury	10.41%	10.22%
Moody's A-rated Utility Index	10.36%	10.16%
CAPM		
Value Line Beta	10.78%	10.62%
Bloomberg Beta	9.52%	9.35%
Expected Earnings	Not filed	10.79%
Mean of All Methods (not including Expected Earnings)	9.85%	9.82%
Mean of All Methods (including Expected Earnings)	N/A	9.98%

As shown in Table 1 and the attachments, the results of the individual models have changed (both up and down depending on the model). However, the average results for all methods have not changed significantly. In our initial filing, the mean of all methods was 9.85%, and now it is 9.82%. If the expected earnings analysis is also included, the mean of all methods increases to 9.98%. These updated results, in other words, are consistent with and continue to support Concentric's original ROE recommendation of 10.0% for the TCR Rider.²

iii. The Relevance of ROEs from Other Jurisdictions

The Department has also suggested that ROEs authorized in other jurisdictions are not relevant to this proceeding or that the Company must produce some kind of "evidence" that they are, in fact, relevant.³ We respectfully disagree.

The foundations of public utility regulation require that utilities receive a fair rate of return sufficient to attract needed capital at reasonable rates. This basic tenet was established by the United States Supreme Court in two seminal cases: *Bluefield Waterworks and Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) and *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944). In *Hope*, the Court explained the guiding principle for rate making:

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

In other words, authorized ROEs must be comparable to returns on investments with commensurate risk and sufficient to enable utilities to adequately compete for capital investment.

As discussed in our initial petition, NSPM competes for capital on two fronts, both within Xcel Energy and outside the company in the investment market. Both fronts, however, are on the national and international scale. Internally, the Company must compete for capital against operating companies in four other states. Externally, Xcel Energy's investors are located around the globe and evaluate potential investments in

² We note, however, that Concentric's refresh of its 2017 analysis for the TCR does not represent an entirely new analysis. We note that our most recent complete ROE analysis was provided in November 2018, as part of our Gas Utility Infrastructure Cost (GUIC) Petition in Docket No. G002/M-18-692, which supported a 10.25 percent ROE.

³ Department March 4, 2019 Comments at 3.

Xcel Energy against a myriad of other opportunities that likewise span the country and world. If the Company is placed at the low end of authorized ROEs, both within Xcel Energy and the market as a whole, investments in Minnesota become a less attractive option. For this reason, ROEs in other jurisdictions are certainly relevant to this proceeding, as they provide a useful comparison that can assist the Commission in evaluating Xcel Energy's ability to compete for capital against other, similar risk companies.

iv. Applicability to Future Proceedings

Finally, the Department recommends that the ROE from this docket be used until NSPM concludes its next electric rate case. Again, we respectfully disagree with this recommendation. It is impossible to predict how financial markets might change in the coming months and years, and we do not believe the Company or its customers are best served by the Commission limiting its ability to evaluate ROEs until the conclusion of the Company's next general rate case. That said, we fully acknowledge that the ROE ordered in this docket will be a relevant input for consideration in the next proceeding in which ROE is an issue for Commission determination.

B. ADIT Proration

As the Department notes in Response Comments, the 2018 test period for this TCR Rider proceeding has ended. The Company agrees that this means rates implemented after January 1, 2019 do not need to include proration of forecasted ADIT balances. As such, the Company will update the TCR tracker to remove ADIT proration for the 2018 test period and provide updated schedules as part of a compliance filing in this docket. We do not believe that any decision regarding ADIT proration is necessary in this proceeding.

C. MISO ROE Interest

The Department concludes in Response Comments that the interest component of the MISO ROE refund should be included in the TCR revenue requirements. We do not believe this is the appropriate treatment from an accounting perspective, and we note that including interest will actually increase the TCR revenue requirement in this rider. As we noted in our May 14, 2018 Reply, "[t]he Company's actual interest expenses and revenues are typically not included in ratemaking. Instead, the ratemaking mechanisms rely on the cost of capital applied to the particular scope of the mechanism to determine the appropriate interest to recognize." However, if the

Commission directs the Company to include the MISO ROE refund interest component in the revenue requirement, we will make the update in compliance.

CONCLUSION

We appreciate the opportunity to respond to the Comments submitted by the Department. We respectfully request the Commission approve our petition as supplemented through this Reply.

Dated: April 11, 2019

Northern States Power Company

PROXY GROUP SCREENING DATA AND RESULTS - FINAL PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
					Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	Company Owns Generation Assets in Rate Base	Company- Owned Generation > 25% of MWh Sales to Ultimate Customers	% Regulated Revenue > 60%	% Regulated Operating Income > 60%	% Regulated Electric Revenue > 80%	% Regulated Electric Operating Income > 80%	Announced Merger within 180 days from 1/31/2019
Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst								
ALLETE, Inc.	ALE	Yes	BBB+	Yes	Yes	Yes	60%	72%	83%	98%	97%	No
Alliant Energy Corporation	LNT	Yes	A-	Yes	Yes	Yes	58%	99%	101%	87%	95%	No
Ameren Corporation	AEE	Yes	BBB+	Yes	Yes	Yes	77%	100%	101%	86%	89%	No
American Electric Power Company, Inc.	AEP	Yes	A-	Yes	Yes	Yes	61%	88%	91%	100%	100%	No
Duke Energy Corporation	DUK	Yes	A-	Yes	Yes	Yes	84%	98%	106%	95%	95%	No
El Paso Electric Company	EE	Yes	BBB	Yes	Yes	Yes	80%	100%	100%	100%	100%	No
Entergy Corporation	ETR	Yes	BBB+	Yes	Yes	Yes	61%	83%	102%	98%	99%	No
Evergy Inc.	EVRG	Yes	A-	Yes	Yes	Yes	74%	100%	99%	100%	100%	No
FirstEnergy Corporation	FE	Yes	BBB	Yes	Yes	Yes	31%	75%	103%	100%	100%	No
Hawaiian Electric Industries, Inc.	HE	Yes	BBB-	Yes	Yes	Yes	54%	89%	81%	100%	100%	No
IDACORP, Inc.	IDA	Yes	BBB	Yes	Yes	Yes	75%	100%	99%	100%	100%	No
OGE Energy Corporation	OGE	Yes	BBB+	Yes	Yes	Yes	67%	100%	102%	100%	100%	No
Pinnacle West Capital Corporation	PNW	Yes	A-	Yes	Yes	Yes	76%	100%	72%	100%	100%	No
PNM Resources, Inc.	PNM	Yes	BBB+	Yes	Yes	Yes	80%	100%	100%	100%	100%	No
Portland General Electric Company	POR	Yes	BBB+	Yes	Yes	Yes	57%	100%	100%	100%	100%	No
PPL Corporation	PPL	Yes	A-	Yes	Yes	Yes	44%	70%	113%	94%	96%	No

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional

[3] Source: Yahoo! Finance and Zacks

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

[5] Source: SNL Financial (pulled from FERC Form 1)

[6] Source: SNL Financial (pulled from FERC Form 1) 2015-2017 three-year average

[7] - [10] Source: Form 10-Ks for 2017, 2016 & 2015, three-year average

[11] SNL Financial News Releases

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Mean Low ROE	Overall Mean ROE	Mean High ROE
ALLETE, Inc.	ALE	\$2.24	\$75.25	2.98%	3.05%	3.50%	6.00%	n/a	4.75%	6.53%	7.80%	9.07%
Alliant Energy Corporation	LNT	\$1.42	\$42.55	3.34%	3.45%	6.50%	7.25%	6.00%	6.58%	9.44%	10.03%	10.71%
Ameren Corporation	AEE	\$1.90	\$66.15	2.87%	2.98%	7.50%	7.70%	6.80%	7.33%	9.77%	10.31%	10.68%
American Electric Power Company, Inc.	AEP	\$2.68	\$75.48	3.55%	3.65%	4.50%	5.74%	5.80%	5.35%	8.13%	8.99%	9.45%
Duke Energy Corporation	DUK	\$3.71	\$85.78	4.32%	4.43%	5.50%	4.41%	5.00%	4.97%	8.83%	9.40%	9.94%
El Paso Electric Company	EE	\$1.44	\$50.50	2.85%	2.91%	3.00%	5.10%	4.40%	4.17%	5.89%	7.08%	8.02%
Entergy Corporation	ETR	\$3.64	\$86.12	4.23%	4.31%	1.00%	Negative	7.00%	4.00%	5.25%	8.31%	11.37%
Evergy Inc.	EVRG	\$1.90	\$56.71	3.35%	3.49%	NA	9.20%	7.70%	8.45%	11.18%	11.94%	12.70%
FirstEnergy Corporation	FE	\$1.44	\$37.96	3.79%	3.88%	3.00%	Negative	6.00%	4.50%	6.85%	8.38%	9.91%
Hawaiian Electric Industries, Inc.	HE	\$1.24	\$36.30	3.42%	3.52%	3.50%	7.80%	6.40%	5.90%	6.98%	9.42%	11.35%
IDACORP, Inc.	IDA	\$2.52	\$93.99	2.68%	2.72%	4.50%	2.60%	2.60%	3.23%	5.32%	5.96%	7.24%
OGE Energy Corporation	OGE	\$1.46	\$39.75	3.67%	3.78%	6.00%	Negative	5.20%	5.60%	8.97%	9.38%	9.78%
Pinnacle West Capital Corporation	PNW	\$2.95	\$85.99	3.43%	3.52%	6.00%	4.16%	4.60%	4.92%	7.66%	8.44%	9.53%
PNM Resources, Inc.	PNM	\$1.16	\$41.53	2.79%	2.87%	7.50%	4.10%	4.70%	5.43%	6.95%	8.30%	10.40%
Portland General Electric Company	POR	\$1.45	\$45.89	3.16%	3.22%	4.00%	5.05%	3.30%	4.12%	6.51%	7.34%	8.29%
PPL Corporation	PPL	\$1.64	\$29.30	5.60%	5.70%	2.00%	3.59%	5.00%	3.53%	7.65%	9.23%	10.74%
MEAN				3.50%	3.59%	4.53%	5.59%	5.37%	5.18%	7.62%	8.77%	9.95%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 30-day average as of January 31, 2019

[3] Equals [1] / [2]

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

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

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

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

[10] Equals [4] + [8]

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

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Mean Low ROE	Overall Mean ROE	Mean High ROE
ALLETE, Inc.	ALE	\$2.24	\$76.62	2.92%	2.99%	3.50%	6.00%	n/a	4.75%	6.47%	7.74%	9.01%
Alliant Energy Corporation	LNT	\$1.42	\$43.52	3.26%	3.37%	6.50%	7.25%	6.00%	6.58%	9.36%	9.95%	10.63%
Ameren Corporation	AEE	\$1.90	\$66.37	2.86%	2.97%	7.50%	7.70%	6.80%	7.33%	9.76%	10.30%	10.67%
American Electric Power Company, Inc.	AEP	\$2.68	\$74.80	3.58%	3.68%	4.50%	5.74%	5.80%	5.35%	8.16%	9.03%	9.49%
Duke Energy Corporation	DUK	\$3.71	\$84.81	4.37%	4.48%	5.50%	4.41%	5.00%	4.97%	8.88%	9.45%	9.99%
El Paso Electric Company	EE	\$1.44	\$55.00	2.62%	2.67%	3.00%	5.10%	4.40%	4.17%	5.66%	6.84%	7.79%
Entergy Corporation	ETR	\$3.64	\$85.05	4.28%	4.37%	1.00%	Negative	7.00%	4.00%	5.30%	8.37%	11.43%
Evergy Inc.	EVRG	\$1.90	\$57.25	3.32%	3.46%	NA	9.20%	7.70%	8.45%	11.15%	11.91%	12.67%
FirstEnergy Corporation	FE	\$1.44	\$37.90	3.80%	3.88%	3.00%	Negative	6.00%	4.50%	6.86%	8.38%	9.91%
Hawaiian Electric Industries, Inc.	HE	\$1.24	\$36.74	3.37%	3.47%	3.50%	7.80%	6.40%	5.90%	6.93%	9.37%	11.31%
IDACORP, Inc.	IDA	\$2.52	\$96.80	2.60%	2.65%	4.50%	2.60%	2.60%	3.23%	5.24%	5.88%	7.16%
OGE Energy Corporation	OGE	\$1.46	\$38.59	3.78%	3.89%	6.00%	Negative	5.20%	5.60%	9.08%	9.49%	9.90%
Pinnacle West Capital Corporation	PNW	\$2.95	\$85.52	3.45%	3.53%	6.00%	4.16%	4.60%	4.92%	7.68%	8.45%	9.55%
PNM Resources, Inc.	PNM	\$1.16	\$40.98	2.83%	2.91%	7.50%	4.10%	4.70%	5.43%	6.99%	8.34%	10.44%
Portland General Electric Company	POR	\$1.45	\$46.49	3.12%	3.18%	4.00%	5.05%	3.30%	4.12%	6.47%	7.30%	8.25%
PPL Corporation	PPL	\$1.64	\$30.14	5.44%	5.54%	2.00%	3.59%	5.00%	3.53%	7.50%	9.07%	10.58%
MEAN				3.48%	3.57%	4.53%	5.59%	5.37%	5.18%	7.59%	8.74%	9.92%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 90-day average as of January 31, 2019

[3] Equals [1] / [2]

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

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

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

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

[10] Equals [4] + [8]

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

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Mean Low ROE	Overall Mean ROE	Mean High ROE
ALLETE, Inc.	ALE	\$2.24	\$76.45	2.93%	3.00%	3.50%	6.00%	n/a	4.75%	6.48%	7.75%	9.02%
Alliant Energy Corporation	LNT	\$1.42	\$42.82	3.32%	3.43%	6.50%	7.25%	6.00%	6.58%	9.42%	10.01%	10.69%
Ameren Corporation	AEE	\$1.90	\$63.72	2.98%	3.09%	7.50%	7.70%	6.80%	7.33%	9.88%	10.42%	10.80%
American Electric Power Company, Inc.	AEP	\$2.68	\$72.12	3.72%	3.82%	4.50%	5.74%	5.80%	5.35%	8.30%	9.16%	9.62%
Duke Energy Corporation	DUK	\$3.71	\$81.92	4.53%	4.64%	5.50%	4.41%	5.00%	4.97%	9.04%	9.61%	10.15%
El Paso Electric Company	EE	\$1.44	\$57.48	2.51%	2.56%	3.00%	5.10%	4.40%	4.17%	5.54%	6.72%	7.67%
Entergy Corporation	ETR	\$3.64	\$83.18	4.38%	4.46%	1.00%	Negative	7.00%	4.00%	5.40%	8.46%	11.53%
Evergy Inc.	EVRG	\$1.90	\$56.49	3.36%	3.51%	NA	9.20%	7.70%	8.45%	11.19%	11.96%	12.72%
FirstEnergy Corporation	FE	\$1.44	\$36.81	3.91%	4.00%	3.00%	Negative	6.00%	4.50%	6.97%	8.50%	10.03%
Hawaiian Electric Industries, Inc.	HE	\$1.24	\$35.66	3.48%	3.58%	3.50%	7.80%	6.40%	5.90%	7.04%	9.48%	11.41%
IDACORP, Inc.	IDA	\$2.52	\$95.26	2.65%	2.69%	4.50%	2.60%	2.60%	3.23%	5.28%	5.92%	7.20%
OGE Energy Corporation	OGE	\$1.46	\$37.11	3.93%	4.04%	6.00%	Negative	5.20%	5.60%	9.24%	9.64%	10.05%
Pinnacle West Capital Corporation	PNW	\$2.95	\$82.40	3.58%	3.67%	6.00%	4.16%	4.60%	4.92%	7.81%	8.59%	9.69%
PNM Resources, Inc.	PNM	\$1.16	\$39.87	2.91%	2.99%	7.50%	4.10%	4.70%	5.43%	7.07%	8.42%	10.52%
Portland General Electric Company	POR	\$1.45	\$45.25	3.20%	3.27%	4.00%	5.05%	3.30%	4.12%	6.56%	7.39%	8.34%
PPL Corporation	PPL	\$1.64	\$29.31	5.59%	5.69%	2.00%	3.59%	5.00%	3.53%	7.65%	9.22%	10.73%
MEAN				3.56%	3.65%	4.53%	5.59%	5.37%	5.18%	7.68%	8.83%	10.01%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 180-day average as of January 31, 2019

[3] Equals [1] / [2]

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

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

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

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

[10] Equals [4] + [8]

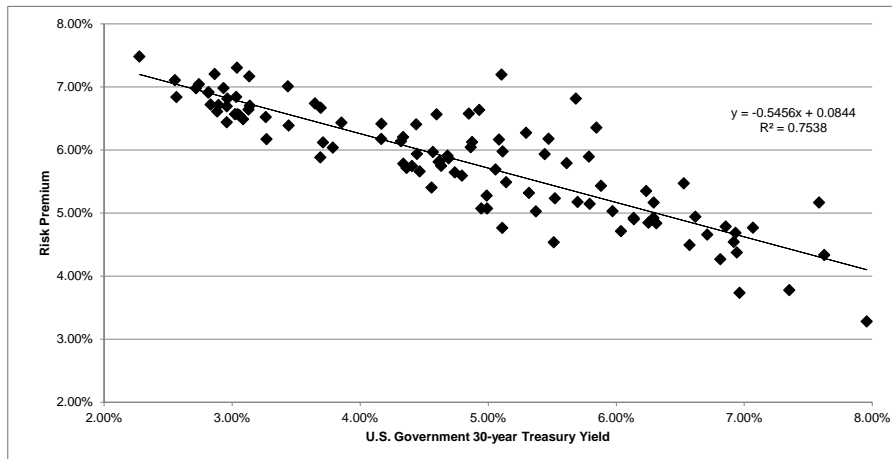
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7])) + Maximum ([5], [6], [7])

