
Ann E. Bulkley
Senior Vice President

Ms. Bulkley has more than two decades of management and economic consulting experience in the energy industry. Ms. Bulkley has extensive state and federal regulatory experience on both electric and natural gas issues including rate of return, cost of equity and capital structure issues. Ms. Bulkley has provided expert testimony on the cost of capital in more than 30 regulatory proceedings before regulatory commissions in Arizona, Arkansas, Colorado, Connecticut, Kansas, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, Texas, South Dakota, West Virginia, and the Federal Energy Regulatory Commission. In addition, Ms. Bulkley has prepared and provided supporting analysis for at least forty Federal and State regulatory proceedings. In addition, Ms. Bulkley has worked on acquisition teams with investors seeking to acquire utility assets, providing valuation services including an understanding of regulation, market expected returns, and the assessment of utility risk factors. Ms. Bulkley has assisted clients with valuations of public utility and industrial properties for ratemaking, purchase and sale considerations, ad valorem tax assessments, and accounting and financial purposes. In addition, Ms. Bulkley has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring and regulatory and litigation support. Prior to joining Concentric, Ms. Bulkley held senior expertise-based consulting positions at several firms, including Reed Consulting Group and Navigant Consulting, Inc. where she specialized in valuation. Ms. Bulkley holds an M.A. in economics from Boston University and a B.A. in economics and finance from Simmons College. Ms. Bulkley is a Certified General Appraiser licensed in the Commonwealth of Massachusetts and the State of New Hampshire.

REPRESENTATIVE PROJECT EXPERIENCE

Regulatory Analysis and Ratemaking

Ms. Bulkley has provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking. Specific services have included: cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies; development of merchant function exit strategies; analysis and program development to address residual energy supply and/or provider of last resort obligations; stranded costs assessment and recovery; performance-based ratemaking analysis and design; and many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation).

Cost of Capital



Ms. Bulkley has provided expert testimony on the cost of capital in more than 30 regulatory proceedings before regulatory commissions in Arizona, Arkansas, Colorado, Connecticut, Kansas, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, Texas, South Dakota, West Virginia, and the Federal Energy Regulatory Commission. In addition, Ms. Bulkley has prepared and provided supporting analysis for at least forty Federal and State regulatory proceedings in which she did not testify.

Valuation

Ms. Bulkley has provided valuation services to utility clients, unregulated generators and private equity clients for a variety of purposes including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Ms. Bulkley's appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal Practice. In addition, Ms. Bulkley has relied on other simulation based valuation methodologies.

Representative projects/clients have included:

- Northern Indiana Fuel and Light: Provided expert testimony regarding the fair value of the company's natural gas distribution system assets. Valuation relied on cost approach.
- Kokomo Gas: Provided expert testimony regarding the fair value of the company's natural gas distribution system assets. Valuation relied on cost approach.
- Prepared fair value rate base analyses for Northern Indiana Public Service Company for several electric rate proceedings. Valuation approaches used in this project included income, cost and comparable sales approaches.
- Confidential Utility Client: Prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.
- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approached. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.



- Provided analytical support for and prepared appraisal reports of generation assets to be used in ad valorem tax disputes.
- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

Ratemaking

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

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

Strategic and Financial Advisory Services

Ms. Bulkley has assisted several clients across North America with analytically based strategic planning, due diligence and financial advisory services.

Representative projects include:

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

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2002 – Present)



Senior Vice President
Vice President
Assistant Vice President
Project Manager

Navigant Consulting, Inc. (1995 - 2002)
Project Manager

Cahners Publishing Company (1995)
Economist

EDUCATION

M.A., Economics, Boston University, 1995

B.A., Economics and Finance, Simmons College, 1991

Certified General Appraiser licensed in the Commonwealth of Massachusetts and the States of Michigan and New Hampshire



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
Colorado Public Utilities Commission				
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-__-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Indiana Utility Regulatory Commission				
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Kansas Corporation Commission				



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-00194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Rate Case
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-2085 Case No. SR-17-2086	Return on Equity
Montana Public Service Commission				
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D0218.9.60	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-001398-UT	Return on Equity
New York State Department of Public Service				
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Gas 17-G-0460 Electric 17-E-0459	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. C-17-E-0238	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company	05/15	New York State Electric and Gas Company	Case No. 15-G-0284	Return on Equity
North Dakota Public Service Commission				
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Oklahoma Corporation Commission				
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity



Texas Public Utility Commission				
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket NO. UG-19__	Return on Equity
West Virginia Public Service Commission				
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corporation	03/19	Wisconsin Public Service Corporation	6690-UR-126	Return on Equity

SUMMARY OF ROE ANALYSES RESULTS¹

Constant Growth DCF - Earnings Growth			
	Mean Low	Mean	Mean High
30-Day Average	9.37%	9.65%	10.82%
90-Day Average	9.42%	9.70%	10.86%
180-Day Average	9.09%	9.76%	10.93%
Constant Growth Average	9.29%	9.70%	10.87%
Constant Growth DCF - Earnings & Retention Growth			
	Mean Low	Mean	Mean High
30-Day Average	8.75%	9.49%	11.82%
90-Day Average	8.83%	9.53%	11.86%
180-Day Average	8.47%	9.60%	11.33%
Constant Growth Average	8.68%	9.54%	11.67%
Projected DCF			
	Mean Low	Mean	Mean High
2021-2023 Projection	9.22%	10.25%	10.89%
CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Bloomberg Beta	10.18%	10.26%	10.47%
Value Line Beta	9.41%	9.51%	9.76%
Treasury Yield Plus Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Analysis	9.82%	9.93%	10.21%
Risk Premium Mean Result	9.99%		

Notes:

[1] The analytical results included in the table reflect the results of the Constant Growth and Projected DCF analysis excluding the results for individual companies that did not meet the minimum threshold of 7 percent.

PROXY GROUP SCREENING DATA AND RESULTS - FINAL PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
					Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	Company-Owned Generation <60% of MWh Sales to Ultimate Customers	% Regulated Operating Income > 70%	% Regulated Electric Operating Income ≥ 80%	Announced Merger
Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst					
ALLETE, Inc.	ALE	Yes	BBB+	Yes	Yes	59.89%	83.27%	97.38%	No
Alliant Energy Corporation	LNT	Yes	A-	Yes	Yes	58.02%	100.55%	94.54%	No
Avangrid, Inc.	AGR	Yes	BBB+	Yes	Yes	53.45%	83.91%	85.10%	No
FirstEnergy Corporation	FE	Yes	BBB	Yes	Yes	31.50%	103.36%	100.00%	No
Hawaiian Electric Industries, Inc.	HE	Yes	BBB-	Yes	Yes	53.75%	80.94%	100.00%	No
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	57.42%	97.42%	85.31%	No
Portland General Electric Company	POR	Yes	BBB+	Yes	Yes	56.69%	100.00%	100.00%	No
PPL Corporation	PPL	Yes	A-	Yes	Yes	43.89%	112.52%	95.53%	No

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional

[3] Source: Yahoo! Finance and Zacks

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

[5] Source: SNL Financial (pulled from FERC Form 1) 2015-2017

[6] to [7] Source: Form 10-Ks for 2017, 2016 & 2015

[8] SNL Financial News Releases

30-DAY CONSTANT GROWTH DCF -- PSNH PROXY GROUP

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	All Proxy Group			With Exclusions		
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$77.59	3.03%	3.10%	3.50%	6.00%	n/a	4.75%	6.58%	7.85%	9.12%		7.85%	9.12%
Alliant Energy Corporation	LNT	\$1.42	\$44.35	3.20%	3.31%	6.50%	7.25%	6.00%	6.58%	9.30%	9.89%	10.57%	9.30%	9.89%	10.57%
Avangrid, Inc.	AGR	\$1.76	\$49.52	3.55%	3.73%	12.00%	9.20%	8.40%	9.87%	12.10%	13.60%	15.77%	12.10%	13.60%	15.77%
FirstEnergy Corporation	FE	\$1.52	\$39.36	3.86%	3.98%	6.50%	Negative	6.00%	6.25%	9.98%	10.23%	10.49%	9.98%	10.23%	10.49%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$37.34	3.43%	3.53%	3.50%	7.80%	6.20%	5.83%	6.99%	9.36%	11.36%		9.36%	11.36%
NorthWestern Corporation	NWE	\$2.20	\$64.39	3.42%	3.46%	2.50%	2.59%	3.10%	2.73%	5.96%	6.19%	6.57%			
Portland General Electric Company	POR	\$1.45	\$48.17	3.01%	3.07%	4.00%	4.90%	4.00%	4.30%	7.07%	7.37%	7.98%	7.07%	7.37%	7.98%
PPL Corporation	PPL	\$1.64	\$30.94	5.30%	5.40%	3.00%	3.59%	5.00%	3.86%	8.38%	9.27%	10.43%	8.38%	9.27%	10.43%
Mean				3.60%	3.70%	5.19%	5.90%	5.53%	5.52%	8.29%	9.22%	10.29%	9.37%	9.65%	10.82%