TREASURY BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
1993.1	11.84%	7.07%	4.77%
1993.2	11.64%	6.86%	4.79%
1993.3	11.15%	6.31%	4.84%
1993.4	11.04%	6.14%	4.90%
1994.1	11.07%	6.57%	4.49%
1994.2	11.13%	7.35%	3.78%
1994.3	12.75%	7.58%	5.17%
1994.4	11.24%	7.96%	3.28%
1995.1	11.96%	7.63%	4.34%
1995.2	11.32%	6.94%	4.37%
1995.3	11.37%	6.71%	4.66%
1995.4	11.58%	6.23%	5.35%
1996.1	11.46%	6.29%	5.17%
1996.2	11.46%	6.92%	4.54%
1996.3	10.70%	6.96%	3.74%
1996.4	11.56%	6.62%	4.94%
1997.1	11.08%	6.81%	4.27%
1997.2	11.62%	6.93%	4.68%
1997.3	12.00%	6.53%	5.47%
1997.4	11.06%	6.14%	4.92%
1998.1	11.31%	5.88%	5.43%
1998.2	12.20%	5.85%	6.35%
1998.3	11.65%	5.47%	6.18%
1998.4	12.30%	5.10%	7.20%
1999.1	10.40%	5.37%	5.03%
1999.2	10.94%	5.79%	5.15%
1999.3	10.75%	6.04%	4.71%
1999.4	11.10%	6.25%	4.85%
2000.1	11.21%	6.29%	4.92%
2000.2	11.00%	5.97%	5.03%
2000.3	11.68%	5.79%	5.89%
2000.4	12.50%	5.69%	6.81%
2001.1	11.38%	5.44%	5.93%
2001.2	10.88%	5.70%	5.18%
2001.3	10.76%	5.52%	5.23%
2001.4	11.57%	5.30%	6.27%
2002.1	10.05%	5.51%	4.54%
2002.2	11.41%	5.61%	5.79%
2002.3	11.25%	5.08%	6.17%
2002.4	11.57%	4.93%	6.64%
2003.1	11.43%	4.85%	6.58%
2003.2	11.16%	4.60%	6.56%
2003.3	9.88%	5.11%	4.76%
2003.4	11.09%	5.11%	5.98%
2004.1	11.00%	4.88%	6.12%
2004.2	10.64%	5.32%	5.32%
2004.3	10.75%	5.06%	5.69%
2004.4	10.91%	4.86%	6.04%
2005.1	10.56%	4.69%	5.87%
2005.2	10.13%	4.47%	5.66%
2005.3	10.85%	4.44%	6.41%
2005.4	10.59%	4.68%	5.91%
2006.1	10.38%	4.63%	5.75%
2006.2	10.63%	5.14%	5.49%
2006.3	10.06%	4.99%	5.07%
2006.4	10.39%	4.74%	5.65%
2007.1	10.39%	4.80%	5.59%
2007.2	10.27%	4.99%	5.28%
2007.3	10.02%	4.95%	5.07%
2007.4	10.43%	4.61%	5.81%
2008.1	10.15%	4.41%	5.75%
2008.2	10.54%	4.57%	5.97%
2008.3	10.38%	4.44%	5.94%
2008.4	10.39%	3.65%	6.74%
2009.1	10.45%	3.44%	7.01%
2009.2	10.58%	4.17%	6.42%
2009.3	10.46%	4.32%	6.14%
2009.4	10.54%	4.34%	6.21%
2010.1	10.45%	4.62%	5.82%
2010.2	10.08%	4.36%	5.71%
2010.3	10.29%	3.86%	6.43%
2010.4	10.34%	4.17%	6.17%
2011.1	9.96%	4.56%	5.40%
2011.2	10.12%	4.34%	5.78%
2011.3	10.36%	3.69%	6.67%
2011.4	10.34%	3.04%	7.31%
2012.1	10.30%	3.14%	7.17%
2012.2	9.92%	2.93%	6.98%
2012.3	9.78%	2.74%	7.04%
2012.4	10.07%	2.86%	7.21%
2013.1	9.77%	3.13%	6.64%
2013.2	9.84%	3.14%	6.70%
2013.3	9.83%	3.71%	6.12%

TREASURY BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
2013.4	9.82%	3.79%	6.04%
2014.1	9.57%	3.69%	5.88%
2014.2	9.83%	3.44%	6.39%
2014.3	9.79%	3.26%	6.52%
2014.4	9.78%	2.96%	6.81%
2015.1	9.66%	2.55%	7.11%
2015.2	9.50%	2.88%	6.61%
2015.3	9.40%	2.96%	6.44%
2015.4	9.65%	2.96%	6.69%
2016.1	9.70%	2.72%	6.98%
2016.2	9.41%	2.57%	6.84%
2016.3	9.76%	2.28%	7.48%
2016.4	9.55%	2.83%	6.72%
2017.1	9.61%	3.04%	6.57%
2017.2	9.61%	2.90%	6.71%
2017.3	9.73%	2.82%	6.91%
2017.4	9.74%	2.82%	6.92%
2018.1	9.59%	3.02%	6.57%
2018.2	9.57%	3.09%	6.49%
2018.3	9.61%	3.06%	6.55%
2018.4	9.44%	3.27%	6.17%
2019.1	9.88%	3.03%	6.84%
<hr/>			
AVERAGE	10.61%	4.76%	5.85%
MEDIAN	10.46%	4.74%	5.93%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.868220
R Square	0.753806
Adjusted R Square	0.751416
Standard Error	0.004453
Observations	105

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.006252	0.006252	315.369937	0.000000
Residual	103	0.002042	0.000020		
Total	104	0.008294			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0844	0.001525	55.36	0.000000	0.081406	0.087456	0.081406	0.087456
U.S. Govt. 30-year Treasury	(0.5456)	0.030722	(17.76)	0.000000	(0.606518)	(0.484657)	(0.606518)	(0.484657)

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-Day Average [4]	3.03%	6.79%	9.82%
Blue Chip Consensus Forecast (Q2 2019 - Q2 2020) [5]	3.38%	6.60%	9.98%
Blue Chip Consensus Forecast (2020-2024) [6]	3.90%	6.32%	10.22%
AVERAGE			10.01%

Notes:

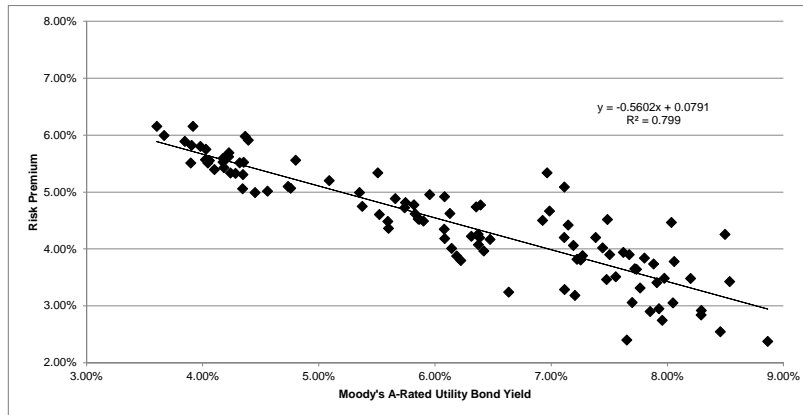
- [1] Source: Regulatory Research Associates, accessed March 13, 2019
 [2] Source: Bloomberg Professional, quarterly bond yields are an average of the trading days in each quarter
 [3] Equals Column [1] – Column [2]
 [4] Source: Bloomberg Professional
 [5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2
 [6] Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14
 [7] See notes [4], [5] & [6]
 [8] Equals 0.084431 + (-0.545587 x Column [7])
 [9] Equals Column [7] + Column [8]

UTILITY BOND YIELD PLUS RISK PREMIUM

	[1] Average Authorized Electric ROE	[2] Moody's A- Rated Utility Bond	[3] Risk Premium
1993.1	11.84%	8.06%	3.78%
1993.2	11.64%	7.80%	3.84%
1993.3	11.15%	7.27%	3.88%
1993.4	11.04%	7.22%	3.82%
1994.1	11.07%	7.56%	3.51%
1994.2	11.13%	8.29%	2.84%
1994.3	12.75%	8.50%	4.25%
1994.4	11.24%	8.86%	2.37%
1995.1	11.96%	8.54%	3.42%
1995.2	11.32%	7.91%	3.41%
1995.3	11.37%	7.72%	3.65%
1995.4	11.58%	7.38%	4.20%
1996.1	11.46%	7.44%	4.02%
1996.2	11.46%	7.97%	3.48%
1996.3	10.70%	7.96%	2.74%
1996.4	11.56%	7.62%	3.94%
1997.1	11.08%	7.77%	3.31%
1997.2	11.62%	7.88%	3.73%
1997.3	12.00%	7.48%	4.52%
1997.4	11.06%	7.25%	3.81%
1998.1	11.31%	7.11%	4.20%
1998.2	12.20%	7.11%	5.09%
1998.3	11.65%	6.99%	4.66%
1998.4	12.30%	6.97%	5.34%
1999.1	10.40%	7.12%	3.28%
1999.2	10.94%	7.48%	3.46%
1999.3	10.75%	7.85%	2.90%
1999.4	11.10%	8.05%	3.05%
2000.1	11.21%	8.29%	2.92%
2000.2	11.00%	8.46%	2.54%
2000.3	11.68%	8.20%	3.48%
2000.4	12.50%	8.04%	4.46%
2001.1	11.38%	7.73%	3.64%
2001.2	10.88%	7.93%	2.95%
2001.3	10.76%	7.70%	3.06%
2001.4	11.57%	7.67%	3.90%
2002.1	10.05%	7.65%	2.40%
2002.2	11.41%	7.50%	3.90%
2002.3	11.25%	7.19%	4.06%
2002.4	11.57%	7.15%	4.42%
2003.1	11.43%	6.93%	4.50%
2003.2	11.16%	6.39%	4.77%
2003.3	9.88%	6.64%	3.24%
2003.4	11.09%	6.35%	4.74%
2004.1	11.00%	6.08%	4.92%
2004.2	10.64%	6.47%	4.17%
2004.3	10.75%	6.13%	4.62%
2004.4	10.91%	5.95%	4.95%
2005.1	10.56%	5.75%	4.81%
2005.2	10.13%	5.52%	4.60%
2005.3	10.85%	5.51%	5.34%
2005.4	10.59%	5.82%	4.77%
2006.1	10.38%	5.86%	4.52%
2006.2	10.63%	6.37%	4.26%
2006.3	10.06%	6.19%	3.88%
2006.4	10.39%	5.87%	4.52%
2007.1	10.39%	5.90%	4.49%
2007.2	10.27%	6.08%	4.18%
2007.3	10.02%	6.22%	3.79%
2007.4	10.43%	6.08%	4.35%
2008.1	10.15%	6.14%	4.01%
2008.2	10.54%	6.31%	4.22%
2008.3	10.38%	6.42%	3.96%
2008.4	10.39%	7.21%	3.18%
2009.1	10.45%	6.37%	4.07%
2009.2	10.58%	6.39%	4.20%
2009.3	10.46%	5.74%	4.72%
2009.4	10.54%	5.66%	4.88%
2010.1	10.45%	5.83%	4.62%
2010.2	10.08%	5.59%	4.48%
2010.3	10.29%	5.09%	5.20%
2010.4	10.34%	5.35%	4.99%
2011.1	9.96%	5.60%	4.36%
2011.2	10.12%	5.37%	4.75%
2011.3	10.36%	4.80%	5.56%
2011.4	10.34%	4.37%	5.98%
2012.1	10.30%	4.39%	5.91%
2012.2	9.92%	4.23%	5.69%
2012.3	9.78%	3.98%	5.80%
2012.4	10.07%	3.92%	6.15%
2013.1	9.77%	4.18%	5.59%
2013.2	9.84%	4.22%	5.62%
2013.3	9.83%	4.74%	5.10%
2013.4	9.82%	4.76%	5.07%
2014.1	9.57%	4.56%	5.01%
2014.2	9.83%	4.32%	5.51%
2014.3	9.79%	4.20%	5.59%
2014.4	9.78%	4.03%	5.75%
2015.1	9.66%	3.67%	5.99%
2015.2	9.50%	4.10%	5.39%
2015.3	9.40%	4.34%	5.06%
2015.4	9.65%	4.35%	5.30%
2016.1	9.70%	4.18%	5.52%

UTILITY BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average	Moody's A-	
	Authorized	Rated	
	Electric	Utility	Risk
	ROE	Bond	Premium
2016.2	9.41%	3.90%	5.51%
2016.3	9.76%	3.61%	6.15%
2016.4	9.55%	4.04%	5.51%
2017.1	9.61%	4.18%	5.43%
2017.2	9.61%	4.06%	5.55%
2017.3	9.73%	3.91%	5.82%
2017.4	9.74%	3.85%	5.89%
2018.1	9.59%	4.02%	5.57%
2018.2	9.57%	4.24%	5.33%
2018.3	9.61%	4.28%	5.33%
2018.4	9.44%	4.45%	4.99%
2019.1	9.88%	4.35%	5.52%
AVERAGE	10.61%	6.13%	4.47%
MEDIAN	10.46%	6.19%	4.50%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.893889
R Square	0.799037
Adjusted R Square	0.797086
Standard Error	0.004237
Observations	105

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.007350	0.007350	409.531740	0.000000
Residual	103	0.001849	0.000018		
Total	104	0.009199			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0791	0.001748	45.25	0.000000	0.075610	0.082542	0.075610	0.082542
Moody's A-Rated Utility Bond	(0.5602)	0.027682	(20.24)	0.000000	(0.615095)	(0.505294)	(0.615095)	(0.505294)

	[7]	[8]	[9]
	Moody's A-Rated Utility Bond	Risk Premium	ROE
Current 30-Day Average [4]	4.25%	5.52%	9.78%
Near-Term Consensus Forecast (Q2 2019 - Q2 2020) [5]	4.60%	5.33%	9.93%
Long-Term Consensus Forecast (2020 - 2024) [6]	5.12%	5.04%	10.16%
AVERAGE			9.96%

Notes:

[1] Source: Regulatory Research Associates, accessed March 13, 2019

[2] Source: Bloomberg Professional, quarterly bond yields are an average of the trading days in each quarter

[3] Equals Column [1] - Column [2]

[4] Source: Bloomberg Professional, 30-day average as of January 31, 2019 plus average daily spread between Treasury and utility bond yields from January 1, 2015 through January 31, 2019 (1.22%)

[5] Equals Blue Chip Financial Forecasts near-term 30-year Treasury bond yield (Q2 2019-Q2 2020 Average: 3.38%) plus average daily spread between Treasury and utility bond yields from January 1, 2015 through January 31, 2019 (1.22%)

[6] Equals Blue Chip Financial Forecasts long-term 30-year Treasury bond yield (2020 - 2024 Forecast: 3.90%) plus average daily spread between Treasury and utility bond yields from January 1, 2015 through January 31, 2019 (1.22%)

[7] See notes [4], [5] & [6]

[8] Equals 0.079076 + (-0.560195 x Column [7])

[9] Equals Column [7] + Column [8]

BETA
AS OF JANUARY 31, 2019

		[1]	[2]
		Bloomberg	Value Line
ALLETE, Inc.	ALE	0.459	0.650
Alliant Energy Corporation	LNT	0.536	0.600
Ameren Corporation	AEE	0.450	0.550
American Electric Power Company, Inc.	AEP	0.498	0.550
Duke Energy Corporation	DUK	0.450	0.500
El Paso Electric Company	EE	0.522	0.650
Entergy Corporation	ETR	0.500	0.600
Eversource Inc.	EVRG	0.419	NA
FirstEnergy Corporation	FE	0.578	0.600
Hawaiian Electric Industries, Inc.	HE	0.477	0.600
IDACORP, Inc.	IDA	0.467	0.550
OGE Energy Corporation	OGE	0.564	0.850
Pinnacle West Capital Corporation	PNW	0.423	0.550
PNM Resources, Inc.	PNM	0.515	0.650
Portland General Electric Company	POR	0.477	0.600
PPL Corporation	PPL	0.623	0.700
Average		0.497	0.613

Notes:

[1] Source: Bloomberg Professional

[2] Source: Value Line

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	2.08%
[2] Estimated Weighted Average Long-Term Growth Rate	12.64%
[3] S&P 500 Estimated Required Market Return	14.85%
[4] Risk-Free Rate	3.03% 3.38% 3.90%
[5] Implied Market Risk Premium	11.81% 11.47% 10.95%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	0.14%	4.60%	0.01%	8.20%	0.01%
American Express Co	AXP	0.37%	1.52%	0.01%	14.99%	0.06%
Verizon Communications Inc	VZ	0.97%	4.38%	0.04%	2.30%	0.02%
Broadcom Inc	AVGO	0.46%	3.95%	0.02%	14.32%	0.07%
Boeing Co/The	BA	0.93%	2.13%	0.02%	16.70%	0.16%
Caterpillar Inc	CAT	0.33%	2.58%	0.01%	13.35%	0.04%
JPMorgan Chase & Co	JPM	1.46%	3.09%	0.05%	9.33%	0.14%
Chevron Corp	CVX	0.93%	4.15%	0.04%	7.17%	0.07%
Coca-Cola Co/The	KO	0.87%	3.24%	0.03%	7.49%	0.07%
AbbVie Inc	ABBV	0.51%	5.33%	0.03%	8.81%	0.05%
Walt Disney Co/The	DIS	0.71%	1.58%	0.01%	12.98%	0.09%
FleetCor Technologies Inc	FLT	0.08%	n/a	n/a	16.50%	0.01%
Extra Space Storage Inc	EXR	0.05%	3.49%	0.00%	5.34%	0.00%
Exxon Mobil Corp	XOM	1.32%	4.48%	0.06%	11.59%	0.15%
Phillips 66	PSX	0.19%	3.35%	0.01%	5.70%	0.01%
General Electric Co	GE	0.38%	0.39%	0.00%	1.60%	0.01%
HP Inc	HPQ	0.15%	2.91%	0.00%	6.06%	0.01%
Home Depot Inc/The	HD	0.88%	2.24%	0.02%	13.01%	0.11%
International Business Machines Corp	IBM	0.52%	4.67%	0.02%	3.59%	0.02%
Concho Resources Inc	CXO	0.10%	n/a	n/a	31.00%	0.03%
Johnson & Johnson	JNJ	1.52%	2.71%	0.04%	7.26%	0.11%
McDonald's Corp	MCD	0.59%	2.60%	0.02%	8.92%	0.05%
Merck & Co Inc	MRK	0.82%	2.96%	0.02%	8.46%	0.07%
3M Co	MMM	0.50%	2.72%	0.01%	7.70%	0.04%
American Water Works Co Inc	AWK	0.07%	1.90%	0.00%	8.45%	0.01%
Bank of America Corp	BAC	1.17%	2.11%	0.02%	9.70%	0.11%
Brighthouse Financial Inc	BHF	0.02%	n/a	n/a	8.64%	0.00%
Baker Hughes a GE Co	BHGE	0.05%	3.05%	0.00%	40.82%	0.02%
Pfizer Inc	PFE	1.04%	3.39%	0.04%	5.45%	0.06%
Procter & Gamble Co/The	PG	1.02%	2.97%	0.03%	6.60%	0.07%
AT&T Inc	T	0.93%	6.79%	0.06%	5.69%	0.05%
Travelers Cos Inc/The	TRV	0.14%	2.45%	0.00%	17.65%	0.02%
United Technologies Corp	UTX	0.43%	2.49%	0.01%	9.80%	0.04%
Analog Devices Inc	ADI	0.15%	1.94%	0.00%	8.43%	0.01%
Walmart Inc	WMT	1.18%	2.17%	0.03%	5.01%	0.06%
Cisco Systems Inc	CSCO	0.90%	2.79%	0.03%	5.74%	0.05%
Intel Corp	INTC	0.91%	2.67%	0.02%	8.54%	0.08%
General Motors Co	GM	0.23%	3.90%	0.01%	11.08%	0.03%
Microsoft Corp	MSFT	3.40%	1.76%	0.06%	12.16%	0.41%
Dollar General Corp	DG	0.13%	1.00%	0.00%	15.00%	0.02%
Cigna Corp	CI	0.32%	0.02%	0.00%	18.35%	0.06%
Kinder Morgan Inc/DE	KMI	0.17%	4.42%	0.01%	10.00%	0.02%
Citigroup Inc	C	0.67%	2.79%	0.02%	11.07%	0.07%
American International Group Inc	AIG	0.16%	2.96%	0.00%	11.00%	0.02%
Honeywell International Inc	HON	0.45%	2.28%	0.01%	13.55%	0.06%
Altria Group Inc	MO	0.39%	6.48%	0.03%	8.50%	0.03%
HCA Healthcare Inc	HCA	0.20%	1.15%	0.00%	11.56%	0.02%
Under Armour Inc	UAA	0.02%	n/a	n/a	30.02%	0.00%
International Paper Co	IP	0.08%	4.22%	0.00%	6.08%	0.00%
Hewlett Packard Enterprise Co	HPE	0.09%	2.89%	0.00%	4.86%	0.00%
Abbott Laboratories	ABT	0.54%	1.75%	0.01%	11.69%	0.06%
Aflac Inc	AFL	0.15%	2.26%	0.00%	9.28%	0.01%
Air Products & Chemicals Inc	APD	0.15%	2.82%	0.00%	12.30%	0.02%
Royal Caribbean Cruises Ltd	RCL	0.11%	2.33%	0.00%	13.52%	0.01%
American Electric Power Co Inc	AEP	0.17%	3.39%	0.01%	5.96%	0.01%
Hess Corp	HES	0.07%	1.85%	0.00%	-9.49%	-0.01%
Anadarko Petroleum Corp	APC	0.10%	2.54%	0.00%	21.38%	0.02%
Aon PLC	AON	0.16%	1.02%	0.00%	11.70%	0.02%
Apache Corp	APA	0.05%	3.05%	0.00%	-3.09%	0.00%
Archer-Daniels-Midland Co	ADM	0.11%	2.98%	0.00%	11.10%	0.01%
Automatic Data Processing Inc	ADP	0.26%	2.26%	0.01%	14.00%	0.04%
Verisk Analytics Inc	VRSK	0.08%	n/a	n/a	12.91%	0.01%
AutoZone Inc	AZO	0.09%	n/a	n/a	12.80%	0.01%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	2.08%
[2] Estimated Weighted Average Long-Term Growth Rate	12.64%
[3] S&P 500 Estimated Required Market Return	14.85%
[4] Risk-Free Rate	3.03% 3.38% 3.90%
[5] Implied Market Risk Premium	11.81% 11.47% 10.95%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
Avery Dennison Corp	AVY	0.04%	1.99%	0.00%	5.75%	0.00%
MSCI Inc	MSCI	0.06%	1.36%	0.00%	13.10%	0.01%
Ball Corp	BLL	0.08%	0.77%	0.00%	6.50%	0.00%
Bank of New York Mellon Corp/The	BK	0.21%	2.14%	0.00%	7.33%	0.02%
Baxter International Inc	BAX	0.16%	1.05%	0.00%	12.20%	0.02%
Becton Dickinson and Co	BDX	0.29%	1.23%	0.00%	13.29%	0.04%
Berkshire Hathaway Inc	BRK/B	1.19%	n/a	n/a	-5.60%	-0.07%
Best Buy Co Inc	BBY	0.07%	3.04%	0.00%	11.10%	0.01%
H&R Block Inc	HRB	0.02%	4.24%	0.00%	10.00%	0.00%
Boston Scientific Corp	BSX	0.22%	n/a	n/a	38.58%	0.09%
Bristol-Myers Squibb Co	BMJ	0.34%	3.32%	0.01%	12.78%	0.04%
Fortune Brands Home & Security Inc	FBHS	0.03%	1.94%	0.00%	11.16%	0.00%
Brown-Forman Corp	BF/B	0.06%	1.41%	0.00%	9.86%	0.01%
Cabot Oil & Gas Corp	COG	0.05%	1.12%	0.00%	33.27%	0.02%
Campbell Soup Co	CPB	0.05%	3.95%	0.00%	3.05%	0.00%
Kansas City Southern	KSU	0.05%	1.36%	0.00%	8.97%	0.00%
Hilton Worldwide Holdings Inc	HLT	0.09%	0.81%	0.00%	9.53%	0.01%
Carnival Corp	CCL	0.13%	3.47%	0.00%	11.76%	0.02%
Qorvo Inc	QRVO	0.03%	n/a	n/a	11.42%	0.00%
CenturyLink Inc	CTL	0.07%	14.10%	0.01%	-21.81%	-0.02%
UDR Inc	UDR	0.05%	2.95%	0.00%	5.68%	0.00%
Clorox Co/The	CLX	0.08%	2.59%	0.00%	4.95%	0.00%
CMS Energy Corp	CMS	0.06%	2.93%	0.00%	6.93%	0.00%
Newell Brands Inc	NWL	0.04%	4.34%	0.00%	1.98%	0.00%
Colgate-Palmolive Co	CL	0.24%	2.60%	0.01%	6.69%	0.02%
Comerica Inc	CMA	0.05%	3.40%	0.00%	16.41%	0.01%
IPG Photonics Corp	IPGP	0.03%	n/a	n/a	9.24%	0.00%
Conagra Brands Inc	CAG	0.04%	3.93%	0.00%	8.50%	0.00%
Consolidated Edison Inc	ED	0.11%	3.81%	0.00%	3.73%	0.00%
SL Green Realty Corp	SLG	0.03%	3.68%	0.00%	-0.59%	0.00%
Corning Inc	GLW	0.11%	2.16%	0.00%	10.39%	0.01%
Cummins Inc	CMI	0.10%	3.10%	0.00%	10.64%	0.01%
Danaher Corp	DHR	0.33%	0.58%	0.00%	10.95%	0.04%
Target Corp	TGT	0.16%	3.51%	0.01%	6.44%	0.01%
Deere & Co	DE	0.22%	1.85%	0.00%	10.83%	0.02%
Dominion Energy Inc	D	0.24%	5.22%	0.01%	6.03%	0.01%
Dover Corp	DOV	0.05%	2.19%	0.00%	10.97%	0.01%
Alliant Energy Corp	LNT	0.05%	3.19%	0.00%	6.49%	0.00%
Duke Energy Corp	DUK	0.27%	4.23%	0.01%	5.00%	0.01%
Regency Centers Corp	REG	0.05%	3.42%	0.00%	6.04%	0.00%
Eaton Corp PLC	ETN	0.14%	3.46%	0.00%	9.83%	0.01%
Ecolab Inc	ECL	0.19%	1.16%	0.00%	13.00%	0.03%
PerkinElmer Inc	PKI	0.04%	0.31%	0.00%	15.49%	0.01%
Emerson Electric Co	EMR	0.17%	2.99%	0.01%	8.93%	0.02%
EOG Resources Inc	EOG	0.24%	0.89%	0.00%	11.06%	0.03%
Entergy Corp	ETR	0.07%	4.08%	0.00%	-0.73%	0.00%
Equifax Inc	EFX	0.05%	1.46%	0.00%	6.60%	0.00%
IQVIA Holdings Inc	IQV	0.11%	n/a	n/a	15.23%	0.02%
Gartner Inc	IT	0.05%	n/a	n/a	14.47%	0.01%
FedEx Corp	FDX	0.20%	1.46%	0.00%	14.30%	0.03%
Macy's Inc	M	0.03%	5.74%	0.00%	0.60%	0.00%
FMC Corp	FMC	0.05%	2.01%	0.00%	17.07%	0.01%
Ford Motor Co	F	0.15%	6.82%	0.01%	-4.80%	-0.01%
NextEra Energy Inc	NEE	0.36%	2.48%	0.01%	8.40%	0.03%
Franklin Resources Inc	BEN	0.06%	3.51%	0.00%	10.00%	0.01%
Freeport-McMoRan Inc	FCX	0.07%	1.72%	0.00%	-12.55%	-0.01%
Gap Inc/The	GPS	0.04%	3.81%	0.00%	8.63%	0.00%
General Dynamics Corp	GD	0.22%	2.17%	0.00%	10.09%	0.02%
General Mills Inc	GIS	0.11%	4.41%	0.00%	5.90%	0.01%
Genuine Parts Co	GPC	0.06%	2.89%	0.00%	5.62%	0.00%
WW Grainger Inc	GWV	0.07%	1.84%	0.00%	12.47%	0.01%
Halliburton Co	HAL	0.12%	2.30%	0.00%	30.08%	0.04%
Harley-Davidson Inc	HOG	0.03%	4.02%	0.00%	8.97%	0.00%

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STANDARD AND POOR'S 500 INDEX

		[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
Name	Ticker					
Harris Corp	HRS	0.08%	1.79%	0.00%	7.00%	0.01%
HCP Inc	HCP	0.06%	4.69%	0.00%	2.29%	0.00%
Helmerich & Payne Inc	HP	0.03%	5.07%	0.00%	96.36%	0.03%
Fortive Corp	FTV	0.11%	0.37%	0.00%	12.69%	0.01%
Hershey Co/The	HSY	0.07%	2.72%	0.00%	7.28%	0.00%
Synchrony Financial	SYF	0.09%	2.80%	0.00%	6.20%	0.01%
Hormel Foods Corp	HRL	0.10%	1.98%	0.00%	5.80%	0.01%
Arthur J Gallagher & Co	AJG	0.06%	2.30%	0.00%	10.91%	0.01%
Mondelez International Inc	MDLZ	0.29%	2.25%	0.01%	7.33%	0.02%
CenterPoint Energy Inc	CNP	0.07%	3.72%	0.00%	6.90%	0.00%
Humana Inc	HUM	0.18%	0.65%	0.00%	14.26%	0.03%
Willis Towers Watson PLC	WLTW	0.09%	1.47%	0.00%	14.13%	0.01%
Illinois Tool Works Inc	ITW	0.19%	2.91%	0.01%	9.51%	0.02%
Ingersoll-Rand PLC	IR	0.10%	2.12%	0.00%	10.69%	0.01%
Foot Locker Inc	FL	0.03%	2.47%	0.00%	6.24%	0.00%
Interpublic Group of Cos Inc/The	IPG	0.04%	3.69%	0.00%	8.53%	0.00%
International Flavors & Fragrances Inc	IFF	0.06%	2.06%	0.00%	9.00%	0.01%
Jacobs Engineering Group Inc	JEC	0.04%	1.05%	0.00%	13.25%	0.01%
Hanesbrands Inc	HBI	0.02%	4.00%	0.00%	1.83%	0.00%
Kellogg Co	K	0.09%	3.80%	0.00%	4.91%	0.00%
Broadridge Financial Solutions Inc	BR	0.05%	1.92%	0.00%	10.00%	0.00%
Perrigo Co PLC	PRGO	0.03%	1.64%	0.00%	1.17%	0.00%
Kimberly-Clark Corp	KMB	0.16%	3.70%	0.01%	6.34%	0.01%
Kimco Realty Corp	KIM	0.03%	6.58%	0.00%	3.54%	0.00%
Kohl's Corp	KSS	0.05%	3.55%	0.00%	16.00%	0.01%
Oracle Corp	ORCL	0.77%	1.51%	0.01%	7.35%	0.06%
Kroger Co/The	KR	0.10%	1.98%	0.00%	6.43%	0.01%
Leggett & Platt Inc	LEG	0.02%	3.71%	0.00%	10.00%	0.00%
Lennar Corp	LEN	0.06%	0.34%	0.00%	12.74%	0.01%
Jefferies Financial Group Inc	JEF	0.03%	2.40%	0.00%	n/a	n/a
Eli Lilly & Co	LLY	0.54%	2.15%	0.01%	12.86%	0.07%
L Brands Inc	LB	0.03%	8.62%	0.00%	10.72%	0.00%
Charter Communications Inc	CHTR	0.32%	n/a	n/a	47.90%	0.15%
Lincoln National Corp	LNC	0.05%	2.53%	0.00%	n/a	n/a
Loews Corp	L	0.06%	0.52%	0.00%	n/a	n/a
Lowe's Cos Inc	LOW	0.33%	2.00%	0.01%	15.17%	0.05%
Host Hotels & Resorts Inc	HST	0.06%	4.43%	0.00%	4.57%	0.00%
Marsh & McLennan Cos Inc	MMC	0.19%	1.88%	0.00%	11.80%	0.02%
Masco Corp	MAS	0.04%	1.48%	0.00%	15.46%	0.01%
Mattel Inc	MAT	0.02%	n/a	n/a	10.00%	0.00%
S&P Global Inc	SPGI	0.20%	1.19%	0.00%	12.10%	0.02%
Medtronic PLC	MDT	0.50%	2.26%	0.01%	7.94%	0.04%
CVS Health Corp	CVS	0.36%	3.05%	0.01%	11.30%	0.04%
DowDuPont Inc	DWDP	0.52%	2.82%	0.01%	6.17%	0.03%
Micron Technology Inc	MU	0.18%	n/a	n/a	-3.30%	-0.01%
Motorola Solutions Inc	MSI	0.08%	1.95%	0.00%	6.30%	0.01%
Cboe Global Markets Inc	CBOE	0.04%	1.33%	0.00%	13.10%	0.01%
Mylan NV	MYL	0.07%	n/a	n/a	6.67%	0.00%
Laboratory Corp of America Holdings	LH	0.06%	n/a	n/a	8.78%	0.01%
Newmont Mining Corp	NEM	0.08%	1.64%	0.00%	-3.00%	0.00%
Twenty-First Century Fox Inc	FOXA	0.22%	0.73%	0.00%	9.22%	0.02%
NIKE Inc	NKE	0.44%	1.07%	0.00%	13.35%	0.06%
NiSource Inc	NI	0.04%	2.86%	0.00%	5.79%	0.00%
Noble Energy Inc	NBL	0.05%	1.97%	0.00%	25.55%	0.01%
Norfolk Southern Corp	NSC	0.19%	2.05%	0.00%	8.64%	0.02%
Principal Financial Group Inc	PFG	0.06%	4.31%	0.00%	5.88%	0.00%
Eversource Energy	ES	0.09%	2.91%	0.00%	5.62%	0.01%
Northrop Grumman Corp	NOC	0.20%	1.74%	0.00%	12.71%	0.03%
Wells Fargo & Co	WFC	0.95%	3.68%	0.04%	11.26%	0.11%
Nucor Corp	NUE	0.08%	2.61%	0.00%	0.85%	0.00%
PVH Corp	PVH	0.04%	0.14%	0.00%	11.03%	0.00%
Occidental Petroleum Corp	OXY	0.21%	4.67%	0.01%	13.85%	0.03%
Omnicom Group Inc	OMC	0.07%	3.08%	0.00%	6.64%	0.00%