Notes:

- [1] Source: Bloomberg Professional.
[2] Source: Bloomberg Professional, equals 30-day average as of February 28, 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])
[12] Equals [9] if greater than 7.00%
[13] Equals [10] if greater than 7.00%
[14] Equals [11] if greater than 7.00%

90-DAY CONSTANT GROWTH DCF -- PSNH PROXY GROUP

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	All Proxy Group			With Exclusions		
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$77.35	3.04%	3.11%	3.50%	6.00%	n/a	4.75%	6.59%	7.86%	9.13%		7.86%	9.13%
Alliant Energy Corporation	LNT	\$1.42	\$43.96	3.23%	3.34%	6.50%	7.25%	6.00%	6.58%	9.33%	9.92%	10.60%	9.33%	9.92%	10.60%
Avangrid, Inc.	AGR	\$1.76	\$49.52	3.55%	3.73%	12.00%	9.20%	8.40%	9.87%	12.10%	13.60%	15.77%	12.10%	13.60%	15.77%
FirstEnergy Corporation	FE	\$1.52	\$38.41	3.96%	4.08%	6.50%	Negative	6.00%	6.25%	10.08%	10.33%	10.59%	10.08%	10.33%	10.59%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$37.22	3.44%	3.54%	3.50%	7.80%	6.20%	5.83%	7.00%	9.37%	11.37%		9.37%	11.37%
NorthWestern Corporation	NWE	\$2.20	\$62.43	3.52%	3.57%	2.50%	2.59%	3.10%	2.73%	6.07%	6.30%	6.68%			
Portland General Electric Company	POR	\$1.45	\$47.21	3.07%	3.14%	4.00%	4.90%	4.00%	4.30%	7.13%	7.44%	8.05%	7.13%	7.44%	8.05%
PPL Corporation	PPL	\$1.64	\$30.43	5.39%	5.49%	3.00%	3.59%	5.00%	3.86%	8.47%	9.36%	10.52%	8.47%	9.36%	10.52%
Mean				3.65%	3.75%	5.19%	5.90%	5.53%	5.52%	8.35%	9.27%	10.34%	9.42%	9.70%	10.86%

Notes:

- [1] Source: Bloomberg Professional.
[2] Source: Bloomberg Professional, equals 90-day average as of February 28, 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])
[12] Equals [9] if greater than 7.00%
[13] Equals [10] if greater than 7.00%
[14] Equals [11] if greater than 7.00%

180-DAY CONSTANT GROWTH DCF -- PSNH PROXY GROUP

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	All Proxy Group			With Exclusions		
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$76.86	3.06%	3.13%	3.50%	6.00%	n/a	4.75%	6.61%	7.88%	9.15%		7.88%	9.15%
Alliant Energy Corporation	LNT	\$1.42	\$43.32	3.28%	3.39%	6.50%	7.25%	6.00%	6.58%	9.38%	9.97%	10.65%	9.38%	9.97%	10.65%
Avangrid, Inc.	AGR	\$1.76	\$49.80	3.53%	3.71%	12.00%	9.20%	8.40%	9.87%	12.08%	13.58%	15.75%	12.08%	13.58%	15.75%
FirstEnergy Corporation	FE	\$1.52	\$37.44	4.06%	4.19%	6.50%	Negative	6.00%	6.25%	10.18%	10.44%	10.69%	10.18%	10.44%	10.69%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$36.11	3.54%	3.65%	3.50%	7.80%	6.20%	5.83%	7.11%	9.48%	11.48%	7.11%	9.48%	11.48%
NorthWestern Corporation	NWE	\$2.20	\$60.62	3.63%	3.68%	2.50%	2.59%	3.10%	2.73%	6.17%	6.41%	6.79%			
Portland General Electric Company	POR	\$1.45	\$46.11	3.14%	3.21%	4.00%	4.90%	4.00%	4.30%	7.21%	7.51%	8.12%	7.21%	7.51%	8.12%
PPL Corporation	PPL	\$1.64	\$29.78	5.51%	5.61%	3.00%	3.59%	5.00%	3.86%	8.59%	9.48%	10.64%	8.59%	9.48%	10.64%
Mean				3.72%	3.82%	5.19%	5.90%	5.53%	5.52%	8.42%	9.34%	10.41%	9.09%	9.76%	10.93%

Notes:

- [1] Source: Bloomberg Professional.
[2] Source: Bloomberg Professional, equals 180-day average as of February 28, 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])
[12] Equals [9] if greater than 7.00%
[13] Equals [10] if greater than 7.00%
[14] Equals [11] if greater than 7.00%

RETENTION GROWTH

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]
Company	Ticker	All Dividends to Net Profit Projection Year 1	All Dividends to Net Profit Projection Year 2	All Dividends to Net Profit Projection Years 3-5	Average Retention Ratio	Return on Common Equity Projection Year 1	Return on Common Equity Projection Year 2	Return on Common Equity Projection Years 3-5	Average Return on Common Equity	B x R	Common Shares Outstanding Year 0	Common Shares Outstanding Years 3-5	Common Shares Outstanding Growth Rate	Price Projection Years 3-5 High	Price Projection Years 3-5 Low	Price Projection Years 3-5 Mid	Projected Book Value per Share Years 3-5	Market-to-Book Ratio	S	V	S x V	BR + SV
ALLETE, Inc.	ALE	67.00%	66.00%	66.00%	33.67%	8.00%	8.00%	9.00%	8.33%	2.81%	51.10	53.50	0.92%	\$ 80.00	\$ 55.00	\$ 67.50	46.75	1.44	1.33%	30.74%	0.41%	3.21%
Alliant Energy Corporation	LNT	62.00%	63.00%	64.00%	37.00%	10.50%	10.50%	10.50%	10.50%	3.89%	231.35	245.00	1.15%	\$ 45.00	\$ 35.00	\$ 40.00	24.30	1.65	1.90%	39.25%	0.75%	4.63%
Avangrid, Inc.	AGR	70.00%	67.00%	67.00%	32.00%	5.00%	5.50%	6.50%	5.67%	1.81%	309.01	309.00	0.00%	\$ 65.00	\$ 45.00	\$ 55.00	54.25	1.01	0.00%	1.36%	0.00%	1.81%
FirstEnergy Corporation	FE	63.00%	59.00%	55.00%	41.00%	18.00%	18.00%	17.50%	17.83%	7.31%	445.33	550.00	3.58%	\$ 55.00	\$ 40.00	\$ 47.50	19.50	2.44	8.72%	58.95%	5.14%	12.45%
Hawaiian Electric Industries, Inc.	HE	66.00%	61.00%	62.00%	37.00%	9.50%	9.50%	9.50%	9.50%	3.52%	108.79	113.00	0.76%	\$ 35.00	\$ 30.00	\$ 32.50	23.75	1.37	1.04%	26.92%	0.28%	3.80%
NorthWestern Corporation	NWE	65.00%	65.00%	68.00%	34.00%	9.00%	9.00%	9.00%	9.00%	3.06%	49.37	51.00	0.65%	\$ 75.00	\$ 55.00	\$ 65.00	42.50	1.53	1.00%	34.62%	0.35%	3.41%
Portland General Electric Company	POR	60.00%	60.00%	64.00%	38.67%	8.50%	8.50%	9.00%	8.67%	3.35%	89.11	90.00	0.20%	\$ 50.00	\$ 40.00	\$ 45.00	32.00	1.41	0.28%	28.89%	0.08%	3.43%
PPL Corporation	PPL	70.00%	70.00%	64.00%	32.00%	13.00%	13.00%	13.50%	13.17%	4.21%	693.40	782.50	2.04%	\$ 45.00	\$ 35.00	\$ 40.00	21.75	1.84	3.74%	45.63%	1.71%	5.92%
Mean																						4.83%