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STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
ONEOK Inc	OKE	0.11%	5.36%	0.01%	23.23%	0.03%
Raymond James Financial Inc	RJF	0.05%	1.69%	0.00%	12.30%	0.01%
Parker-Hannifin Corp	PH	0.09%	1.84%	0.00%	9.52%	0.01%
Rollins Inc	ROL	0.05%	1.13%	0.00%	10.00%	0.01%
PPL Corp	PPL	0.10%	5.24%	0.01%	6.17%	0.01%
Exelon Corp	EXC	0.20%	2.89%	0.01%	4.94%	0.01%
ConocoPhillips	COP	0.33%	1.80%	0.01%	6.00%	0.02%
PulteGroup Inc	PHM	0.03%	1.58%	0.00%	7.17%	0.00%
Pinnacle West Capital Corp	PNW	0.04%	3.35%	0.00%	4.99%	0.00%
PNC Financial Services Group Inc/The	PNC	0.24%	3.10%	0.01%	7.37%	0.02%
PPG Industries Inc	PPG	0.11%	1.82%	0.00%	7.49%	0.01%
Progressive Corp/The	PGR	0.17%	3.74%	0.01%	9.80%	0.02%
Public Service Enterprise Group Inc	PEG	0.12%	3.30%	0.00%	6.64%	0.01%
Raytheon Co	RTN	0.20%	2.11%	0.00%	12.28%	0.02%
Robert Half International Inc	RHI	0.03%	1.74%	0.00%	13.20%	0.00%
Edison International	EIX	0.08%	4.30%	0.00%	5.84%	0.00%
Schlumberger Ltd	SLB	0.26%	4.52%	0.01%	33.69%	0.09%
Charles Schwab Corp/The	SCHW	0.27%	1.45%	0.00%	19.78%	0.05%
Sherwin-Williams Co/The	SHW	0.17%	0.82%	0.00%	10.92%	0.02%
JM Smucker Co/The	SJM	0.05%	3.24%	0.00%	3.41%	0.00%
Snap-on Inc	SNA	0.04%	2.29%	0.00%	8.23%	0.00%
AMETEK Inc	AME	0.07%	0.77%	0.00%	10.44%	0.01%
Southern Co/The	SO	0.21%	4.94%	0.01%	3.38%	0.01%
BB&T Corp	BBT	0.16%	3.32%	0.01%	10.93%	0.02%
Southwest Airlines Co	LUV	0.14%	1.13%	0.00%	10.67%	0.01%
Stanley Black & Decker Inc	SWK	0.08%	2.09%	0.00%	10.50%	0.01%
Public Storage	PSA	0.16%	3.76%	0.01%	4.45%	0.01%
Arista Networks Inc	ANET	0.07%	n/a	n/a	27.64%	0.02%
SunTrust Banks Inc	STI	0.11%	3.37%	0.00%	9.18%	0.01%
Sysco Corp	SY	0.14%	2.44%	0.00%	12.53%	0.02%
Texas Instruments Inc	TXN	0.41%	3.06%	0.01%	10.48%	0.04%
Textron Inc	TXT	0.05%	0.15%	0.00%	12.56%	0.01%
Thermo Fisher Scientific Inc	TMO	0.42%	0.28%	0.00%	11.00%	0.05%
Tiffany & Co	TIF	0.05%	2.48%	0.00%	12.54%	0.01%
TJX Cos Inc/The	TJX	0.26%	1.57%	0.00%	11.18%	0.03%
Torchmark Corp	TMK	0.04%	0.76%	0.00%	13.70%	0.01%
Total System Services Inc	TSS	0.07%	0.58%	0.00%	14.15%	0.01%
Johnson Controls International plc	JCI	0.13%	3.08%	0.00%	6.90%	0.01%
Ulta Beauty Inc	ULTA	0.07%	n/a	n/a	19.00%	0.01%
Union Pacific Corp	UNP	0.50%	2.01%	0.01%	10.86%	0.05%
Keysight Technologies Inc	KEYS	0.06%	n/a	n/a	17.00%	0.01%
UnitedHealth Group Inc	UNH	1.10%	1.33%	0.01%	13.73%	0.15%
Unum Group	UNM	0.03%	2.99%	0.00%	9.00%	0.00%
Marathon Oil Corp	MRO	0.06%	1.27%	0.00%	5.00%	0.00%
Varian Medical Systems Inc	VAR	0.05%	n/a	n/a	16.10%	0.01%
Ventas Inc	VTR	0.10%	4.92%	0.00%	2.29%	0.00%
VF Corp	VFC	0.14%	2.42%	0.00%	-16.64%	-0.02%
Vornado Realty Trust	VNO	0.06%	3.78%	0.00%	3.70%	0.00%
Vulcan Materials Co	VMC	0.06%	1.10%	0.00%	16.04%	0.01%
Weyerhaeuser Co	WY	0.08%	5.18%	0.00%	10.50%	0.01%
Whirlpool Corp	WHR	0.04%	3.46%	0.00%	5.75%	0.00%
Williams Cos Inc/The	WMB	0.14%	5.05%	0.01%	3.90%	0.01%
WEC Energy Group Inc	WEC	0.10%	3.23%	0.00%	4.89%	0.00%
Xerox Corp	XR	0.03%	3.54%	0.00%	0.20%	0.00%
Adobe Inc	ADBE	0.51%	n/a	n/a	16.75%	0.09%
AES Corp/VA	AES	0.05%	3.33%	0.00%	8.66%	0.00%
Amgen Inc	AMGN	0.50%	3.10%	0.02%	6.16%	0.03%
Apple Inc	AAPL	3.33%	1.75%	0.06%	9.40%	0.31%
Autodesk Inc	ADSK	0.14%	n/a	n/a	54.78%	0.07%
Cintas Corp	CTAS	0.08%	1.09%	0.00%	12.11%	0.01%
Comcast Corp	CMCSA	0.70%	2.30%	0.02%	11.34%	0.08%
Molson Coors Brewing Co	TAP	0.06%	2.46%	0.00%	0.00%	0.00%
KLA-Tencor Corp	KLAC	0.07%	2.82%	0.00%	7.15%	0.00%

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		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
Name	Ticker					
Marriott International Inc/MD	MAR	0.17%	1.43%	0.00%	12.10%	0.02%
McCormick & Co Inc/MD	MKC	0.06%	1.84%	0.00%	6.10%	0.00%
Nordstrom Inc	JWN	0.03%	3.19%	0.00%	9.00%	0.00%
PACCAR Inc	PCAR	0.10%	1.95%	0.00%	6.10%	0.01%
Costco Wholesale Corp	COST	0.40%	1.06%	0.00%	10.58%	0.04%
First Republic Bank/CA	FRC	0.07%	0.75%	0.00%	11.82%	0.01%
Stryker Corp	SYK	0.28%	1.17%	0.00%	8.64%	0.02%
Tyson Foods Inc	TSN	0.08%	2.42%	0.00%	-5.00%	0.00%
Lamb Weston Holdings Inc	LW	0.04%	1.11%	0.00%	11.02%	0.00%
Applied Materials Inc	AMAT	0.16%	2.05%	0.00%	7.34%	0.01%
American Airlines Group Inc	AAL	0.07%	1.12%	0.00%	15.20%	0.01%
Cardinal Health Inc	CAH	0.06%	3.81%	0.00%	18.34%	0.01%
Celgene Corp	CELG	0.26%	n/a	n/a	20.70%	0.05%
Cerner Corp	CERN	0.08%	n/a	n/a	12.47%	0.01%
Cincinnati Financial Corp	CINF	0.06%	2.61%	0.00%	n/a	n/a
DR Horton Inc	DHI	0.06%	1.56%	0.00%	11.80%	0.01%
Flowerserve Corp	FLS	0.02%	1.73%	0.00%	20.07%	0.00%
Electronic Arts Inc	EA	0.12%	n/a	n/a	12.63%	0.01%
Expeditors International of Washington Inc	EXPD	0.05%	1.30%	0.00%	9.60%	0.00%
Fastenal Co	FAST	0.07%	2.84%	0.00%	14.85%	0.01%
M&T Bank Corp	MTB	0.10%	2.43%	0.00%	10.45%	0.01%
Xcel Energy Inc	XEL	0.12%	2.90%	0.00%	5.98%	0.01%
Fiserv Inc	FISV	0.14%	n/a	n/a	7.40%	0.01%
Fifth Third Bancorp	FITB	0.07%	3.28%	0.00%	3.95%	0.00%
Gilead Sciences Inc	GILD	0.38%	3.26%	0.01%	5.45%	0.02%
Hasbro Inc	HAS	0.05%	2.78%	0.00%	9.73%	0.00%
Huntington Bancshares Inc/OH	HBAN	0.06%	4.23%	0.00%	8.20%	0.00%
Welltower Inc	WELL	0.12%	4.49%	0.01%	7.21%	0.01%
Biogen Inc	BIIB	0.29%	n/a	n/a	5.81%	0.02%
Northern Trust Corp	NTRS	0.08%	2.71%	0.00%	12.82%	0.01%
Packaging Corp of America	PKG	0.04%	3.35%	0.00%	8.25%	0.00%
Paychex Inc	PAYX	0.11%	3.16%	0.00%	9.25%	0.01%
People's United Financial Inc	PBCT	0.03%	4.27%	0.00%	2.00%	0.00%
QUALCOMM Inc	QCOM	0.25%	5.01%	0.01%	11.71%	0.03%
Roper Technologies Inc	ROP	0.12%	0.65%	0.00%	9.20%	0.01%
Ross Stores Inc	ROST	0.14%	0.98%	0.00%	10.50%	0.02%
IDEXX Laboratories Inc	IDXX	0.08%	n/a	n/a	16.33%	0.01%
Starbucks Corp	SBUX	0.36%	2.11%	0.01%	13.12%	0.05%
KeyCorp	KEY	0.07%	4.13%	0.00%	13.17%	0.01%
State Street Corp	STT	0.11%	2.65%	0.00%	8.69%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	0.05%	n/a	n/a	19.54%	0.01%
US Bancorp	USB	0.35%	2.89%	0.01%	7.83%	0.03%
AO Smith Corp	AOS	0.03%	1.84%	0.00%	9.33%	0.00%
Symantec Corp	SYMC	0.06%	1.43%	0.00%	7.50%	0.00%
T Rowe Price Group Inc	TROW	0.09%	3.00%	0.00%	6.11%	0.01%
Waste Management Inc	WM	0.17%	1.94%	0.00%	11.78%	0.02%
CBS Corp	CBS	0.07%	1.46%	0.00%	16.37%	0.01%
Allergan PLC	AGN	0.21%	2.06%	0.00%	7.11%	0.01%
Constellation Brands Inc	STZ	0.12%	1.70%	0.00%	8.64%	0.01%
Xilinx Inc	XLNX	0.12%	1.29%	0.00%	8.60%	0.01%
DENTSPLY SIRONA Inc	XRAY	0.04%	0.83%	0.00%	6.90%	0.00%
Zions Bancorp NA	ZION	0.04%	2.52%	0.00%	6.78%	0.00%
Alaska Air Group Inc	ALK	0.03%	2.19%	0.00%	5.60%	0.00%
Invesco Ltd	IVZ	0.03%	6.59%	0.00%	1.84%	0.00%
Linde PLC	LIN	0.38%	2.02%	0.01%	18.10%	0.07%
Intuit Inc	INTU	0.24%	0.87%	0.00%	15.87%	0.04%
Morgan Stanley	MS	0.31%	2.84%	0.01%	13.50%	0.04%
Microchip Technology Inc	MCHP	0.08%	1.81%	0.00%	12.03%	0.01%
Chubb Ltd	CB	0.26%	2.19%	0.01%	10.00%	0.03%
Hologic Inc	HOLX	0.05%	n/a	n/a	3.10%	0.00%
Citizens Financial Group Inc	CFG	0.07%	3.77%	0.00%	16.69%	0.01%
O'Reilly Automotive Inc	ORLY	0.12%	n/a	n/a	15.51%	0.02%
Allstate Corp/The	ALL	0.13%	2.09%	0.00%	9.00%	0.01%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	2.08%
[2] Estimated Weighted Average Long-Term Growth Rate	12.64%
[3] S&P 500 Estimated Required Market Return	14.85%
[4] Risk-Free Rate	3.03% 3.38% 3.90%
[5] Implied Market Risk Premium	11.81% 11.47% 10.95%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
FLIR Systems Inc	FLIR	0.03%	1.31%	0.00%	n/a	n/a
Equity Residential	EQR	0.11%	2.98%	0.00%	6.31%	0.01%
BorgWarner Inc	BWA	0.04%	1.66%	0.00%	6.02%	0.00%
Newfield Exploration Co	NFX	0.02%	n/a	n/a	17.71%	0.00%
Incyte Corp	INCY	0.07%	n/a	n/a	57.27%	0.04%
Simon Property Group Inc	SPG	0.24%	4.39%	0.01%	5.20%	0.01%
Eastman Chemical Co	EMN	0.05%	3.08%	0.00%	7.40%	0.00%
Twitter Inc	TWTR	0.11%	n/a	n/a	56.40%	0.06%
AvalonBay Communities Inc	AVB	0.11%	3.05%	0.00%	5.99%	0.01%
Prudential Financial Inc	PRU	0.16%	3.91%	0.01%	9.00%	0.01%
United Parcel Service Inc	UPS	0.31%	3.45%	0.01%	10.18%	0.03%
Apartment Investment & Management Co	AIV	0.03%	3.07%	0.00%	-2.64%	0.00%
Walgreens Boots Alliance Inc	WBA	0.29%	2.44%	0.01%	9.77%	0.03%
McKesson Corp	MCK	0.10%	1.22%	0.00%	7.95%	0.01%
Lockheed Martin Corp	LMT	0.35%	3.04%	0.01%	9.15%	0.03%
AmerisourceBergen Corp	ABC	0.07%	1.92%	0.00%	8.42%	0.01%
Capital One Financial Corp	COF	0.16%	1.99%	0.00%	4.54%	0.01%
Waters Corp	WAT	0.07%	n/a	n/a	11.10%	0.01%
Dollar Tree Inc	DLTR	0.10%	n/a	n/a	9.96%	0.01%
Darden Restaurants Inc	DRI	0.06%	2.86%	0.00%	10.31%	0.01%
NetApp Inc	NTAP	0.07%	2.51%	0.00%	19.39%	0.01%
Citrix Systems Inc	CTXS	0.06%	1.37%	0.00%	11.85%	0.01%
Goodyear Tire & Rubber Co/The	GT	0.02%	3.02%	0.00%	n/a	n/a
DXC Technology Co	DXC	0.08%	1.19%	0.00%	6.44%	0.00%
DaVita Inc	DVA	0.04%	n/a	n/a	18.34%	0.01%
Hartford Financial Services Group Inc/The	HIG	0.07%	2.56%	0.00%	9.50%	0.01%
Iron Mountain Inc	IRM	0.05%	6.57%	0.00%	7.16%	0.00%
Estee Lauder Cos Inc/The	EL	0.13%	1.26%	0.00%	11.52%	0.01%
Cadence Design Systems Inc	CDNS	0.06%	n/a	n/a	10.90%	0.01%
Universal Health Services Inc	UHS	0.05%	0.30%	0.00%	9.82%	0.00%
E*TRADE Financial Corp	ETFC	0.05%	1.20%	0.00%	12.08%	0.01%
Skyworks Solutions Inc	SWKS	0.05%	2.08%	0.00%	8.42%	0.00%
National Oilwell Varco Inc	NOV	0.05%	0.68%	0.00%	86.26%	0.04%
Quest Diagnostics Inc	DGX	0.05%	2.43%	0.00%	7.98%	0.00%
Activision Blizzard Inc	ATVI	0.15%	0.72%	0.00%	10.89%	0.02%
Rockwell Automation Inc	ROK	0.09%	2.29%	0.00%	8.42%	0.01%
Kraft Heinz Co/The	KHC	0.25%	5.20%	0.01%	3.82%	0.01%
American Tower Corp	AMT	0.32%	1.94%	0.01%	15.19%	0.05%
HollyFrontier Corp	HFC	0.04%	2.34%	0.00%	7.07%	0.00%
Regeneron Pharmaceuticals Inc	REGN	0.19%	n/a	n/a	13.78%	0.03%
Amazon.com Inc	AMZN	3.57%	n/a	n/a	49.33%	1.76%
Jack Henry & Associates Inc	JKHY	0.04%	1.11%	0.00%	11.00%	0.00%
Ralph Lauren Corp	RL	0.03%	2.15%	0.00%	6.69%	0.00%
Boston Properties Inc	BXP	0.09%	2.88%	0.00%	6.45%	0.01%
Amphenol Corp	APH	0.11%	1.05%	0.00%	9.75%	0.01%
Arconic Inc	ARNC	0.04%	1.28%	0.00%	11.60%	0.00%
Pioneer Natural Resources Co	PXD	0.10%	0.22%	0.00%	28.80%	0.03%
Valero Energy Corp	VLO	0.16%	4.10%	0.01%	16.26%	0.03%
Synopsys Inc	SNPS	0.06%	n/a	n/a	15.20%	0.01%
L3 Technologies Inc	LLL	0.07%	1.63%	0.00%	10.49%	0.01%
Western Union Co/The	WU	0.03%	4.16%	0.00%	3.19%	0.00%
CH Robinson Worldwide Inc	CHRW	0.05%	2.30%	0.00%	10.60%	0.01%
Accenture PLC	ACN	0.42%	1.90%	0.01%	10.27%	0.04%
TransDigm Group Inc	TDG	0.09%	n/a	n/a	14.04%	0.01%
Yum! Brands Inc	YUM	0.12%	1.79%	0.00%	12.97%	0.02%
Prologis Inc	PLD	0.18%	2.78%	0.01%	6.85%	0.01%
FirstEnergy Corp	FE	0.09%	3.88%	0.00%	-0.02%	0.00%
VeriSign Inc	VRSN	0.09%	n/a	n/a	13.40%	0.01%
Quanta Services Inc	PWR	0.02%	0.45%	0.00%	25.00%	0.01%
Henry Schein Inc	HSIC	0.05%	n/a	n/a	9.57%	0.00%
Ameren Corp	AEE	0.07%	2.74%	0.00%	8.30%	0.01%
ANSYS Inc	ANSS	0.06%	n/a	n/a	12.40%	0.01%
NVIDIA Corp	NVDA	0.37%	0.45%	0.00%	10.57%	0.04%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	2.08%
[2] Estimated Weighted Average Long-Term Growth Rate	12.64%
[3] S&P 500 Estimated Required Market Return	14.85%
[4] Risk-Free Rate	3.03% 3.38% 3.90%
[5] Implied Market Risk Premium	11.81% 11.47% 10.95%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
Sealed Air Corp	SEE	0.03%	1.62%	0.00%	3.82%	0.00%
Cognizant Technology Solutions Corp	CTSH	0.17%	1.15%	0.00%	13.20%	0.02%
SVB Financial Group	SIVB	0.05%	n/a	n/a	8.88%	0.00%
Intuitive Surgical Inc	ISRG	0.25%	n/a	n/a	12.95%	0.03%
Affiliated Managers Group Inc	AMG	0.02%	1.14%	0.00%	2.88%	0.00%
Take-Two Interactive Software Inc	TTWO	0.05%	n/a	n/a	12.30%	0.01%
Republic Services Inc	RSG	0.11%	1.96%	0.00%	11.85%	0.01%
eBay Inc	EBAY	0.13%	1.66%	0.00%	10.71%	0.01%
Goldman Sachs Group Inc/The	GS	0.31%	1.62%	0.01%	7.27%	0.02%
SBA Communications Corp	SBAC	0.09%	n/a	n/a	45.90%	0.04%
Sempra Energy	SRE	0.14%	3.06%	0.00%	9.96%	0.01%
Moody's Corp	MCO	0.13%	1.11%	0.00%	12.80%	0.02%
Booking Holdings Inc	BKNG	0.36%	n/a	n/a	15.78%	0.06%
F5 Networks Inc	FFIV	0.04%	n/a	n/a	9.39%	0.00%
Akamai Technologies Inc	AKAM	0.05%	n/a	n/a	16.57%	0.01%
Devon Energy Corp	DVN	0.05%	1.20%	0.00%	10.92%	0.01%
Alphabet Inc	GOOGL	1.43%	n/a	n/a	17.82%	0.25%
Red Hat Inc	RHT	0.13%	n/a	n/a	18.40%	0.02%
Teleflex Inc	TFX	0.05%	0.50%	0.00%	12.95%	0.01%
Allegion PLC	ALLE	0.03%	0.98%	0.00%	11.97%	0.00%
Netflix Inc	NFLX	0.63%	n/a	n/a	36.80%	0.23%
Agilent Technologies Inc	A	0.10%	0.86%	0.00%	9.50%	0.01%
Anthem Inc	ANTM	0.33%	1.06%	0.00%	11.14%	0.04%
CME Group Inc	CME	0.28%	1.54%	0.00%	13.78%	0.04%
Juniper Networks Inc	JNPR	0.04%	2.93%	0.00%	8.07%	0.00%
BlackRock Inc	BLK	0.28%	3.18%	0.01%	9.25%	0.03%
DTE Energy Co	DTE	0.09%	3.21%	0.00%	5.87%	0.01%
Celanese Corp	CE	0.05%	2.26%	0.00%	7.05%	0.00%
Nasdaq Inc	NDAQ	0.06%	2.00%	0.00%	8.16%	0.00%
Philip Morris International Inc	PM	0.51%	5.94%	0.03%	8.77%	0.04%
salesforce.com Inc	CRM	0.49%	n/a	n/a	23.98%	0.12%
Huntington Ingalls Industries Inc	HII	0.04%	1.67%	0.00%	40.00%	0.02%
MetLife Inc	MET	0.19%	3.68%	0.01%	13.36%	0.03%
Under Armour Inc	UA	0.02%	n/a	n/a	37.54%	0.01%
Tapestry Inc	TPR	0.05%	3.49%	0.00%	10.33%	0.00%
Fluor Corp	FLR	0.02%	2.30%	0.00%	19.23%	0.00%
CSX Corp	CSX	0.24%	1.34%	0.00%	10.47%	0.02%
Edwards Lifesciences Corp	EW	0.15%	n/a	n/a	14.00%	0.02%
Ameriprise Financial Inc	AMP	0.07%	2.84%	0.00%	11.80%	0.01%
TechnipFMC PLC	FTI	0.04%	2.26%	0.00%	5.58%	0.00%
Zimmer Biomet Holdings Inc	ZBH	0.09%	0.88%	0.00%	3.85%	0.00%
CBRE Group Inc	CBRE	0.07%	n/a	n/a	11.00%	0.01%
Mastercard Inc	MA	0.91%	0.63%	0.01%	16.68%	0.15%
CarMax Inc	KMX	0.04%	n/a	n/a	12.92%	0.01%
Intercontinental Exchange Inc	ICE	0.19%	1.25%	0.00%	11.57%	0.02%
Fidelity National Information Services Inc	FIS	0.15%	1.34%	0.00%	12.00%	0.02%
Chipotle Mexican Grill Inc	CMG	0.06%	n/a	n/a	21.66%	0.01%
Wynn Resorts Ltd	WYNN	0.06%	2.44%	0.00%	31.10%	0.02%
Assurant Inc	AIZ	0.03%	2.49%	0.00%	n/a	n/a
NRG Energy Inc	NRG	0.05%	0.29%	0.00%	46.03%	0.02%
Monster Beverage Corp	MNST	0.13%	n/a	n/a	15.40%	0.02%
Regions Financial Corp	RF	0.07%	3.69%	0.00%	14.52%	0.01%
Mosaic Co/The	MOS	0.05%	0.31%	0.00%	7.00%	0.00%
Expedia Group Inc	EXPE	0.07%	1.07%	0.00%	17.20%	0.01%
Evergy Inc	EVERG	0.06%	3.31%	0.00%	8.22%	0.01%
Discovery Inc	DISCA	0.02%	n/a	n/a	12.30%	0.00%
CF Industries Holdings Inc	CF	0.04%	2.75%	0.00%	16.65%	0.01%
Viacom Inc	VIAB	0.04%	2.72%	0.00%	3.48%	0.00%
Alphabet Inc	GOOG	1.66%	n/a	n/a	17.82%	0.30%
TE Connectivity Ltd	TEL	0.12%	2.17%	0.00%	10.13%	0.01%
Cooper Cos Inc/The	COO	0.06%	0.02%	0.00%	10.50%	0.01%
Discover Financial Services	DFS	0.09%	2.37%	0.00%	8.80%	0.01%
TripAdvisor Inc	TRIP	0.03%	n/a	n/a	17.25%	0.01%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