Notes:
[1] Source: Value Line
[2] Source: Value Line
[3] Source: Value Line
[4] Equals 1 - Average ([1], [2], [3])
[5] Source: Value Line
[6] Source: Value Line
[7] Source: Value Line
[8] Equals Average ([5], [6], [7])
[9] Equals [4] x [8]
[10] Source: Value Line
[11] Source: Value Line
[12] Equals ([11] / [12]) ^ 0.2 - 1
[13] Source: Value Line
[14] Source: Value Line
[15] Equals Average ([13], [14])
[16] Source: Value Line
[17] Equals [15] / [16]
[18] Equals [12] x [17]
[19] Equals 1 - (1 / [17])
[20] Equals [18] x [19]
[21] Equals [9] + [20]

30-DAY CONSTANT GROWTH DCF -- PSNH PROXY GROUP

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	All Proxy Group			With Exclusions		
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Retention Growth Rate	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$77.59	3.03%	3.09%	3.50%	6.00%	n/a	3.21%	4.24%	6.29%	7.33%	9.12%		7.33%	9.12%
Alliant Energy Corporation	LNT	\$1.42	\$44.35	3.20%	3.30%	6.50%	7.25%	6.00%	4.63%	6.10%	7.91%	9.39%	10.57%	7.91%	9.39%	10.57%
Avangrid, Inc.	AGR	\$1.76	\$49.52	3.55%	3.69%	12.00%	9.20%	8.40%	1.81%	7.85%	5.40%	11.55%	15.77%		11.55%	15.77%
FirstEnergy Corporation	FE	\$1.52	\$39.36	3.86%	4.02%	6.50%	Negative	6.00%	12.45%	8.32%	9.98%	12.34%	16.56%	9.98%	12.34%	16.56%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$37.34	3.43%	3.52%	3.50%	7.80%	6.20%	3.80%	5.32%	6.99%	8.84%	11.36%		8.84%	11.36%
NorthWestern Corporation	NWE	\$2.20	\$64.39	3.42%	3.47%	2.50%	2.59%	3.10%	3.41%	2.90%	5.96%	6.37%	6.88%			
Portland General Electric Company	POR	\$1.45	\$48.17	3.01%	3.07%	4.00%	4.90%	4.00%	3.43%	4.08%	6.49%	7.15%	7.98%		7.15%	7.98%
PPL Corporation	PPL	\$1.64	\$30.94	5.30%	5.42%	3.00%	3.59%	5.00%	5.92%	4.38%	8.38%	9.79%	11.38%	8.38%	9.79%	11.38%
Mean				3.60%	3.70%	5.19%	5.90%	5.53%	4.83%	5.40%	7.17%	9.10%	11.20%	8.75%	9.49%	11.82%

Notes:

- [1] Source: Bloomberg Professional.
[2] Source: Bloomberg Professional, equals 30-day average as of February 28, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [9])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Source: Attachment AEB-5
[9] Equals Average ([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7], [8]) + Minimum ([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7], [8]) + Maximum ([5], [6], [7], [8])
[13] Equals [10] if greater than 7.00%
[14] Equals [11] if greater than 7.00%
[15] Equals [12] if greater than 7.00%

90-DAY CONSTANT GROWTH DCF -- PSNH PROXY GROUP																
											All Proxy Group			With Exclusions		
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
							Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Retention Growth Rate	Average Growth Rate						
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth					Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$77.35	3.04%	3.10%	3.50%	6.00%	n/a	3.21%	4.24%	6.30%	7.34%	9.13%		7.34%	9.13%
Alliant Energy Corporation	LNT	\$1.42	\$43.96	3.23%	3.33%	6.50%	7.25%	6.00%	4.63%	6.10%	7.94%	9.42%	10.60%	7.94%	9.42%	10.60%
Avangrid, Inc.	AGR	\$1.76	\$49.52	3.55%	3.69%	12.00%	9.20%	8.40%	1.81%	7.85%	5.40%	11.55%	15.77%		11.55%	15.77%
FirstEnergy Corporation	FE	\$1.52	\$38.41	3.96%	4.12%	6.50%	Negative	6.00%	12.45%	8.32%	10.08%	12.44%	16.66%	10.08%	12.44%	16.66%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$37.22	3.44%	3.53%	3.50%	7.80%	6.20%	3.80%	5.32%	7.00%	8.85%	11.37%		8.85%	11.37%
NorthWestern Corporation	NWE	\$2.20	\$62.43	3.52%	3.58%	2.50%	2.59%	3.10%	3.41%	2.90%	6.07%	6.47%	6.99%			
Portland General Electric Company	POR	\$1.45	\$47.21	3.07%	3.13%	4.00%	4.90%	4.00%	3.43%	4.08%	6.56%	7.22%	8.05%		7.22%	8.05%
PPL Corporation	PPL	\$1.64	\$30.43	5.39%	5.51%	3.00%	3.59%	5.00%	5.92%	4.38%	8.47%	9.88%	11.47%	8.47%	9.88%	11.47%
Mean				3.65%	3.75%	5.19%	5.90%	5.53%	4.83%	5.40%	7.23%	9.15%	11.25%	8.83%	9.53%	11.86%

Notes:

- [1] Source: Bloomberg Professional.
[2] Source: Bloomberg Professional, equals 90-day average as of February 28, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [9])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Source: Attachment AEB-5
[9] Equals Average ([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7], [8]) + Minimum ([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7], [8]) + Maximum ([5], [6], [7], [8])
[13] Equals [10] if greater than 7.00%
[14] Equals [11] if greater than 7.00%
[15] Equals [12] if greater than 7.00%

180-DAY CONSTANT GROWTH DCF -- PSNH PROXY GROUP

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	All Proxy Group			With Exclusions		
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Retention Growth Rate	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$76.86	3.06%	3.12%	3.50%	6.00%	n/a	3.21%	4.24%	6.32%	7.36%	9.15%		7.36%	9.15%
Alliant Energy Corporation	LNT	\$1.42	\$43.32	3.28%	3.38%	6.50%	7.25%	6.00%	4.63%	6.10%	7.98%	9.47%	10.65%	7.98%	9.47%	10.65%
Avangrid, Inc.	AGR	\$1.76	\$49.80	3.53%	3.67%	12.00%	9.20%	8.40%	1.81%	7.85%	5.38%	11.53%	15.75%		11.53%	15.75%
FirstEnergy Corporation	FE	\$1.52	\$37.44	4.06%	4.23%	6.50%	Negative	6.00%	12.45%	8.32%	10.18%	12.55%	16.77%	10.18%	12.55%	16.77%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$36.11	3.54%	3.64%	3.50%	7.80%	6.20%	3.80%	5.32%	7.11%	8.96%	11.48%	7.11%	8.96%	11.48%
NorthWestern Corporation	NWE	\$2.20	\$60.62	3.63%	3.68%	2.50%	2.59%	3.10%	3.41%	2.90%	6.17%	6.58%	7.10%			7.10%
Portland General Electric Company	POR	\$1.45	\$46.11	3.14%	3.21%	4.00%	4.90%	4.00%	3.43%	4.08%	6.63%	7.29%	8.12%		7.29%	8.12%
PPL Corporation	PPL	\$1.64	\$29.78	5.51%	5.63%	3.00%	3.59%	5.00%	5.92%	4.38%	8.59%	10.01%	11.59%	8.59%	10.01%	11.59%
Mean				3.72%	3.82%	5.19%	5.90%	5.53%	4.83%	5.40%	7.30%	9.22%	11.33%	8.47%	9.60%	11.33%

Notes:

- [1] Source: Bloomberg Professional.
[2] Source: Bloomberg Professional, equals 180-day average as of February 28, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [9])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Source: Attachment AEB-5
[9] Equals Average ([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7], [8]) + Minimum ([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7], [8]) + Maximum ([5], [6], [7], [8])
[13] Equals [10] if greater than 7.00%
[14] Equals [11] if greater than 7.00%
[15] Equals [12] if greater than 7.00%