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STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6]	[7]	[8]	[9]	[10]
		Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
Visa Inc	V	1.00%	0.74%	0.01%	17.79%	0.18%
Mid-America Apartment Communities Inc	MAA	0.05%	3.79%	0.00%	n/a	n/a
Xylem Inc/NY	XYL	0.05%	1.35%	0.00%	14.57%	0.01%
Marathon Petroleum Corp	MPC	0.19%	3.20%	0.01%	16.14%	0.03%
Advanced Micro Devices Inc	AMD	0.10%	n/a	n/a	15.67%	0.02%
Tractor Supply Co	TSCO	0.04%	1.45%	0.00%	12.76%	0.01%
ResMed Inc	RMD	0.06%	1.56%	0.00%	12.50%	0.01%
Mettler-Toledo International Inc	MTD	0.07%	n/a	n/a	13.01%	0.01%
Copart Inc	CPRT	0.05%	n/a	n/a	10.00%	0.01%
Fortinet Inc	FTNT	0.06%	n/a	n/a	19.22%	0.01%
Albemarle Corp	ALB	0.04%	1.66%	0.00%	9.81%	0.00%
Essex Property Trust Inc	ESS	0.08%	2.74%	0.00%	6.15%	0.00%
Realty Income Corp	O	0.09%	3.94%	0.00%	6.59%	0.01%
Seagate Technology PLC	STX	0.05%	5.69%	0.00%	3.59%	0.00%
Westrock Co	WRK	0.04%	4.47%	0.00%	4.73%	0.00%
IHS Markit Ltd	INFO	0.09%	n/a	n/a	11.21%	0.01%
Western Digital Corp	WDC	0.06%	4.45%	0.00%	2.72%	0.00%
PepsiCo Inc	PEP	0.68%	3.29%	0.02%	6.68%	0.05%
Diamondback Energy Inc	FANG	0.07%	0.48%	0.00%	15.26%	0.01%
Nektar Therapeutics	NKTR	0.03%	n/a	n/a	n/a	n/a
Maxim Integrated Products Inc	MXIM	0.06%	3.39%	0.00%	8.93%	0.01%
Church & Dwight Co Inc	CHD	0.07%	1.35%	0.00%	9.07%	0.01%
Duke Realty Corp	DRE	0.04%	2.94%	0.00%	4.81%	0.00%
Federal Realty Investment Trust	FRT	0.04%	3.08%	0.00%	4.25%	0.00%
MGM Resorts International	MGM	0.07%	1.63%	0.00%	2.26%	0.00%
Twenty-First Century Fox Inc	FOX	0.17%	0.73%	0.00%	9.22%	0.02%
JB Hunt Transport Services Inc	JBHT	0.05%	0.97%	0.00%	18.78%	0.01%
Lam Research Corp	LRCX	0.11%	2.59%	0.00%	-0.42%	0.00%
Mohawk Industries Inc	MHK	0.04%	n/a	n/a	4.95%	0.00%
Pentair PLC	PNR	0.03%	1.75%	0.00%	10.22%	0.00%
Vertex Pharmaceuticals Inc	VRTX	0.21%	n/a	n/a	46.02%	0.10%
Facebook Inc	FB	1.69%	n/a	n/a	21.88%	0.37%
United Rentals Inc	URI	0.04%	n/a	n/a	17.76%	0.01%
Alexandria Real Estate Equities Inc	ARE	0.06%	2.95%	0.00%	5.64%	0.00%
ABIOMED Inc	ABMD	0.07%	n/a	n/a	29.00%	0.02%
Delta Air Lines Inc	DAL	0.14%	2.83%	0.00%	13.07%	0.02%
United Continental Holdings Inc	UAL	0.10%	n/a	n/a	14.17%	0.01%
News Corp	NWS	0.01%	1.55%	0.00%	18.80%	0.00%
Centene Corp	CNC	0.11%	n/a	n/a	17.51%	0.02%
Macerich Co/The	MAC	0.03%	6.50%	0.00%	2.58%	0.00%
Martin Marietta Materials Inc	MLM	0.05%	1.09%	0.00%	12.23%	0.01%
PayPal Holdings Inc	PYPL	0.44%	n/a	n/a	22.12%	0.10%
Coty Inc	COTY	0.02%	6.44%	0.00%	8.78%	0.00%
DISH Network Corp	DISH	0.03%	n/a	n/a	-20.68%	-0.01%
Alexion Pharmaceuticals Inc	ALXN	0.12%	n/a	n/a	16.41%	0.02%
Everest Re Group Ltd	RE	0.04%	2.56%	0.00%	10.00%	0.00%
WellCare Health Plans Inc	WCG	0.06%	n/a	n/a	18.46%	0.01%
News Corp	NWSA	0.02%	1.56%	0.00%	18.80%	0.00%
Global Payments Inc	GPV	0.08%	0.04%	0.00%	14.67%	0.01%
Crown Castle International Corp	CCI	0.21%	3.84%	0.01%	18.23%	0.04%
Aptiv PLC	APTIV	0.09%	1.11%	0.00%	10.39%	0.01%
Advance Auto Parts Inc	AAP	0.05%	0.15%	0.00%	17.37%	0.01%
Capri Holdings Ltd	CPRI	0.03%	n/a	n/a	6.27%	0.00%
Align Technology Inc	ALGN	0.08%	n/a	n/a	23.19%	0.02%
Illumina Inc	ILMN	0.18%	n/a	n/a	25.16%	0.04%
Alliance Data Systems Corp	ADS	0.04%	1.28%	0.00%	12.18%	0.00%
LKQ Corp	LKQ	0.04%	n/a	n/a	13.85%	0.00%
Nielsen Holdings PLC	NLSN	0.04%	5.45%	0.00%	n/a	n/a
Garmin Ltd	GRMN	0.06%	3.06%	0.00%	6.03%	0.00%
Cimarex Energy Co	XEC	0.03%	0.96%	0.00%	63.18%	0.02%
Zoetis Inc	ZTS	0.18%	0.76%	0.00%	16.18%	0.03%
Digital Realty Trust Inc	DLR	0.09%	3.73%	0.00%	17.99%	0.02%
Equinix Inc	EQIX	0.13%	2.31%	0.00%	19.40%	0.03%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	2.08%
[2] Estimated Weighted Average Long-Term Growth Rate	12.64%
[3] S&P 500 Estimated Required Market Return	14.85%
[4] Risk-Free Rate	3.03% 3.38% 3.90%
[5] Implied Market Risk Premium	11.81% 11.47% 10.95%

STANDARD AND POOR'S 500 INDEX

		[6]	[7]	[8]	[9]	[10]
Name	Ticker	Weight In Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Estimate	Cap. Weighted Long-Term Growth
Discovery Inc	DISCK	0.04%	n/a	n/a	12.30%	0.01%

Notes:

- [1] Equals sum of col. [8]
[2] Equals sum of col. [10]
[3] Equals $(([1] \times (1 + (0.5 \times [2]))) + [2])$
[4] Source: Bloomberg Professional and Blue Chip Financial Forecasts
[5] Equals [3] - [4]
[6] Equals weight in S&P 500 based on market capitalization
[7] Source: Bloomberg Professional
[8] Equals [6] x [7]
[9] Source: Bloomberg Professional
[10] Equals [6] x [9]

CAPITAL ASSET PRICING MODEL

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

	[4]	[5]	[6]	[7]	[8]
	Risk-Free Rate (R_f)	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)
Proxy Group Average Bloomberg Beta					
Current 30-day average of 30-year U.S. Treasury bond yield [1]	3.03%	0.497	14.85%	11.81%	8.91%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2019 - Q2 2020) [2]	3.38%	0.497	14.85%	11.47%	9.08%
Projected 30-year U.S. Treasury bond yield (2020 - 2024) [3]	3.90%	0.497	14.85%	10.95%	9.35%
				Average:	9.11%
				Median:	9.08%
Proxy Group Average Value Line Beta					
Current 30-day average of 30-year U.S. Treasury bond yield [1]	3.03%	0.613	14.85%	11.81%	10.28%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2019 - Q2 2020) [2]	3.38%	0.613	14.85%	11.47%	10.41%
Projected 30-year U.S. Treasury bond yield (2020 - 2024) [3]	3.90%	0.613	14.85%	10.95%	10.62%
				Average:	10.44%
				Median:	10.41%

Notes:

[1] Source: Bloomberg Professional, 30-day average as of January 31, 2019

[2] Source: Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2

[3] Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14

[4] See Notes [1], [2], and [3]

[5] Source: Bloomberg Professional and Value Line

[6] Source: Bloomberg Professional

[7] Equals [6] - [4]

[8] Equals [4] + [5] x [7]