PROJECTED CONSTANT GROWTH DCF -- PSNH PROXY GROUP

Company		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	All Proxy Group			With Exclusions		
		Annualized Dividend (Years 3-5)	Stock Price (Years 3-5)			Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.70	\$80.00	\$55.00	\$67.50	4.00%	4.10%	3.50%	6.00%	n/a	4.75%	7.57%	8.85%	10.12%	7.57%	8.85%	10.12%
Alliant Energy Corporation	LNT	\$1.66	\$45.00	\$35.00	\$40.00	4.15%	4.29%	6.50%	7.25%	6.00%	6.58%	10.27%	10.87%	11.55%	10.27%	10.87%	11.55%
Avangrid, Inc.	AGR	\$2.40	\$65.00	\$45.00	\$55.00	4.36%	4.58%	12.00%	9.20%	8.40%	9.87%	12.95%	14.45%	16.63%	12.95%	14.45%	16.63%
FirstEnergy Corporation	FE	\$1.90	\$55.00	\$40.00	\$47.50	4.00%	4.13%	6.50%	Negative	6.00%	6.25%	10.12%	10.38%	10.63%	10.12%	10.38%	10.63%
Hawaiian Electric Industries, Inc.	HE	\$1.40	\$35.00	\$30.00	\$32.50	4.31%	4.43%	3.50%	7.80%	6.20%	5.83%	7.88%	10.27%	12.28%	7.88%	10.27%	12.28%
NorthWestern Corporation	NWE	\$2.60	\$75.00	\$55.00	\$65.00	4.00%	4.05%	2.50%	2.59%	3.10%	2.73%	6.55%	6.78%	7.16%			7.16%
Portland General Electric Company	POR	\$1.80	\$50.00	\$40.00	\$45.00	4.00%	4.09%	4.00%	4.90%	4.00%	4.30%	8.08%	8.39%	9.00%	8.08%	8.39%	9.00%
PPL Corporation	PPL	\$1.85	\$45.00	\$35.00	\$40.00	4.63%	4.71%	3.00%	3.59%	5.00%	3.86%	7.69%	8.58%	9.74%	7.69%	8.58%	9.74%
Mean						4.18%	4.30%	5.19%	5.90%	5.53%	5.52%	8.89%	9.82%	10.89%	9.22%	10.25%	10.89%

Notes:

[1] Source: Value Line

[2] Source: Value Line

[3] Source: Value Line

[4] Equals Average ([2], [3])

[5] Equals [1] / [4]

[6] Equals [5] x (1 + 0.50 x [10])

[7] Source: Value Line

[8] Source: Yahoo! Finance

[9] Source: Zacks

[10] Equals Average ([7], [8], [9])

[11] Equals [5] x (1 + 0.50 x Minimum ([7], [8], [9]) + Minimum ([7], [8], [9])

[12] Equals [6] + [10]

[13] Equals [5] x (1 + 0.50 x Maximum ([7], [8], [9]) + Maximum ([7], [8], [9])

[14] Equals [11] if greater than 7.00%

[15] Equals [12] if greater than 7.00%

[16] Equals [13] if greater than 7.00%

BETA
AS OF FEBRUARY 28, 2018

Proxy Group		[1] Bloomberg	[2] Value Line
ALLETE, Inc.	ALE	0.70	0.65
Alliant Energy Corporation	LNT	0.72	0.60
Avangrid, Inc.	AGR	0.49	0.40
FirstEnergy Corporation	FE	0.71	0.65
Hawaiian Electric Industries, Inc.	HE	0.69	0.60
NorthWestern Corporation	NWE	0.71	0.55
Portland General Electric Company	POR	0.67	0.60
PPL Corporation	PPL	0.64	0.70
Mean		0.666	0.594

Notes:

[1] Source: Bloomberg Professional, February 28, 2019

[1] Source: Value Line; December 14, 2018; January 25, 2019; February 15, 2019

CAPITAL ASSET PRICING MODEL

	[4]	[5]	[6]	[7]	[8]
	Risk-Free Rate (<i>R_f</i>)	Beta (<i>β</i>)	Market Return (<i>R_m</i>)	Market Risk Premium (<i>R_m - R_f</i>)	ROE (<i>K</i>)
Proxy Group Average Bloomberg Beta					
Current 30-day average of 30-year U.S. Treasury bond yield [1]	3.04%	0.666	13.77%	10.73%	10.18%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2019 - Q2 2020) [2]	3.28%	0.666	13.77%	10.49%	10.26%
Projected 30-year U.S. Treasury bond yield (2020 - 2024) [3]	3.90%	0.666	13.77%	9.87%	10.47%
				MEAN	10.31%
Proxy Group Average Value Line Beta					
Current 30-day average of 30-year U.S. Treasury bond yield [1]	3.04%	0.594	13.77%	10.73%	9.41%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2019 - Q2 2020) [2]	3.28%	0.594	13.77%	10.49%	9.51%
Projected 30-year U.S. Treasury bond yield (2020 - 2024) [3]	3.90%	0.594	13.77%	9.87%	9.76%
				MEAN	9.56%

Notes:

- [1] Source: Bloomberg Professional, 30-day average as of February 28, 2019
[2] Source: Blue Chip Financial Forecasts, Vol. 38, No. 3, March 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: Attachment AEB-8
[6] Source: Attachment AEB-9, at 2
[7] Equals [6] - [4]
[8] Equals [4] + ([5] x [7])