EXPECTED EARNINGS ANALYSIS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
		Value Line ROE 2021-2023	Value Line Total Capital 2017	Value Line Common Equity Ratio 2017	Total Equity 2017	Value Line Total Capital 2021-2023	Value Line Common Equity Ratio 2021-2023	Total Equity 2021-2023	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
ALLETE, Inc.	ALE	9.00%	3,507	59.00%	2,069	4,200	59.50%	2,499	3.85%	1.019	9.17%
Alliant Energy Corporation	LNT	10.50%	8,193	51.00%	4,178	8,700	48.00%	4,176	-0.01%	1.000	10.50%
Ameren Corporation	AEE	10.50%	14,420	49.80%	7,181	19,100	49.50%	9,455	5.65%	1.027	10.79%
American Electric Power Company, Inc.	AEP	11.00%	37,707	48.50%	18,288	49,800	48.00%	23,904	5.50%	1.027	11.29%
Duke Energy Corporation	DUK	8.50%	90,774	46.00%	41,756	112,400	43.50%	48,894	3.21%	1.016	8.63%
El Paso Electric Company	EE	8.50%	2,338	48.80%	1,141	3,025	44.50%	1,346	3.36%	1.017	8.64%
Entergy Corporation	ETR	11.00%	22,528	35.50%	7,997	29,400	38.50%	11,319	7.19%	1.035	11.38%
Eversource Inc.	EVERG	9.50%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.50%
FirstEnergy Corporation	FE	16.50%	25,040	15.70%	3,931	29,500	31.00%	9,145	18.39%	1.084	17.89%
Hawaiian Electric Industries, Inc.	HE	9.50%	3,766	55.70%	2,097	4,850	55.00%	2,668	4.93%	1.024	9.73%
IDACORP, Inc.	IDA	9.50%	3,998	56.30%	2,251	4,875	57.00%	2,779	4.31%	1.021	9.70%
OGE Energy Corporation	OGE	11.50%	6,601	58.30%	3,848	8,550	53.00%	4,532	3.32%	1.016	11.69%
Pinnacle West Capital Corporation	PNW	10.50%	9,796	51.10%	5,006	11,225	54.50%	6,118	4.09%	1.020	10.71%
PNM Resources, Inc.	PNM	9.50%	3,888	43.60%	1,695	5,250	42.00%	2,205	5.40%	1.026	9.75%
Portland General Electric Company	POR	9.00%	4,842	49.90%	2,416	5,525	52.00%	2,873	3.52%	1.017	9.16%
PPL Corporation	PPL	13.50%	30,608	35.20%	10,774	36,800	44.00%	16,192	8.49%	1.041	14.05%
<hr/>											
Mean											10.79%

Notes:

- [1] Source: Value Line
[2] Source: Value Line
[3] Source: Value Line
[4] Equals [2] x [3]
[5] Source: Value Line
[6] Source: Value Line
[7] Equals [5] x [6]
[8] Equals $([7] / [4])^{(1/5)} - 1$
[9] Equals $2 \times (1 + [8]) / (2 + [8])$
[10] Equals [1] x [9]

FLOTATION COST ADJUSTMENT

Flotation Costs from Inception to Date

Date	Shares Issued	Market Price	Offering Price	Underwriting Discount	Offering Expense	Net Proceeds	Total Flotation Costs	Gross Equity Issue before Costs	Net Proceeds	Flotation Cost Percentage
11/16/1949	1,584,238	\$10.750	\$10.250	\$0.124	\$0.137	\$9,989	\$1,205,605	\$17,030,559	\$15,824,953	7.079%
6/4/1952	1,108,966	\$10.500	\$10.500	\$0.098	\$0.162	\$10,240	\$288,331	\$11,644,143	\$11,355,812	2.476%
4/14/1954	1,219,856	\$15.250	\$14.000	\$0.060	\$0.124	\$13,816	\$1,749,274	\$18,602,804	\$16,853,530	9.403%
2/29/1956	670,920	\$17.825	\$16.750	\$0.050	\$0.221	\$16,479	\$903,058	\$11,959,149	\$11,056,091	7.551%
7/22/1959	952,033	\$23.375	\$22.000	\$0.069	\$0.191	\$21,740	\$1,556,574	\$22,253,771	\$20,697,197	6.995%
7/28/1965	772,008	\$35.250	\$33.000	\$0.092	\$0.225	\$32,683	\$1,981,745	\$27,213,282	\$25,231,537	7.282%
1/22/1969	1,080,811	\$29.000	\$27.000	\$0.119	\$0.187	\$26,694	\$2,492,350	\$31,343,519	\$28,851,169	7.952%
10/21/1970	1,729,298	\$23.125	\$21.500	\$0.175	\$0.149	\$21,176	\$3,370,402	\$39,990,016	\$36,619,614	8.428%
7/26/1972	1,902,228	\$25.000	\$23.500	\$0.129	\$0.166	\$23,205	\$3,414,499	\$47,555,700	\$44,141,201	7.180%
10/10/1973	2,092,451	\$25.825	\$24.500	\$0.128	\$0.153	\$24,219	\$3,360,476	\$54,037,547	\$50,677,071	6.219%
11/20/1974	2,300,000	\$17.625	\$17.500	\$0.910	\$0.069	\$16,521	\$2,539,200	\$40,537,500	\$37,998,300	6.264%
8/14/1975	1,750,000	\$23.000	\$23.000	\$0.740	\$0.077	\$22,183	\$1,429,750	\$40,250,000	\$38,820,250	3.552%
6/3/1976	2,000,000	\$24.000	\$24.000	\$0.720	\$0.064	\$23,216	\$1,568,000	\$48,000,000	\$46,432,000	3.267%
5/31/1993	3,041,955	\$44.125	\$43.625	\$1.200	\$0.048	\$42,377	\$5,317,337	\$134,226,264	\$128,908,927	3.961%
9/23/1997	4,500,000	\$49.938	\$49.563	\$1.230	\$0.133	\$48,200	\$7,821,000	\$224,721,000	\$216,900,000	3.480%
9/29/1997	400,000	\$50.500	\$49.563	\$1.230	\$0.133	\$48,200	\$920,000	\$20,200,000	\$19,280,000	4.554%
2/25/2002	20,000,000	\$22.950	\$22.500	\$0.730	\$0.015	\$21,755	\$23,900,000	\$459,000,000	\$435,100,000	5.207%
9/9/2008	17,250,000	\$20.860	\$20.200	\$0.100	\$0.006	\$20,094	\$13,218,352	\$359,835,000	\$346,616,648	3.673%
8/3/2010	21,850,000	\$22.100	\$21.500	\$0.645	\$0.013	\$20,571	\$33,407,927	\$482,885,000	\$449,477,073	6.918%
March 2013	7,757,449	\$29.057	\$29.057	\$0.291	\$0.052	\$28,714	\$2,657,558	\$225,407,642	\$222,750,085	1.179%
June 2014	5,693,946	\$30.663	\$30.663	\$0.307	\$0.030	\$30,326	\$1,915,210	\$174,592,340	\$172,677,130	1.097%
September 2018	4,733,435	\$47.885	\$47.885	\$0.407	\$0.016	\$47,462	\$2,000,721	\$226,661,287	\$224,660,566	0.883%
Weighted Average Flotation Costs						Total Public Issuances	\$117,017,369	\$2,717,946,524	\$2,600,929,156	4.305%
						Total Non-Public Issuances (Employee Benefit Plans)	\$0	\$1,694,905,060	\$1,694,905,060	0.000%
						Total Issuances	\$117,017,369	\$4,412,851,584	\$4,295,834,216	2.652%

The flotation adjustment is derived by dividing the dividend yield by 1-F (where F = flotation costs expressed in percentage terms), or by 0.9735, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

$$k = \frac{D \times (1 + .5g)}{P \times (1 - F)} + g$$

Source: Company data.

[1] This issuance was structured as a forward equity sale. The spread between the initial forward sale price (i.e., \$20.855) and the actual forward settle price (i.e., \$20.584) is reflected in the net proceeds.

FLOTATION COST ADJUSTMENT

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Stock Price	Annualized Dividend	Dividend Yield	Expected Dividend Yield	Expected Dividend Yield Adjusted for Flotation Costs	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Estimate	DCF k(e)	Flotation Adjusted DCF k(e)
ALLETE, Inc.	ALE	\$75.25	\$2.24	2.98%	3.05%	3.13%	3.50%	6.00%	n/a	4.75%	7.80%	7.88%
Alliant Energy Corporation	LNT	\$42.55	\$1.42	3.34%	3.45%	3.54%	6.50%	7.25%	6.00%	6.58%	10.03%	10.12%
Ameren Corporation	AEE	\$66.15	\$1.90	2.87%	2.98%	3.06%	7.50%	7.70%	6.80%	7.33%	10.31%	10.39%
American Electric Power Company, Inc.	AEP	\$75.48	\$2.68	3.55%	3.65%	3.75%	4.50%	5.74%	5.80%	5.35%	8.99%	9.09%
Duke Energy Corporation	DUK	\$85.78	\$3.71	4.32%	4.43%	4.55%	5.50%	4.41%	5.00%	4.97%	9.40%	9.52%
El Paso Electric Company	EE	\$50.50	\$1.44	2.85%	2.91%	2.99%	3.00%	5.10%	4.40%	4.17%	7.08%	7.16%
Entergy Corporation	ETR	\$86.12	\$3.64	4.23%	4.31%	4.43%	1.00%	Negative	7.00%	4.00%	8.31%	8.43%
Eversource Inc.	EVERG	\$56.71	\$1.90	3.35%	3.49%	3.59%	NA	9.20%	7.70%	8.45%	11.94%	12.04%
FirstEnergy Corporation	FE	\$37.96	\$1.44	3.79%	3.88%	3.99%	3.00%	Negative	6.00%	4.50%	8.38%	8.49%
Hawaiian Electric Industries, Inc.	HE	\$36.30	\$1.24	3.42%	3.52%	3.61%	3.50%	7.80%	6.40%	5.90%	9.42%	9.51%
IDACORP, Inc.	IDA	\$93.99	\$2.52	2.68%	2.72%	2.80%	4.50%	2.60%	2.60%	3.23%	5.96%	6.03%
OGE Energy Corporation	OGE	\$39.75	\$1.46	3.67%	3.78%	3.88%	6.00%	Negative	5.20%	5.60%	9.38%	9.48%
Pinnacle West Capital Corporation	PNW	\$85.99	\$2.95	3.43%	3.52%	3.61%	6.00%	4.16%	4.60%	4.92%	8.44%	8.53%
PNM Resources, Inc.	PNM	\$41.53	\$1.16	2.79%	2.87%	2.95%	7.50%	4.10%	4.70%	5.43%	8.30%	8.38%
Portland General Electric Company	POR	\$45.89	\$1.45	3.16%	3.22%	3.31%	4.00%	5.05%	3.30%	4.12%	7.34%	7.43%
PPL Corporation	PPL	\$29.30	\$1.64	5.60%	5.70%	5.85%	2.00%	3.59%	5.00%	3.53%	9.23%	9.38%
PROXY GROUP MEAN				3.50%	3.59%	3.69%	4.53%	5.59%	5.37%	5.18%	8.77%	8.87%
MEAN												8.87%
UNADJUSTED CONSTANT GROWTH DCF MEAN												8.77%
DIFFERENCE (FLOTATION COST ADJUSTMENT)												[12] 0.10%

[1] Source: Bloomberg Professional, equals 30-day average as of January 31, 2019

[2] Source: Bloomberg Professional

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.50 x [9])

[5] Equals [4] / (1 - [Flotation Cost Percentage])

[6] Source: Value Line

[7] Source: Yahoo! Finance

[8] Source: Zacks

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

[10] Equals [4] + [9]

[11] Equals [5] + [9]

[12] Equals [11] - [10]

Rate Case History (Past Rate Cases)

Company List All
States All
Years 2019, 2018, 2017, 2016
Service Type Electric

	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date	Rate Increase (\$M)	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Base (\$M)	Date	Decision Type	Rate Increase (\$M)	Phase- In?	Interim Authorized?	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Case Test Year End Date	Rate Base (\$M)	Rate Base Valuation Method	Rate Case Duration (months)	Date	Authorized ROE
Alaska	Alaska Electric Light Power	AVA	D-U-16-086	Electric	Vertically Integrated	9/16/2016	5.7	9.98	13.80	58.18	123.04	11/15/2017	Settled	3.4	No	Yes	8.91	11.95	58.18	12/2015	123.03	Average	14	2017.4	11.95%
Arkansas	Entergy Arkansas LLC	ETR	16-036-FR (2018 Review)	Electric	Vertically Integrated	7/6/2018	189.7	5.26	NA	36.73	7,546.59	12/12/2018	Settled	189.7	No	No	5.26	NA	36.55	12/2019	7,546.59	Average	5	2018.4	
Arkansas	Entergy Arkansas LLC	ETR	D-16-036-FR (2017 Review)	Electric	Vertically Integrated	7/7/2017	126.4	4.64	NA	31.62	7,094.57	12/13/2017	Settled	113.4	No	No	4.64	NA	31.62	12/2018	7,094.57	Average	5	2017.4	
Arkansas	Entergy Arkansas LLC	ETR	D-16-036-FR	Electric	Vertically Integrated	7/22/2016	67.7	4.62	NA	30.79	6,623.46	12/6/2016	Settled	54.4	No	No	NA	NA	NA	12/2017	NA	NA	4	2016.4	
Arkansas	Entergy Arkansas LLC	ETR	D-15-015-U	Electric	Vertically Integrated	4/24/2015	268.5	4.86	10.20	30.16	5,928.76	2/23/2016	Settled	219.7	No	No	4.52	9.75	28.46	03/2015	NA	NA	10	2016.1	9.75%
Arkansas	Oklahoma Gas and Electric Co.	OGE	D-18-046-FR	Electric	Vertically Integrated	10/1/2018	5.8	5.27	NA	37.31	617.46	3/6/2019	Settled	3.3	No	No	5.27	NA	37.31	03/2020	617.46	Year-end	5	2019.1	
Arkansas	Oklahoma Gas and Electric Co.	OGE	D-16-052-U	Electric	Vertically Integrated	8/25/2016	15.2	6.01	10.25	39.67	529.15	5/18/2017	Settled	7.1	No	No	5.42	9.50	36.38	06/2016	506.71	Year-end	8	2017.2	9.50%
Arizona	Arizona Public Service Co.	PNW	D-E-01345A-16-0036	Electric	Vertically Integrated	6/1/2016	433.4	8.13	10.50	55.80	6,771.15	8/15/2017	Settled	362.6	Yes	No	7.85	10.00	55.80	12/2015	NA	Year-end	14	2017.3	10.00%
Arizona	Tucson Electric Power Co.	FTS	D-E-01933A-15-0322	Electric	Vertically Integrated	11/5/2015	109.5	7.34	10.35	50.03	2,104.68	2/24/2017	Settled	81.5	No	No	7.04	9.75	50.03	06/2015	2,045.20	Year-end	15	2017.1	9.75%
Arizona	UNS Electric Inc.	FTS	D-E-04204A-15-0142	Electric	Vertically Integrated	5/5/2015	15.1	7.22	9.50	52.83	270.29	8/18/2016	Fully Litigated	15.1	No	No	7.22	9.50	52.83	12/2014	270.29	Year-end	17	2016.3	9.50%
California	Lberty Utilities (CalPeco Elect	AQN	A-15-05-008	Electric	Vertically Integrated	5/1/2015	11.4	7.92	10.50	55.00	150.93	12/1/2016	Settled	8.3	No	No	7.51	10.00	52.50	12/2016	145.66	Average	19	2016.4	10.00%
California	Pacific Gas and Electric Co.	PCG	Advise No. 3887-G/5148-E	Electric	Vertically Integrated	9/29/2017	(120.0)	7.69	10.25	52.00	NA	10/26/2017	Settled	(120.0)	No	No	7.69	10.25	52.00	12/2018	NA	NA	0	2017.4	10.25%
California	Pacific Gas and Electric Co.	PCG	A-15-09-001 (Elec)	Electric	Vertically Integrated	9/1/2015	260.0	NA	NA	NA	19,300.96	5/11/2017	Settled	91.0	Yes	No	NA	NA	NA	12/2017	19,159.42	Average	20	2017.2	
California	San Diego Gas & Electric Co.	SRE	Advice No. 3120-E	Electric	Vertically Integrated	9/29/2017	(13.1)	7.55	10.20	52.00	NA	10/26/2017	Settled	(13.1)	No	No	7.55	10.20	52.00	12/2018	NA	NA	0	2017.4	10.20%
California	San Diego Gas & Electric Co.	SRE	A-14-11-003 (Elec)	Electric	Vertically Integrated	11/14/2014	91.9	NA	NA	NA	4,606.77	6/23/2016	Settled	3.0	Yes	No	NA	NA	NA	12/2016	4,299.16	Average	19	2016.2	
California	Southern California Edison Co.	EIX	Advice No. 3665-E	Electric	Vertically Integrated	9/29/2017	(73.0)	7.61	10.30	48.00	NA	10/26/2017	Settled	(73.0)	No	No	7.61	10.30	48.00	12/2018	NA	NA	0	2017.4	10.30%
Colorado	Black Hills Colorado Electric	BKH	D-16AL-0326E	Electric	Vertically Integrated	5/3/2016	14.4	7.56	9.83	50.92	510.73	12/19/2016	Fully Litigated	0.6	No	No	7.43	9.37	52.39	12/2015	414.59	Average	7	2016.4	9.37%
Colorado	Public Service Co. of CO	XEL	D-17AL-0649E	Electric	Vertically Integrated	10/3/2017	377.9	7.55	10.00	55.25	7,396.06	4/26/2018	Fully Litigated	NA	No	No	NA	NA	NA	NA	NA	NA	6	2018.2	
Florida	Duke Energy Florida LLC	DUK	D-20170183-EI	Electric	Vertically Integrated	8/29/2017	200.0	NA	NA	NA	NA	10/25/2017	Settled	200.0	Yes	No	NA	NA	NA	NA	NA	NA	1	2017.4	
Florida	Florida Power & Light Co.	NEE	D-160021-EI	Electric	Vertically Integrated	3/15/2016	1,304.6	6.70	11.50	45.35	33,893.50	11/29/2016	Settled	811.0	Yes	No	10.55	NA	10.28	12/2018	NA	NA	8	2016.4	10.55%
Florida	Gulf Power Co.	NEE	D-160186-EI	Electric	Vertically Integrated	10/12/2016	106.8	6.04	11.00	40.07	2,418.92	4/4/2017	Settled	62.0	No	No	NA	10.25	NA	12/2017	NA	NA	5	2017.2	10.25%
Florida	Tampa Electric Co.	EMA	D-20170210-EI	Electric	Vertically Integrated	9/27/2017	0.0	NA	0.025	NA	NA	11/6/2017	Settled	0.0	Yes	No	NA	10.25	NA	NA	NA	NA	1	2017.4	10.25%
Hawaii	Hawaii Electric Light Co	HE	D-2015-0170	Electric	Vertically Integrated	9/19/2016	19.3	8.44	10.60	57.12	478.77	6/29/2018	Settled	(0.1)	No	Yes	7.80	9.50	56.69	12/2016	481.31	Average	21	2018.2	9.50%
Hawaii	Hawaiian Electric Co.	HE	D-2016-0328	Electric	Vertically Integrated	12/16/2016	125.0	8.28	10.60	57.36	2,131.35	6/22/2018	Settled	(0.6)	No	Yes	7.57	9.50	57.10	12/2017	1,993.36	Average	18	2018.2	9.50%
Hawaii	Hawaiian Electric Co.	HE	D-2013-0373	Electric	Vertically Integrated	6/27/2014	0.0	8.43	10.75	56.94	1,851.91	12/23/2016	Fully Litigated	0.0	No	No	NA	NA	NA	NA	NA	NA	30	2016.4	
Hawaii	Maui Electric Company Ltd	HE	D-2014-0318	Electric	Vertically Integrated	12/30/2014	0.0	8.28	10.75	57.43	460.07	8/4/2017	Fully Litigated	0.0	No	No	NA	NA	NA	NA	NA	NA	31	2017.3	
Iowa	Interstate Power & Light Co.	LNT	D-RPU-2017-0001	Electric	Vertically Integrated	4/3/2017	168.0	7.74	10.57	49.05	4,274.62	2/2/2018	Settled	130.0	No	Yes	7.49	9.98	49.02	12/2016	4,231.16	Average	10	2018.1	9.98%
Idaho	Avista Corp.	AVA	D-AVU-E-17-01	Electric	Vertically Integrated	6/9/2017	28.5	7.81	9.90	50.00	811.60	12/28/2017	Settled	17.4	Yes	No	7.61	9.50	50.00	12/2016	794.99	Year-end	6	2017.4	9.50%
Idaho	Avista Corp.	AVA	C-AVU-E-16-03	Electric	Vertically Integrated	5/26/2016	15.4	7.78	9.90	50.00	754.64	12/28/2016	Settled	6.3	No	No	7.58	9.50	50.00	12/2015	754.00	Average	7	2016.4	9.50%
Indiana	Indiana Michigan Power Co.	AEP	Ca-44967	Electric	Vertically Integrated	7/26/2017	192.6	5.97	10.60	37.04	4,185.06	5/30/2018	Settled	153.4	Yes	No	5.51	9.95	35.73	12/2018	4,206.64	Year-end	10	2018.2	9.95%
Indiana	Indianapolis Power & Light Co.	AES	Ca-45029	Electric	Vertically Integrated	12/21/2017	88.3	6.82	10.32	40.21	3,368.50	10/31/2018	Settled	43.9	No	No	6.59	9.99	39.67	06/2017	3,339.57	Year-end	10	2018.4	9.99%
Indiana	Indianapolis Power & Light Co.	AES	Ca-44893	Electric	Vertically Integrated	12/22/2016	91.7	6.81	10.40	39.55	3,041.40	2/24/2017	NA	NA	No	No	NA	NA	NA	NA	NA	2	2017.1		
Indiana	Indianapolis Power & Light Co.	AES	Ca-44576	Electric	Vertically Integrated	12/29/2014	65.6	6.91	10.93	37.33	1,964.99	3/16/2016	Fully Litigated	29.6	No	No	6.51	9.85	37.33	06/2014	1,887.31	Year-end	14	2016.1	9.85%
Indiana	Northern IN Public Svc Co.	NI	Ca-44688	Electric	Vertically Integrated	10/1/2015	11																		