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[9] Estimated Weighted Average Dividend Yield	2.03%
[10] Estimated Weighted Average Long-Term Growth Rate	11.62%
[11] S&P 500 Estimated Required Market Return	13.77%
[12] Risk-Free Rate	3.04% 3.28% 3.90%
[13] Implied Market Risk Premium	10.73% 10.49% 9.87%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	0.13%	4.68%	0.01%	6.80%	0.01%
American Express Co	AXP	0.38%	1.45%	0.01%	14.99%	0.06%
Verizon Communications Inc	VZ	0.97%	4.23%	0.04%	2.30%	0.02%
Broadcom Inc	AVGO	0.45%	3.85%	0.02%	13.15%	0.06%
Boeing Co/The	BA	1.03%	1.87%	0.02%	15.15%	0.16%
Caterpillar Inc	CAT	0.33%	2.50%	0.01%	13.35%	0.04%
JPMorgan Chase & Co	JPM	1.42%	3.07%	0.04%	7.00%	0.10%
Chevron Corp	CVX	0.94%	3.98%	0.04%	6.36%	0.06%
Coca-Cola Co/The	KO	0.80%	3.53%	0.03%	6.72%	0.05%
AbbVie Inc	ABBV	0.48%	5.40%	0.03%	8.81%	0.04%
Walt Disney Co/The	DIS	0.70%	1.56%	0.01%	3.76%	0.03%
FleetCor Technologies Inc	FLT	0.08%	n/a	n/a	16.50%	0.01%
Extra Space Storage Inc	EXR	0.05%	3.59%	0.00%	4.39%	0.00%
Exxon Mobil Corp	XOM	1.39%	4.15%	0.06%	15.74%	0.22%
Phillips 66	PSX	0.18%	3.32%	0.01%	5.70%	0.01%
General Electric Co	GE	0.37%	0.39%	0.00%	1.60%	0.01%
HP Inc	HPQ	0.13%	3.25%	0.00%	3.08%	0.00%
Home Depot Inc/The	HD	0.87%	2.94%	0.03%	10.72%	0.09%
International Business Machines Corp	IBM	0.51%	4.55%	0.02%	0.72%	0.00%
Concho Resources Inc	CXO	0.09%	0.45%	0.00%	31.00%	0.03%
Johnson & Johnson	JNJ	1.51%	2.63%	0.04%	6.83%	0.10%
McDonald's Corp	MCD	0.58%	2.52%	0.01%	8.74%	0.05%
Merck & Co Inc	MRK	0.87%	2.71%	0.02%	8.76%	0.08%
3M Co	MMM	0.49%	2.78%	0.01%	7.70%	0.04%
American Water Works Co Inc	AWK	0.08%	1.79%	0.00%	8.45%	0.01%
Bank of America Corp	BAC	1.16%	2.06%	0.02%	9.70%	0.11%
Brighthouse Financial Inc	BHF	0.02%	n/a	n/a	11.14%	0.00%
Baker Hughes a GE Co	BHGE	0.06%	2.73%	0.00%	40.82%	0.02%
Pfizer Inc	PFE	1.00%	3.32%	0.03%	5.45%	0.05%
Procter & Gamble Co/The	PG	1.02%	2.91%	0.03%	6.51%	0.07%
AT&T Inc	T	0.94%	6.56%	0.06%	4.92%	0.05%
Travelers Cos Inc/The	TRV	0.14%	2.32%	0.00%	17.69%	0.03%
United Technologies Corp	UTX	0.45%	2.34%	0.01%	9.80%	0.04%
Analog Devices Inc	ADI	0.16%	2.02%	0.00%	11.98%	0.02%
Walmart Inc	WMT	1.19%	2.14%	0.03%	5.20%	0.06%
Cisco Systems Inc	CSCO	0.94%	2.70%	0.03%	6.84%	0.06%
Intel Corp	INTC	0.99%	2.38%	0.02%	8.54%	0.08%
General Motors Co	GM	0.23%	3.85%	0.01%	6.03%	0.01%
Microsoft Corp	MSFT	3.56%	1.64%	0.06%	11.68%	0.42%
Dollar General Corp	DG	0.13%	0.98%	0.00%	15.75%	0.02%
Cigna Corp	CI	0.27%	0.02%	0.00%	12.65%	0.03%
Kinder Morgan Inc/DE	KMI	0.18%	4.18%	0.01%	10.00%	0.02%
Citigroup Inc	C	0.62%	2.81%	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	0.47%	2.13%	0.01%	7.88%	0.04%
Altria Group Inc	MO	0.41%	6.11%	0.02%	8.50%	0.03%
HCA Healthcare Inc	HCA	0.20%	1.15%	0.00%	11.56%	0.02%
Under Armour Inc	UA	0.02%	n/a	n/a	34.93%	0.01%
International Paper Co	IP	0.08%	4.36%	0.00%	6.08%	0.00%
Hewlett Packard Enterprise Co	HPE	0.09%	2.75%	0.00%	6.09%	0.01%
Abbott Laboratories	ABT	0.56%	1.65%	0.01%	11.69%	0.07%
Aflac Inc	AFL	0.15%	2.20%	0.00%	3.43%	0.01%
Air Products & Chemicals Inc	APD	0.16%	2.56%	0.00%	12.30%	0.02%
Royal Caribbean Cruises Ltd	RCL	0.10%	2.36%	0.00%	11.72%	0.01%
American Electric Power Co Inc	AEP	0.17%	3.30%	0.01%	6.08%	0.01%
Hess Corp	HES	0.07%	1.73%	0.00%	-9.49%	-0.01%
Anadarko Petroleum Corp	APC	0.09%	2.76%	0.00%	23.31%	0.02%
Aon PLC	AON	0.17%	0.93%	0.00%	10.90%	0.02%
Apache Corp	APA	0.05%	3.01%	0.00%	-5.19%	0.00%
Archer-Daniels-Midland Co	ADM	0.10%	3.29%	0.00%	1.40%	0.00%
Automatic Data Processing Inc	ADP	0.28%	2.07%	0.01%	14.00%	0.04%
Verisk Analytics Inc	VRSK	0.09%	0.79%	0.00%	9.57%	0.01%
AutoZone Inc	AZO	0.10%	n/a	n/a	13.22%	0.01%
Avery Dennison Corp	AVY	0.04%	1.93%	0.00%	5.75%	0.00%
MSCI Inc	MSCI	0.06%	1.26%	0.00%	13.10%	0.01%
Ball Corp	BLL	0.08%	0.73%	0.00%	6.50%	0.00%
Bank of New York Mellon Corp/The	BK	0.21%	2.13%	0.00%	7.33%	0.02%
Baxter International Inc	BAX	0.16%	1.02%	0.00%	12.20%	0.02%
Becton Dickinson and Co	BDX	0.28%	1.24%	0.00%	12.41%	0.03%
Berkshire Hathaway Inc	BRK/B	1.14%	n/a	n/a	-1.60%	-0.02%
Best Buy Co Inc	BBY	0.08%	2.91%	0.00%	10.65%	0.01%
H&R Block Inc	HRB	0.02%	4.14%	0.00%	10.00%	0.00%
Boston Scientific Corp	BSX	0.23%	n/a	n/a	33.46%	0.08%
Bristol-Myers Squibb Co	BMJ	0.35%	3.17%	0.01%	11.02%	0.04%
Fortune Brands Home & Security Inc	FBHS	0.03%	1.87%	0.00%	9.97%	0.00%
Brown-Forman Corp	BF/B	0.06%	1.34%	0.00%	9.86%	0.01%

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Name	Ticker	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Cabot Oil & Gas Corp	COG	0.04%	1.14%	0.00%	26.58%	0.01%
Campbell Soup Co	CPB	0.04%	3.89%	0.00%	1.75%	0.00%