Rate Case History (Past Rate Cases)

Company List All
States All
Years 2019, 2018, 2017, 2016
Service Type Electric

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date	Rate Increase (\$M)	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Base (\$M)	Date	Decision Type	Rate Increase (\$M)	Phase- In?	Interim Authorized?	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Case Test Year End Date	Rate Base (\$M)	Rate Base Valuation Method	Rate Case Duration (months)	Date	Authorized ROE
Vermont	Green Mountain Power Corp.		C-17-3112-INV	Electric	Vertically Integrated	4/14/2017	31.7	7.07	9.50	48.63	1,458.10	12/21/2017	Settled	31.9	No	No	6.87	9.10	48.60	12/2016	1,433.24	Average	8	2017.4	9.10%
Washington	Avista Corp.	AVA	D-UE-170485	Electric	Vertically Integrated	5/26/2017	50.3	7.76	9.90	50.00	1,592.17	4/26/2018	Fully Litigated	10.8	No	No	7.50	9.50	48.50	12/2016	1,523.13	Average	11	2018.2	9.50%
Washington	Avista Corp.	AVA	D-UE-160228	Electric	Vertically Integrated	2/19/2016	48.9	7.64	9.90	48.50	1,494.59	12/15/2016	Fully Litigated	0.0	No	No	NA	NA	NA	NA	NA	NA	10	2016.4	
Washington	Avista Corp.	AVA	D-UE-150204	Electric	Vertically Integrated	2/9/2015	33.2	7.46	9.90	48.00	1,464.30	1/6/2016	Settled	(8.1)	No	No	7.29	9.50	48.50	09/2014	1,315.89	NA	11	2016.1	9.50%
Washington	PacifiCorp	BRK.A	D-UE-152253	Electric	Vertically Integrated	11/25/2015	20.3	7.30	9.50	49.10	874.15	9/1/2016	Fully Litigated	13.7	Yes	No	7.30	9.50	49.10	06/2015	808.33	Year-end	9	2016.3	9.50%
Washington	Puget Sound Energy Inc.		D-UE-180899	Electric	Vertically Integrated	11/7/2018	18.9	NA	NA	NA	5,101.82	2/21/2019	Settled	0.0	No	No	NA	NA	NA	06/2018	NA	Year-end	3	2019.1	
Washington	Puget Sound Energy Inc.		D-UE-170033	Electric	Vertically Integrated	1/13/2017	144.0	7.74	9.80	48.50	5,097.75	12/5/2017	Settled	106.4	No	No	7.60	9.50	48.50	09/2016	5,166.53	Average	10	2017.4	9.50%
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-122 (Elec)	Electric	Vertically Integrated	7/17/2018	(8.0)	7.10	9.80	56.06	860.54	9/20/2018	Settled	(9.2)	No	No	7.10	9.80	56.06	12/2020	860.54	Average	2	2018.3	9.80%
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-121 (Elec)	Electric	Vertically Integrated	4/8/2016	6.9	8.32	10.20	58.06	573.37	11/9/2016	Fully Litigated	(3.3)	No	No	7.89	9.80	57.16	12/2017	570.78	Average	7	2016.4	9.80%
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-123 (Elec)	Electric	Vertically Integrated	5/4/2017	24.7	7.84	10.00	52.53	1,218.58	12/7/2017	Fully Litigated	9.4	No	No	7.56	9.80	51.45	12/2018	1,194.76	Average	7	2017.4	9.80%
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-122 (Elec)	Electric	Vertically Integrated	4/1/2016	28.3	NA	NA	NA	1,188.00	10/26/2016	Fully Litigated	24.5	No	No	NA	NA	NA	12/2017	NA	NA	6	2016.4	
Wisconsin	Wisconsin Electric Power Co.	WEC	D-5-UR-108 (WEP-Elec)	Electric	Vertically Integrated	4/4/2017	0.0	NA	NA	NA	NA	8/10/2017	Settled	0.0	Yes	No	NA	NA	NA	12/2019	NA	NA	4	2017.3	
Wisconsin	Wisconsin Power and Light Co	LNT	D-6690-UR-121 (Elec)	Electric	Vertically Integrated	5/24/2018	0.0	7.08	10.00	52.00	3,955.30	9/14/2018	Settled	0.0	No	No	7.08	10.00	52.00	12/2020	3,955.30	Average	3	2018.3	10.00%
Wisconsin	Wisconsin Power and Light Co	LNT	D-6690-UR-120 (Elec)	Electric	Vertically Integrated	5/20/2016	12.9	7.91	10.00	52.20	2,851.38	11/18/2016	Settled	9.4	Yes	No	7.91	10.00	52.20	12/2018	2,851.38	Average	6	2016.4	10.00%
Wisconsin	Wisconsin Public Service Corp.	WEC	D-6690-UR-125 (Elec)	Electric	Vertically Integrated	4/4/2017	0.0	NA	NA	NA	NA	8/10/2017	Settled	0.0	Yes	No	NA	NA	NA	12/2019	NA	NA	4	2017.3	
West Virginia	Appalachian Power Co.	AEP	C-18-0646-E-42T	Electric	Vertically Integrated	5/9/2018	95.3	7.52	10.22	50.16	4,124.37	2/27/2019	Settled	44.2	No	No	7.28	9.75	50.16	12/2017	4,004.98	Average	9	2019.1	9.75%
Wyoming	MDU Resources Group Inc.	MDU	D-20004-117-ER-16	Electric	Vertically Integrated	6/10/2016	3.2	8.00	10.10	50.99	72.31	1/18/2017	Settled	2.7	No	No	7.25	9.45	50.99	12/2015	72.21	Year-end	7	2017.1	9.45%

Rate Case History (Past Rate Cases)

Company List All
States All
Years 2019, 2018, 2017, 2016
Service Type Natural Gas

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date	Rate Increase (\$M)	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Base (\$M)	Date	Decision Type	Rate Increase (\$M)	Phase-In?	Interim Authorized?	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Case Test Year End Date	Rate Base Valuation Method	Rate Case Duration (months)	Date	Authorized ROE	
Alaska	ENSTAR Natural Gas Co.	ALA	D-U-16-066	Natural Gas	Distribution	6/1/2016	11.8	8.92	12.55	51.68	286.49	9/22/2017	Fully Litigated	5.8	No	Yes	8.59	11.88	51.81	12/2015	274.14	Average	15	2017.3	11.88%
Arkansas	Black Hills Energy Arkansas	BKH	D-17-071-U	Natural Gas	Distribution	12/15/2017	18.5	6.06	10.20	42.46	547.72	10/5/2018	Settled	22.6	No	No	5.62	9.61	40.43	12/2017	546.16	Year-end	9	2018.4	9.61%
Arkansas	Black Hills Energy Arkansas	BKH	D-15-011-U	Natural Gas	Distribution	4/1/2015	12.6	6.10	10.25	39.70	376.80	1/28/2016	Settled	8.0	No	No	5.33	9.40	39.46	03/2015	374.18	Year-end	10	2016.1	9.40%
Arkansas	CenterPoint Energy Resources	CNP	D-17-010-FR (2018 filing)	Natural Gas	Distribution	4/4/2018	5.3	4.66	NA	31.35	770.66	9/11/2018	Settled	5.1	No	No	4.69	NA	31.52	09/2019	769.09	Year-end	5	2018.3	
Arkansas	CenterPoint Energy Resources	CNP	D-17-010-FR	Natural Gas	Distribution	4/5/2017	8.0	4.58	NA	30.99	700.83	9/6/2017	Settled	7.6	No	No	4.58	NA	31.02	09/2018	699.07	Year-end	5	2017.3	
Arkansas	CenterPoint Energy Resources	CNP	D-15-098-U	Natural Gas	Distribution	11/10/2015	30.0	5.52	10.30	38.97	703.21	9/2/2016	Settled	14.2	No	No	4.53	9.50	30.85	09/2015	691.04	Year-end	9	2016.3	9.50%
Arizona	Southwest Gas Corp.	SWX	D-G-01551A-16-0107	Natural Gas	Distribution	5/2/2016	31.9	7.82	10.25	51.69	1,336.05	4/11/2017	Settled	16.0	No	No	7.42	9.50	51.70	11/2015	1,324.90	Year-end	11	2017.2	9.50%
California	Pacific Gas and Electric Co.	PCG	A-15-09-001 (Gas)	Natural Gas	Distribution	9/1/2015	59.0	NA	NA	NA	5,240.23	5/11/2017	Settled	(3.0)	Yes	No	NA	NA	NA	12/2017	5,171.23	Average	20	2017.2	
California	San Diego Gas & Electric Co.	SRE	Advice No. 2611-G	Natural Gas	Distribution	9/29/2017	(2.0)	7.55	10.20	52.00	NA	10/26/2017	Settled	(2.0)	No	No	7.55	10.20	52.00	12/2018	NA	NA	0	2017.4	10.20%
California	San Diego Gas & Electric Co.	SRE	A-14-11-003 (Gas)	Natural Gas	Distribution	11/14/2014	13.7	NA	NA	NA	714.77	6/23/2016	Settled	(1.6)	Yes	No	NA	NA	NA	12/2016	691.09	Average	19	2016.2	
California	Southern California Gas Co.	SRE	Advice No. 5192	Natural Gas	Distribution	9/29/2017	(35.1)	7.34	10.05	52.00	NA	10/30/2017	Settled	(35.1)	No	No	7.34	10.05	52.00	12/2018	NA	NA	1	2017.4	10.05%
California	Southern California Gas Co.	SRE	A-14-11-004	Natural Gas	Distribution	11/14/2014	234.1	NA	NA	NA	4,233.18	6/23/2016	Settled	106.9	Yes	No	NA	NA	NA	12/2016	4,006.25	Average	19	2016.2	
Colorado	Public Service Co. of CO	XEL	D-17AL-0363G	Natural Gas	Distribution	6/2/2017	23.5	7.18	9.35	56.00	1,526.37	12/21/2018	Fully Litigated	22.0	No	Yes	7.12	9.35	54.60	12/2016	1,527.01	Average	18	2018.4	9.35%
Colorado	Public Service Co. of CO	XEL	D-15AL-0135G	Natural Gas	Distribution	3/3/2015	108.3	7.76	10.30	56.00	1,347.70	2/16/2016	Fully Litigated	39.2	Yes	Yes	7.33	9.50	56.51	12/2014	1,416.47	Average	11	2016.1	9.50%
Connecticut	CT Natural Gas Corp.	IBE	D-18-05-16	Natural Gas	Distribution	6/29/2018	27.8	7.82	10.20	55.00	537.83	12/19/2018	Settled	19.7	Yes	No	7.32	9.30	55.00	12/2017	534.22	Average	5	2018.4	9.30%
Connecticut	Southern Connecticut Gas Co.	IBE	D-17-05-42	Natural Gas	Distribution	6/30/2017	19.2	7.79	9.95	52.19	633.88	12/13/2017	Settled	11.2	Yes	No	7.42	9.25	52.19	12/2016	617.78	Average	5	2017.4	9.25%
Connecticut	Yankee Gas Services Co.	ES	D-18-05-10	Natural Gas	Distribution	6/15/2018	86.1	7.57	10.25	53.76	1,573.24	12/12/2018	Settled	30.2	Yes	No	7.06	9.30	53.76	12/2017	1,446.41	Average	6	2018.4	9.30%
District of Columbia	Washington Gas Light Co.	ALA	FC-1137	Natural Gas	Distribution	2/26/2016	17.2	8.23	10.25	57.76	261.87	3/1/2017	Fully Litigated	8.5	No	No	7.57	9.25	55.70	09/2015	255.67	Average	12	2017.1	9.25%
Delaware	Chesapeake Utilities Corp.	CPK	D-15-1734	Natural Gas	Distribution	12/21/2015	4.1	9.68	11.00	60.39	69.38	12/20/2016	Settled	2.3	No	Yes	7.53	9.75	NA	03/2016	NA	NA	12	2016.4	9.75%
Delaware	Chesapeake Utilities Corp.	CPK	D-18-0934	Natural Gas	Distribution	NA	NA	NA	NA	NA	NA	8/2/2018	Fully Litigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2018.3	
Delaware	Delmarva Power & Light Co.	EXC	D-17-0978	Natural Gas	Distribution	8/17/2017	3.8	6.98	10.10	50.20	355.93	11/8/2018	Settled	(3.5)	No	Yes	6.78	9.70	50.52	12/2017	NA	NA	14	2018.4	9.70%
Delaware	Delmarva Power & Light Co.	EXC	D-16-0650	Natural Gas	Distribution	5/17/2016	22.2	7.19	10.60	49.44	361.32	6/6/2017	Settled	4.9	No	Yes	NA	9.70	NA	12/2015	NA	NA	12	2017.2	9.70%
Florida	Pivotal Utility Holdings Inc.	NEE	20170179-GU	Natural Gas	Distribution	10/23/2017	12.3	6.57	11.25	41.23	303.22	3/26/2018	Settled	15.3	Yes	Yes	NA	10.19	48.00	12/2018	NA	NA	5	2018.1	10.19%
Georgia	Atlanta Gas Light Co.	SO	D-40828 (2018 Review)	Natural Gas	Distribution	12/1/2017	(16.0)	NA	NA	54.00	2,677.95	5/15/2018	Settled	(16.0)	No	No	NA	NA	55.00	12/2018	2,677.95	NA	5	2018.2	
Georgia	Atlanta Gas Light Co.	SO	D-40828	Natural Gas	Distribution	12/1/2016	0.0	NA	NA	NA	NA	2/21/2017	Settled	20.4	No	No	NA	10.55	51.00	NA	1,973.03	NA	2	2017.1	10.55%
Iowa	Interstate Power & Light Co.	LNT	D-RPU-2018-0002	Natural Gas	Distribution	5/2/2018	19.8	7.49	9.80	53.00	509.02	12/13/2018	Settled	13.9	No	Yes	7.29	9.60	51.00	12/2017	491.45	Average	7	2018.4	9.60%
Idaho	Avista Corp.	AVA	C-AVU-G-17-01	Natural Gas	Distribution	6/9/2017	5.6	7.81	9.90	50.00	146.45	12/28/2017	Settled	2.3	Yes	NA	7.61	9.50	50.00	12/2016	145.94	Year-end	6	2017.4	9.50%
Idaho	Intermountain Gas Co.	MDU	C-INT-G-16-2	Natural Gas	Distribution	8/12/2016	10.2	7.42	9.90	50.00	236.93	4/28/2017	Fully Litigated	5.3	No	No	7.30	9.50	50.00	12/2016	235.53	Average	8	2017.2	9.50%
Illinois	Ameren Illinois	AEE	D-18-0463	Natural Gas	Distribution	1/31/2018	38.2	7.14	9.87	50.00	1,595.54	11/1/2018	Settled	31.7	No	No	7.14	9.87	50.00	12/2019	1,588.06	Average	9	2018.4	9.87%
Illinois	Northern Illinois Gas Co.	SO	D-17-0124	Natural Gas	Distribution	3/10/2017	184.5	7.87	10.70	54.50	2,516.69	1/31/2018	Fully Litigated	93.5	No	No	7.26	9.80	52.00	12/2018	2,422.25	Average	10	2018.1	9.80%
Indiana	Northern IN Public Svc Co.	NI	Ca-44988	Natural Gas	Distribution	9/27/2017	138.1	6.90	10.70	46.88	1,520.21	9/19/2018	Settled	107.3	Yes	No	6.50	9.85	46.88	12/2018	1,520.21	Year-end	11	2018.3	9.85%
Kansas	Atmos Energy Corp.	ATO	D-16-ATMG-079-RTS	Natural Gas	Distribution	8/13/2015	5.7	8.48	10.50	56.12	205.98	3/17/2016	Settled	2.2	No	No	NA	NA	NA	03/2015	NA	NA	7	2016.1	
Kansas	Black Hills Kansas Gas Utility	BKH	D-16-BHCG-277-TAR (GSRs)	Natural Gas	Distribution	12/10/2015	0.8	NA	NA	NA	7.82	2/25/2016	Fully Litigated	0.8	No	No	NA	NA	NA	10/2015	7.04	Year-end	2	2016.1	
Kansas	Kansas Gas Service Co.	OGS	D-18-KGSG-560-RTS	Natural Gas	Distribution	6/29/2018	49.7	7.88	10.00	61.07	1,041.99	2/5/2019	Settled	21.5	No	No	NA	NA	NA	12/2017	NA	NA	7	2019.1	
Kansas	Kansas Gas Service Co.	OGS	D-1																						