Kansas City Southern	KSU	0.05%	1.33%	0.00%	8.97%	0.00%
Hilton Worldwide Holdings Inc	HLT	0.10%	0.72%	0.00%	13.62%	0.01%
Carnival Corp	CCL	0.13%	3.46%	0.00%	10.93%	0.01%
Qorvo Inc	QRVO	0.04%	n/a	n/a	11.83%	0.00%
CenturyLink Inc	CTL	0.06%	16.38%	0.01%	-2.80%	0.00%
UDR Inc	UDR	0.05%	2.90%	0.00%	5.54%	0.00%
Clorox Co/The	CLX	0.08%	2.43%	0.00%	4.91%	0.00%
CMS Energy Corp	CMS	0.06%	2.81%	0.00%	6.61%	0.00%
Newell Brands Inc	NWL	0.03%	5.67%	0.00%	-11.86%	0.00%
Colgate-Palmolive Co	CL	0.24%	2.55%	0.01%	6.24%	0.01%
Comerica Inc	CMA	0.06%	3.08%	0.00%	16.41%	0.01%
IPG Photonics Corp	IPGP	0.03%	n/a	n/a	12.00%	0.00%
Conagra Brands Inc	CAG	0.05%	3.64%	0.00%	8.00%	0.00%
Consolidated Edison Inc	ED	0.11%	3.59%	0.00%	3.73%	0.00%
SL Green Realty Corp	SLG	0.03%	3.75%	0.00%	-0.59%	0.00%
Corning Inc	GLW	0.11%	2.30%	0.00%	10.39%	0.01%
Cummins Inc	CMI	0.10%	2.96%	0.00%	6.81%	0.01%
Danaher Corp	DHR	0.38%	0.50%	0.00%	9.01%	0.03%
Target Corp	TGT	0.16%	3.52%	0.01%	6.35%	0.01%
Deere & Co	DE	0.22%	1.85%	0.00%	10.39%	0.02%
Dominion Energy Inc	D	0.25%	4.95%	0.01%	5.72%	0.01%
Dover Corp	DOV	0.05%	2.12%	0.00%	10.97%	0.01%
Alliant Energy Corp	LNT	0.04%	3.10%	0.00%	6.29%	0.00%
Duke Energy Corp	DUK	0.27%	4.14%	0.01%	4.97%	0.01%
Regency Centers Corp	REG	0.05%	3.59%	0.00%	4.78%	0.00%
Eaton Corp PLC	ETN	0.14%	3.56%	0.00%	9.23%	0.01%
Ecolab Inc	ECL	0.20%	1.09%	0.00%	13.43%	0.03%
PerkinElmer Inc	PKI	0.04%	0.30%	0.00%	15.49%	0.01%
Emerson Electric Co	EMR	0.17%	2.88%	0.00%	8.95%	0.02%
EOG Resources Inc	EOG	0.23%	0.94%	0.00%	11.57%	0.03%
Entergy Corp	ETR	0.07%	3.90%	0.00%	-0.96%	0.00%
Equifax Inc	EFX	0.05%	1.42%	0.00%	7.16%	0.00%
IQVIA Holdings Inc	IQV	0.11%	n/a	n/a	16.28%	0.02%
Gartner Inc	IT	0.05%	n/a	n/a	14.02%	0.01%
FedEx Corp	FDX	0.20%	1.44%	0.00%	14.25%	0.03%
Macy's Inc	M	0.03%	6.09%	0.00%	1.67%	0.00%
FMC Corp	FMC	0.05%	1.79%	0.00%	10.27%	0.01%
Ford Motor Co	F	0.14%	6.84%	0.01%	-0.70%	0.00%
NextEra Energy Inc	NEE	0.37%	2.66%	0.01%	4.90%	0.02%
Franklin Resources Inc	BEN	0.07%	3.19%	0.00%	10.00%	0.01%
Freeport-McMoRan Inc	FCX	0.08%	1.55%	0.00%	-12.55%	-0.01%
Gap Inc/The	GPS	0.04%	3.82%	0.00%	8.63%	0.00%
General Dynamics Corp	GD	0.20%	2.19%	0.00%	10.09%	0.02%
General Mills Inc	GIS	0.12%	4.16%	0.00%	6.43%	0.01%
Genuine Parts Co	GPC	0.07%	2.80%	0.00%	8.99%	0.01%
Atmos Energy Corp	ATO	0.05%	2.12%	0.00%	6.50%	0.00%
WW Grainger Inc	GWV	0.07%	1.79%	0.00%	12.47%	0.01%
Halliburton Co	HAL	0.11%	2.35%	0.00%	30.08%	0.03%
Harley-Davidson Inc	HOG	0.02%	4.04%	0.00%	10.30%	0.00%
Harris Corp	HRS	0.08%	1.66%	0.00%	7.00%	0.01%
HCP Inc	HCP	0.06%	4.81%	0.00%	3.23%	0.00%
Helmerich & Payne Inc	HP	0.02%	5.24%	0.00%	96.36%	0.02%
Fortive Corp	FTV	0.11%	0.34%	0.00%	13.89%	0.02%
Hershey Co/The	HSY	0.07%	2.61%	0.00%	8.00%	0.01%
Synchrony Financial	SYF	0.10%	2.58%	0.00%	1.55%	0.00%
Hormel Foods Corp	HRL	0.10%	1.94%	0.00%	5.80%	0.01%
Arthur J Gallagher & Co	AJG	0.06%	2.14%	0.00%	10.17%	0.01%
Mondelez International Inc	MDLZ	0.28%	2.21%	0.01%	7.33%	0.02%
CenterPoint Energy Inc	CNP	0.06%	3.82%	0.00%	6.92%	0.00%
Humana Inc	HUM	0.16%	0.77%	0.00%	14.11%	0.02%
Willis Towers Watson PLC	WLTW	0.09%	1.51%	0.00%	10.00%	0.01%
Illinois Tool Works Inc	ITW	0.20%	2.78%	0.01%	7.27%	0.01%
Ingersoll-Rand PLC	IR	0.11%	2.01%	0.00%	9.92%	0.01%
Foot Locker Inc	FL	0.03%	2.55%	0.00%	6.24%	0.00%
Interpublic Group of Cos Inc/The	IPG	0.04%	4.08%	0.00%	13.93%	0.01%
International Flavors & Fragrances Inc	IFF	0.06%	2.29%	0.00%	4.00%	0.00%
Jacobs Engineering Group Inc	JEC	0.04%	0.92%	0.00%	13.57%	0.01%
Hanesbrands Inc	HBI	0.03%	3.23%	0.00%	3.72%	0.00%
Kellogg Co	K	0.08%	3.98%	0.00%	3.68%	0.00%
Broadridge Financial Solutions Inc	BR	0.05%	1.92%	0.00%	10.00%	0.00%
Perrigo Co PLC	PRGO	0.03%	1.56%	0.00%	1.17%	0.00%
Kimberly-Clark Corp	KMB	0.17%	3.53%	0.01%	6.09%	0.01%
Kimco Realty Corp	KIM	0.03%	6.37%	0.00%	3.86%	0.00%
Kohl's Corp	KSS	0.05%	3.61%	0.00%	10.60%	0.00%
Oracle Corp	ORCL	0.77%	1.46%	0.01%	7.54%	0.06%
Kroger Co/The	KR	0.10%	1.91%	0.00%	6.43%	0.01%
Leggett & Platt Inc	LEG	0.02%	3.35%	0.00%	10.00%	0.00%
Lennar Corp	LEN	0.06%	0.33%	0.00%	12.74%	0.01%
Jefferies Financial Group Inc	JEF	0.03%	2.47%	0.00%	n/a	n/a
Eli Lilly & Co	LLY	0.54%	2.04%	0.01%	10.72%	0.06%
L Brands Inc	LB	0.03%	4.59%	0.00%	10.72%	0.00%
Charter Communications Inc	CHTR	0.32%	n/a	n/a	41.16%	0.13%
Lincoln National Corp	LNC	0.05%	2.37%	0.00%	9.00%	0.00%
Loews Corp	L	0.06%	0.53%	0.00%	n/a	n/a
Lowe's Cos Inc	LOW	0.35%	1.83%	0.01%	15.80%	0.06%
Host Hotels & Resorts Inc	HST	0.06%	4.08%	0.00%	4.57%	0.00%
Marsh & McLennan Cos Inc	MMC	0.19%	1.78%	0.00%	11.80%	0.02%
Masco Corp	MAS	0.05%	1.28%	0.00%	12.50%	0.01%