Rate Case History (Past Rate Cases)

Company List All
States All
Years 2019, 2018, 2017, 2016
Service Type Natural Gas

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date	Rate Increase (\$M)	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Base (\$M)	Date	Decision Type	Rate Increase (\$M)	Phase-In?	Interim Authorized?	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Case Test Year End Date	Rate Base Valuation (\$M)	Rate Base Method	Rate Case Duration (months)	Date	Authorized ROE
Oklahoma	CenterPoint Energy Resources	CNP	Ca-PUD201700078	Natural Gas	Distribution	3/15/2017	2.2	NA	NA	NA	54.07	10/19/2017	Fully Litigated	2.2	No	No	NA	NA	NA	12/2016	54.06	Year-end	7	2017.4	
Oklahoma	CenterPoint Energy Resources	CNP	Ca-PUD201600094	Natural Gas	Distribution	3/15/2016	0.5	8.64	10.30	54.96	51.99	7/19/2016	Settled	0.0	No	No	NA	NA	NA	12/2015	NA	NA	4	2016.3	
Oklahoma	Oklahoma Natural Gas Co	OGS	Ca-PUD201800028	Natural Gas	Distribution	3/15/2018	(5.6)	NA	NA	NA	1,407.29	1/8/2019	Settled	(5.9)	No	No	NA	NA	NA	12/2017	NA	NA	9	2019.1	
Oklahoma	Oklahoma Natural Gas Co	OGS	Ca-PUD201700079	Natural Gas	Distribution	3/15/2017	0.0	NA	NA	NA	1,257.05	8/9/2017	Settled	0.0	No	No	NA	NA	NA	12/2016	NA	NA	4	2017.3	
Oklahoma	Oklahoma Natural Gas Co	OGS	Ca-PUD201500213	Natural Gas	Distribution	7/8/2015	50.4	7.91	10.50	60.50	1,179.53	1/6/2016	Settled	30.0	No	No	7.31	9.50	60.50	03/2015	1,201.62	Year-end	6	2016.1	9.50%
Oregon	Avista Corp.	AVA	D-UG 325	Natural Gas	Distribution	11/30/2016	6.7	7.80	9.90	50.00	240.75	9/13/2017	Settled	3.5	No	No	7.35	9.40	50.00	09/2018	229.93	Average	9	2017.3	9.40%
Oregon	Avista Corp.	AVA	D-UG 288	Natural Gas	Distribution	5/1/2015	6.1	7.72	9.90	50.00	NA	2/29/2016	Fully Litigated	4.5	No	No	7.46	9.40	50.00	12/2016	NA	Average	10	2016.1	9.40%
Oregon	Northwest Natural Gas Co.	NWN	D-UG-344	Natural Gas	Distribution	12/29/2017	37.8	7.62	10.00	50.00	1,214.90	10/26/2018	Settled	24.9	No	No	7.32	9.40	50.00	10/2019	1,201.79	Average	10	2018.4	9.40%
Pennsylvania	Columbia Gas of Pennsylvania	NI	D-R-2018-2647577	Natural Gas	Distribution	3/16/2018	46.9	8.10	10.95	52.34	1,916.00	12/6/2018	Settled	26.0	No	No	NA	NA	NA	12/2019	NA	NA	8	2018.4	
Pennsylvania	Columbia Gas of Pennsylvania	NI	D-R-2016-2529660	Natural Gas	Distribution	3/18/2016	55.3	8.15	11.00	52.31	1,494.09	10/27/2016	Settled	35.0	No	No	NA	NA	NA	12/2017	NA	NA	7	2016.4	
Pennsylvania	UGI Penn Natural Gas	UGI	D-R-2016-2580030	Natural Gas	Distribution	1/19/2017	21.7	8.40	11.20	55.82	555.97	8/31/2017	Settled	11.3	No	No	NA	NA	NA	09/2018	NA	NA	7	2017.3	
Pennsylvania	UGI Utilities Inc.	UGI	D-R-2015-2518438	Natural Gas	Distribution	1/19/2016	58.6	8.17	11.00	54.55	923.71	9/1/2016	Settled	27.0	No	No	NA	NA	NA	09/2017	NA	NA	7	2016.3	
Rhode Island	Narragansett Electric Co.	NG.	D-4770 (gas)	Natural Gas	Distribution	11/27/2017	15.5	7.67	10.10	50.97	765.22	8/24/2018	Settled	17.4	Yes	No	7.15	9.28	50.95	06/2017	788.69	Average	9	2018.3	9.28%
South Carolina	Piedmont Natural Gas Co.	DUK	D-2018-7-G	Natural Gas	Distribution	6/15/2018	(4.0)	8.87	NA	53.00	341.63	9/26/2018	Settled	(13.9)	No	No	7.60	10.20	53.00	03/2018	341.42	Year-end	3	2018.3	10.20%
South Carolina	Piedmont Natural Gas Co.	DUK	D-2017-7-G	Natural Gas	Distribution	6/15/2017	17.2	8.87	12.60	53.00	304.80	9/27/2017	Settled	5.5	No	No	7.60	10.20	53.00	03/2017	304.08	Year-end	3	2017.3	10.20%
South Carolina	Piedmont Natural Gas Co.	DUK	D-2016-7-G	Natural Gas	Distribution	6/15/2016	15.6	8.96	12.60	53.00	246.09	10/13/2016	Settled	8.3	No	No	7.68	10.20	53.00	03/2016	246.09	Year-end	4	2016.4	10.20%
South Carolina	South Carolina Electric & Gas	D	D-2018-6-G	Natural Gas	Distribution	6/15/2018	(18.7)	8.19	NA	53.13	604.58	9/26/2018	Fully Litigated	(19.7)	No	No	8.05	NA	49.83	03/2018	604.60	Year-end	3	2018.3	
South Carolina	South Carolina Electric & Gas	D	D-2017-6-G	Natural Gas	Distribution	6/15/2017	9.0	8.15	NA	52.16	588.96	9/27/2017	Fully Litigated	8.6	No	No	8.15	NA	52.16	03/2017	588.95	Year-end	3	2017.3	
South Carolina	South Carolina Electric & Gas	D	D-2016-6-G	Natural Gas	Distribution	6/15/2016	4.4	8.07	NA	51.18	545.71	10/13/2016	Fully Litigated	4.1	No	No	8.11	NA	51.35	03/2016	545.70	Year-end	4	2016.4	
Tennessee	Atmos Energy Corp.	ATO	D-18-00067	Natural Gas	Distribution	6/15/2018	(5.0)	7.26	NA	51.40	351.85	12/4/2018	Fully Litigated	(5.0)	No	No	7.26	NA	51.40	05/2019	351.85	Average	5	2018.4	
Tennessee	Chattanooga Gas Co.	SO	D-18-00017	Natural Gas	Distribution	2/15/2018	6.2	7.83	11.25	49.23	157.80	10/15/2018	Settled	1.4	NA	NA	7.12	9.80	49.23	06/2019	149.74	Average	8	2018.4	9.80%
Texas	CenterPoint Energy Resources	CNP	D-GUD-10567	Natural Gas	Distribution	11/16/2016	31.4	NA	10.25	55.15	NA	5/23/2017	Settled	16.5	No	No	8.02	9.60	55.15	06/2016	NA	Year-end	6	2017.2	9.60%
Texas	Texas Gas Service Co.	OGS	D-GUD-10526	Natural Gas	Distribution	6/20/2016	11.6	7.61	10.00	60.50	276.32	11/15/2016	Settled	6.8	No	Yes	NA	NA	NA	12/2015	NA	NA	4	2016.4	
Texas	Texas Gas Service Co.	OGS	D-GUD-10506	Natural Gas	Distribution	3/31/2016	12.8	7.59	10.00	60.10	266.06	9/27/2016	Fully Litigated	8.8	No	No	7.28	9.50	60.10	09/2015	266.01	Year-end	6	2016.3	9.50%
Utah	Questar Gas Co.	D	D-16-057-03	Natural Gas	Distribution	7/1/2016	22.2	7.49	9.85	52.72	1,340.25	8/22/2016	Settled	NA	No	No	NA	NA	NA	NA	NA	NA	1	2016.3	
Virginia	Columbia Gas of Virginia Inc	NI	C-PUE-2016-00033	Natural Gas	Distribution	4/29/2016	37.0	8.14	11.25	38.28	525.04	3/17/2017	Settled	28.5	No	Yes	NA	NA	NA	12/2015	NA	NA	10	2017.1	
Virginia	Virginia Natural Gas Inc.	SO	C-PUE-2016-00143	Natural Gas	Distribution	3/31/2017	44.2	7.23	10.25	48.77	750.93	12/21/2017	Settled	34.1	No	Yes	NA	NA	NA	09/2016	NA	NA	8	2017.4	
Virginia	Washington Gas Light Co.	ALA	C-PUE-2016-00001	Natural Gas	Distribution	6/30/2016	45.6	8.21	10.25	57.55	925.38	9/8/2017	Settled	34.0	No	Yes	NA	NA	NA	11/2017	NA	NA	14	2017.3	
Washington	Avista Corp.	AVA	D-UG-170486	Natural Gas	Distribution	5/26/2017	7.6	7.76	9.90	50.00	319.54	4/26/2018	Fully Litigated	(2.1)	No	No	7.50	9.50	48.50	12/2016	310.10	Average	11	2018.2	9.50%
Washington	Avista Corp.	AVA	D-UG-160229	Natural Gas	Distribution	2/19/2016	5.3	7.64	9.90	48.50	302.86	12/15/2016	Fully Litigated	0.0	No	No	NA	NA	NA	NA	NA	NA	10	2016.4	
Washington	Avista Corp.	AVA	D-UG-150205	Natural Gas	Distribution	2/9/2015	12.0	7.46	9.90	48.00	286.09	1/6/2016	Settled	10.8	No	No	7.29	9.50	48.50	09/2014	263.66	NA	11	2016.1	9.50%
Washington	Cascade Natural Gas Corp.	MDU	D-UG-170929	Natural Gas	Distribution	8/31/2017	(1.7)	7.60	9.90	50.00	311.36	7/20/2018	Settled	(2.9)	No	No	7.31	9.40	49.00	12/2016	280.73	Average	10	2018.3	9.40%
Washington	Cascade Natural Gas Corp.	MDU	D-UG-152286	Natural Gas	Distribution	12/1/2015	10.5	7.65	10.00	50.00	289.68	7/7/2016	Settled	4.0	No	No	7.35	NA	NA	NA	NA	NA	7	2016.3	
Washington	Puget Sound Energy Inc.		D-UG-180900	Natural Gas	Distribution	11/7/2018	21.7	NA	NA	NA	1,863.54	2/21/2019	Settled	21.5	No	No	NA	NA	NA	06/2018	NA	Year-end	3	2019.1	
Washington	Puget Sound Energy Inc.		D-UG-170034	Natural Gas	Distribution	1/13/2017	22.8	7.74	9.80	48.50	1,760.69	12/5/2017	Settled	16.6	No	No	7.60	9.50	48.50	09/2017	1,765.44	Average	10	2017.4	9.50%
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-122 (Gas)	Natural Gas	Distribution	7/17/2018	4.1	7.10	9.80	56.06	250.74	9/20/2018	Settled	4.1	Yes	No	7.10	9.80	56.06	12/2020	250.74	Average	2	2018.3	9.80%
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-121 (Gas)	Natural Gas	Distribution	4/8/2016	5.6	8.30	10.20	58.06	172.59	11/9/2016	Fully Litigated	3.1	No	No	7.88	9.80	57.16	12/2017	175.78	Average	7	2016.4	9.80%
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-123 (Gas)	Natural Gas	Distribution	5/4/2017	12.0	7.84	10.00	52.53	138.45	12/7/2017	Fully Litigated	9.9	No	No	7.56	9.80	51.45	12/2018	137.66	Average	7	2017.4	9.80%
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-122 (Gas)	Natural Gas	Distribution	4/1/2016	4.8	NA	NA	NA	NA	10/26/2016	Fully Litigated	4.8	No	No	NA	NA	NA	12/2017	NA	NA	6	2016.4	
Wisconsin	Wisconsin Electric Power Co.	WEC	D-5-UR-108 (WEP-Gas)	Natural Gas	Distribution	4/4/2017	0.0	NA	NA	NA	NA	8/10/2017	Settled	0.0	Yes	No	NA	NA	NA	12/2019	NA	NA	4	2017.3	
Wisconsin	Wisconsin Gas LLC	WEC	D-5-UR-108 (WG)	Natural Gas	Distribution	4/4/2017	0.0	NA	NA	NA	NA	8/10/2017	Settled	0.0	Yes	No	NA	NA	NA	12/2019	NA	NA	4	2017.3	
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-121 (Gas)	Natural Gas	Distribution	5/24/2018	0.0	6.97	10.00	NA	386.92	9/14/2018	Settled	0.0	No	No	6.97	10.00	52.00	12/2020	386.92	Average	3	2018.3	10.00%
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-120 (Gas)	Natural Gas	Distribution	5/20/2016	9.4	7.84	10.00	52.20	284.26	11/18/2016	Settled	9.4	Yes	No	7.84	10.00	52.20	12/2018	284.26	Average	6	2016.4	10.00%
Wisconsin	Wisconsin Public Service Corp.	WEC	D-6690-UR-125 (Gas)	Natural Gas	Distribution	4/4/2017	0.0	NA	NA	NA	NA	8/10/2017	Settled	0.0	Yes	No	NA	NA	NA	12/2019	NA	NA	4	2017.3	
Wyoming	Black Hills Northwest Wyoming	BKH	D-30011-97-GR-17	Natural Gas	Distribution	11/17/2017	1.2	8.00	10.20	54.00	13.03	7/16/2018	Settled	1.0	No	No	7.75	9.60	54.00	06/2017	12.91	Year-end	8	2018.3	9.60%

CERTIFICATE OF SERVICE

I, Paget Pengelly, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

DOCKET No. E002/M-17-797

Dated this 11th day of April 2019

/s/

Paget Pengelly

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