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Name	Ticker	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Mattel Inc	MAT	0.02%	n/a	n/a	10.00%	0.00%
S&P Global Inc	SPGI	0.21%	1.14%	0.00%	11.05%	0.02%
Medtronic PLC	MDT	0.50%	2.21%	0.01%	7.70%	0.04%
CVS Health Corp	CVS	0.31%	3.46%	0.01%	8.68%	0.03%
DowDuPont Inc	DWDP	0.50%	2.86%	0.01%	6.17%	0.03%
Micron Technology Inc	MU	0.19%	n/a	n/a	-3.30%	-0.01%
Motorola Solutions Inc	MSI	0.10%	1.59%	0.00%	4.10%	0.00%
Cboe Global Markets Inc	CBOE	0.04%	1.29%	0.00%	13.46%	0.01%
Mylan NV	MYL	0.06%	n/a	n/a	5.98%	0.00%
Laboratory Corp of America Holdings	LH	0.06%	n/a	n/a	7.61%	0.00%
Newmont Mining Corp	NEM	0.08%	1.64%	0.00%	14.10%	0.01%
Twenty-First Century Fox Inc	FOXA	0.22%	0.71%	0.00%	2.66%	0.01%
NIKE Inc	NKE	0.45%	1.03%	0.00%	18.34%	0.08%
NiSource Inc	NI	0.04%	2.97%	0.00%	5.75%	0.00%
Noble Energy Inc	NBL	0.04%	1.99%	0.00%	14.55%	0.01%
Norfolk Southern Corp	NSC	0.20%	1.92%	0.00%	13.97%	0.03%
Principal Financial Group Inc	PFG	0.06%	4.10%	0.00%	4.16%	0.00%
Eversource Energy	ES	0.09%	3.07%	0.00%	5.62%	0.01%
Northrop Grumman Corp	NOC	0.20%	1.66%	0.00%	8.89%	0.02%
Wells Fargo & Co	WFC	0.94%	3.61%	0.03%	11.26%	0.11%
Nucor Corp	NUE	0.08%	2.64%	0.00%	0.85%	0.00%
PVH Corp	PVH	0.04%	0.13%	0.00%	11.03%	0.00%
Occidental Petroleum Corp	OXY	0.21%	4.72%	0.01%	-0.50%	0.00%
Omnicom Group Inc	OMC	0.07%	3.43%	0.00%	5.22%	0.00%
ONEOK Inc	OKE	0.11%	5.35%	0.01%	16.89%	0.02%
Raymond James Financial Inc	RJF	0.05%	1.65%	0.00%	12.30%	0.01%
Parker-Hannifin Corp	PH	0.09%	1.73%	0.00%	9.52%	0.01%
Rollins Inc	ROL	0.05%	1.06%	0.00%	10.00%	0.01%
PPL Corp	PPL	0.10%	5.13%	0.00%	6.17%	0.01%
Exelon Corp	EXC	0.19%	2.98%	0.01%	4.12%	0.01%
ConocoPhillips	COP	0.32%	1.80%	0.01%	6.00%	0.02%
PulteGroup Inc	PHM	0.03%	1.63%	0.00%	7.17%	0.00%
Pinnacle West Capital Corp	PNW	0.04%	3.15%	0.00%	5.18%	0.00%
PNC Financial Services Group Inc/The	PNC	0.24%	3.02%	0.01%	7.37%	0.02%
PPG Industries Inc	PPG	0.11%	1.71%	0.00%	7.49%	0.01%
Progressive Corp/The	PGR	0.18%	0.55%	0.00%	8.00%	0.01%
Public Service Enterprise Group Inc	PEG	0.12%	3.20%	0.00%	6.73%	0.01%
Raytheon Co	RTN	0.22%	1.86%	0.00%	10.03%	0.02%
Robert Half International Inc	RHI	0.03%	1.82%	0.00%	9.25%	0.00%
Edison International	EIX	0.08%	4.09%	0.00%	5.34%	0.00%
Schlumberger Ltd	SLB	0.25%	4.54%	0.01%	33.69%	0.09%
Charles Schwab Corp/The	SCHW	0.25%	1.48%	0.00%	19.78%	0.05%
Sherwin-Williams Co/The	SHW	0.17%	1.04%	0.00%	10.74%	0.02%
JM Smucker Co/The	SJM	0.05%	3.21%	0.00%	3.20%	0.00%
Snap-on Inc	SNA	0.04%	2.38%	0.00%	7.93%	0.00%
AMETEK Inc	AME	0.07%	0.70%	0.00%	8.98%	0.01%
Southern Co/The	SO	0.21%	4.83%	0.01%	3.38%	0.01%
BB&T Corp	BBT	0.16%	3.18%	0.01%	9.85%	0.02%
Southwest Airlines Co	LUV	0.13%	1.14%	0.00%	10.01%	0.01%
Stanley Black & Decker Inc	SWK	0.08%	1.99%	0.00%	10.50%	0.01%
Public Storage	PSA	0.15%	3.78%	0.01%	5.26%	0.01%
Arista Networks Inc	ANET	0.09%	n/a	n/a	21.64%	0.02%
SunTrust Banks Inc	STI	0.12%	3.08%	0.00%	8.04%	0.01%
Sysco Corp	SY	0.14%	2.31%	0.00%	12.50%	0.02%
Texas Instruments Inc	TXN	0.41%	2.91%	0.01%	10.48%	0.04%
Textron Inc	TXT	0.05%	0.15%	0.00%	12.56%	0.01%
Thermo Fisher Scientific Inc	TMO	0.43%	0.29%	0.00%	12.00%	0.05%
Tiffany & Co	TIF	0.05%	2.31%	0.00%	10.53%	0.01%
TJX Cos Inc/The	TJX	0.26%	1.79%	0.00%	11.57%	0.03%
Torchmark Corp	TMK	0.04%	0.78%	0.00%	7.53%	0.00%
Total System Services Inc	TSS	0.07%	0.55%	0.00%	12.14%	0.01%
Johnson Controls International plc	JCI	0.13%	2.95%	0.00%	7.63%	0.01%
Ulta Beauty Inc	ULTA	0.08%	n/a	n/a	21.00%	0.02%
Union Pacific Corp	UNP	0.50%	2.10%	0.01%	13.86%	0.07%
Keysight Technologies Inc	KEYS	0.07%	n/a	n/a	17.00%	0.01%
UnitedHealth Group Inc	UNH	0.96%	1.49%	0.01%	13.73%	0.13%
Unum Group	UNM	0.03%	2.78%	0.00%	9.00%	0.00%
Marathon Oil Corp	MRO	0.06%	1.20%	0.00%	0.45%	0.00%
Varian Medical Systems Inc	VAR	0.05%	n/a	n/a	16.10%	0.01%
Ventas Inc	VTR	0.09%	5.05%	0.00%	2.08%	0.00%
VF Corp	VFC	0.14%	2.34%	0.00%	-16.64%	-0.02%
Vornado Realty Trust	VNO	0.05%	3.92%	0.00%	0.74%	0.00%
Vulcan Materials Co	VMC	0.06%	1.11%	0.00%	15.34%	0.01%
Weyerhaeuser Co	WY	0.08%	5.46%	0.00%	8.70%	0.01%
Whirlpool Corp	WHR	0.04%	3.25%	0.00%	5.75%	0.00%
Williams Cos Inc/The	WMB	0.13%	5.70%	0.01%	3.90%	0.01%
WEC Energy Group Inc	WEC	0.10%	3.09%	0.00%	4.89%	0.00%
Xerox Corp	XR	0.03%	3.24%	0.00%	-0.10%	0.00%
Adobe Inc	ADBE	0.53%	n/a	n/a	17.16%	0.09%
AES Corp/VA	AES	0.05%	3.17%	0.00%	7.67%	0.00%
Amgen Inc	AMGN	0.49%	3.05%	0.01%	5.83%	0.03%
Apple Inc	AAPL	3.38%	1.69%	0.06%	9.40%	0.32%
Autodesk Inc	ADSK	0.15%	n/a	n/a	54.78%	0.08%
Cintas Corp	CTAS	0.09%	0.99%	0.00%	12.02%	0.01%
Comcast Corp	CMCSA	0.72%	2.17%	0.02%	11.03%	0.08%
Molson Coors Brewing Co	TAP	0.05%	2.66%	0.00%	0.26%	0.00%
KLA-Tencor Corp	KLAC	0.08%	2.60%	0.00%	8.58%	0.01%
Marriott International Inc/MD	MAR	0.18%	1.31%	0.00%	12.10%	0.02%
McCormick & Co Inc/MD	MKC	0.07%	1.68%	0.00%	6.10%	0.00%
Nordstrom Inc	JWN	0.03%	3.13%	0.00%	10.55%	0.00%

STANDARD AND POOR'S 500 INDEX

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Name	Ticker	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
PACCAR Inc	PCAR	0.10%	1.89%	0.00%	6.10%	0.01%
Costco Wholesale Corp	COST	0.40%	1.04%	0.00%	10.58%	0.04%
First Republic Bank/CA	FRC	0.07%	0.69%	0.00%	12.39%	0.01%
Stryker Corp	SYK	0.29%	1.10%	0.00%	8.72%	0.03%
Tyson Foods Inc	TSN	0.08%	2.43%	0.00%	-5.00%	0.00%
Lamb Weston Holdings Inc	LW	0.04%	1.15%	0.00%	11.02%	0.00%
Applied Materials Inc	AMAT	0.15%	2.09%	0.00%	9.23%	0.01%
American Airlines Group Inc	AAL	0.07%	1.12%	0.00%	15.20%	0.01%
Cardinal Health Inc	CAH	0.07%	3.51%	0.00%	4.77%	0.00%
Celgene Corp	CELG	0.24%	n/a	n/a	20.70%	0.05%
Cerner Corp	CERN	0.08%	n/a	n/a	13.20%	0.01%
Cincinnati Financial Corp	CINF	0.06%	2.58%	0.00%	n/a	n/a
DR Horton Inc	DHI	0.06%	1.54%	0.00%	11.80%	0.01%
Flowserve Corp	FLS	0.02%	1.71%	0.00%	13.05%	0.00%
Electronic Arts Inc	EA	0.12%	n/a	n/a	11.87%	0.01%
Expeditors International of Washington Inc	EXPD	0.05%	1.20%	0.00%	7.70%	0.00%
Fastenal Co	FAST	0.07%	2.73%	0.00%	14.85%	0.01%
M&T Bank Corp	MTB	0.10%	2.31%	0.00%	7.98%	0.01%
Xcel Energy Inc	XEL	0.12%	2.95%	0.00%	5.89%	0.01%
Fiserv Inc	FISV	0.14%	n/a	n/a	7.40%	0.01%
Fifth Third Bancorp	FITB	0.08%	3.19%	0.00%	3.95%	0.00%
Gilead Sciences Inc	GILD	0.34%	3.88%	0.01%	-1.48%	-0.01%
Hasbro Inc	HAS	0.04%	3.20%	0.00%	10.67%	0.00%
Huntington Bancshares Inc/OH	HBAN	0.06%	3.89%	0.00%	8.20%	0.01%
Welltower Inc	WELL	0.12%	4.68%	0.01%	6.74%	0.01%
Biogen Inc	BIIB	0.27%	n/a	n/a	5.08%	0.01%
Northern Trust Corp	NTRS	0.08%	2.58%	0.00%	10.65%	0.01%
Packaging Corp of America	PKG	0.04%	3.31%	0.00%	8.25%	0.00%
Paychex Inc	PAYX	0.11%	2.91%	0.00%	9.25%	0.01%
People's United Financial Inc	PBCT	0.03%	3.94%	0.00%	2.00%	0.00%
QUALCOMM Inc	QCOM	0.27%	4.65%	0.01%	11.71%	0.03%
Roper Technologies Inc	ROP	0.14%	0.57%	0.00%	11.33%	0.02%
Ross Stores Inc	ROST	0.15%	0.95%	0.00%	10.50%	0.02%
IDEXX Laboratories Inc	IDXX	0.08%	n/a	n/a	18.66%	0.01%
Starbucks Corp	SBUX	0.36%	2.05%	0.01%	13.22%	0.05%
KeyCorp	KEY	0.07%	3.85%	0.00%	13.17%	0.01%
State Street Corp	STT	0.11%	2.62%	0.00%	8.69%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	0.05%	n/a	n/a	12.53%	0.01%
US Bancorp	USB	0.34%	2.86%	0.01%	6.70%	0.02%
AO Smith Corp	AOS	0.03%	1.69%	0.00%	9.33%	0.00%
Symantec Corp	SYMC	0.06%	1.33%	0.00%	7.50%	0.00%
T Rowe Price Group Inc	TROW	0.10%	3.03%	0.00%	4.27%	0.00%
Waste Management Inc	WM	0.18%	2.02%	0.00%	8.03%	0.01%
CBS Corp	CBS	0.07%	1.43%	0.00%	14.79%	0.01%
Allergan PLC	AGN	0.19%	2.15%	0.00%	5.57%	0.01%
Constellation Brands Inc	STZ	0.12%	1.75%	0.00%	8.92%	0.01%
Xilinx Inc	XLNX	0.13%	1.15%	0.00%	9.33%	0.01%
DENTSPLY SIRONA Inc	XRAY	0.04%	0.84%	0.00%	6.90%	0.00%
Zions Bancorp NA	ZION	0.04%	2.35%	0.00%	6.78%	0.00%
Alaska Air Group Inc	ALK	0.03%	2.27%	0.00%	25.37%	0.01%
Invesco Ltd	IVZ	0.03%	6.20%	0.00%	4.30%	0.00%
Linde PLC	LIN	0.39%	2.02%	0.01%	19.10%	0.07%
Intuit Inc	INTU	0.27%	0.76%	0.00%	15.82%	0.04%
Morgan Stanley	MS	0.30%	2.86%	0.01%	13.50%	0.04%
Microchip Technology Inc	MCHP	0.09%	1.68%	0.00%	12.39%	0.01%
Chubb Ltd	CB	0.25%	2.18%	0.01%	10.00%	0.03%
Hologic Inc	HOLX	0.06%	n/a	n/a	3.10%	0.00%
Citizens Financial Group Inc	CFG	0.07%	3.47%	0.00%	16.69%	0.01%
O'Reilly Automotive Inc	ORLY	0.12%	n/a	n/a	15.58%	0.02%
Allstate Corp/The	ALL	0.13%	2.12%	0.00%	7.10%	0.01%
FLIR Systems Inc	FLIR	0.03%	1.32%	0.00%	n/a	n/a
Equity Residential	EQR	0.11%	2.93%	0.00%	6.28%	0.01%
BorgWarner Inc	BWA	0.03%	1.67%	0.00%	5.78%	0.00%
Incyte Corp	INCY	0.08%	n/a	n/a	47.53%	0.04%
Simon Property Group Inc	SPG	0.23%	4.53%	0.01%	5.23%	0.01%
Eastman Chemical Co	EMN	0.05%	3.00%	0.00%	6.73%	0.00%
Twitter Inc	TWTR	0.10%	n/a	n/a	37.35%	0.04%
AvalonBay Communities Inc	AVB	0.11%	3.12%	0.00%	6.01%	0.01%
Prudential Financial Inc	PRU	0.16%	4.17%	0.01%	9.00%	0.01%
United Parcel Service Inc	UPS	0.32%	3.48%	0.01%	8.96%	0.03%
Apartment Investment & Management Co	AIV	0.03%	3.29%	0.00%	5.75%	0.00%
Walgreens Boots Alliance Inc	WBA	0.28%	2.47%	0.01%	9.77%	0.03%
McKesson Corp	MCK	0.10%	1.23%	0.00%	8.08%	0.01%
Lockheed Martin Corp	LMT	0.36%	2.84%	0.01%	7.61%	0.03%
AmeriSourceBergen Corp	ABC	0.07%	1.92%	0.00%	8.70%	0.01%
Capital One Financial Corp	COF	0.16%	1.91%	0.00%	4.77%	0.01%
Waters Corp	WAT	0.07%	n/a	n/a	11.48%	0.01%
Dollar Tree Inc	DLTR	0.09%	n/a	n/a	9.96%	0.01%
Darden Restaurants Inc	DRI	0.06%	2.68%	0.00%	10.31%	0.01%
NetApp Inc	NTAP	0.07%	2.45%	0.00%	13.23%	0.01%
Citrix Systems Inc	CTXS	0.06%	1.33%	0.00%	11.85%	0.01%
DXC Technology Co	DXC	0.07%	1.15%	0.00%	6.70%	0.00%
DaVita Inc	DVA	0.04%	n/a	n/a	19.15%	0.01%
Hartford Financial Services Group Inc/The	HIG	0.07%	2.43%	0.00%	9.50%	0.01%
Iron Mountain Inc	IRM	0.04%	6.90%	0.00%	7.16%	0.00%
Estee Lauder Cos Inc/The	EL	0.14%	1.10%	0.00%	12.38%	0.02%
Cadence Design Systems Inc	CDNS	0.07%	n/a	n/a	10.35%	0.01%
Universal Health Services Inc	UHS	0.05%	0.29%	0.00%	9.54%	0.00%
E*TRADE Financial Corp	ETFC	0.05%	1.14%	0.00%	12.08%	0.01%
Skyworks Solutions Inc	SWKS	0.06%	1.86%	0.00%	8.87%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
National Oilwell Varco Inc	NOV	0.04%	0.71%	0.00%	77.76%	0.03%
Quest Diagnostics Inc	DGX	0.05%	2.45%	0.00%	6.92%	0.00%
Activision Blizzard Inc	ATVI	0.13%	0.88%	0.00%	6.65%	0.01%
Rockwell Automation Inc	ROK	0.09%	2.17%	0.00%	8.94%	0.01%
Kraft Heinz Co/The	KHC	0.17%	4.82%	0.01%	2.60%	0.00%
American Tower Corp	AMT	0.32%	1.91%	0.01%	15.31%	0.05%
HollyFrontier Corp	HFC	0.04%	2.58%	0.00%	7.07%	0.00%
Regeneron Pharmaceuticals Inc	REGN	0.19%	n/a	n/a	13.88%	0.03%
Amazon.com Inc	AMZN	3.34%	n/a	n/a	37.60%	1.25%
Jack Henry & Associates Inc	JKHY	0.04%	1.21%	0.00%	11.00%	0.00%
Ralph Lauren Corp	RL	0.03%	2.00%	0.00%	6.84%	0.00%
Boston Properties Inc	BXP	0.08%	2.86%	0.00%	6.24%	0.01%
Amphenol Corp	APH	0.12%	0.98%	0.00%	10.64%	0.01%
Arconic Inc	ARNC	0.04%	0.43%	0.00%	14.35%	0.01%
Pioneer Natural Resources Co	PXD	0.10%	0.45%	0.00%	26.85%	0.03%
Valero Energy Corp	VLO	0.14%	4.41%	0.01%	19.17%	0.03%
Synopsys Inc	SNPS	0.06%	n/a	n/a	14.50%	0.01%
L3 Technologies Inc	LLL	0.07%	1.61%	0.00%	5.00%	0.00%
Western Union Co/The	WU	0.03%	4.48%	0.00%	5.00%	0.00%
CH Robinson Worldwide Inc	CHRW	0.05%	2.21%	0.00%	9.07%	0.00%
Accenture PLC	ACN	0.43%	1.81%	0.01%	10.27%	0.04%
TransDigm Group Inc	TDG	0.10%	n/a	n/a	11.07%	0.01%
Yum! Brands Inc	YUM	0.12%	1.78%	0.00%	13.12%	0.02%
Prologis Inc	PLD	0.18%	3.03%	0.01%	6.87%	0.01%
FirstEnergy Corp	FE	0.09%	3.73%	0.00%	-0.02%	0.00%
VeriSign Inc	VRSN	0.09%	n/a	n/a	8.80%	0.01%
Quanta Services Inc	PWR	0.02%	0.45%	0.00%	25.00%	0.01%
Henry Schein Inc	HSIC	0.04%	n/a	n/a	7.11%	0.00%
Ameren Corp	AEE	0.07%	2.67%	0.00%	6.70%	0.00%
ANSYS Inc	ANSS	0.06%	n/a	n/a	10.37%	0.01%
NVIDIA Corp	NVDA	0.39%	0.41%	0.00%	7.86%	0.03%
Sealed Air Corp	SEE	0.03%	1.47%	0.00%	6.04%	0.00%
Cognizant Technology Solutions Corp	CTSH	0.17%	1.13%	0.00%	11.40%	0.02%
SVB Financial Group	SIVB	0.05%	n/a	n/a	11.00%	0.01%
Intuitive Surgical Inc	ISRG	0.26%	n/a	n/a	12.62%	0.03%
Affiliated Managers Group Inc	AMG	0.02%	1.17%	0.00%	4.37%	0.00%
Take-Two Interactive Software Inc	TTWO	0.04%	n/a	n/a	10.30%	0.00%
Republic Services Inc	RSRG	0.10%	1.91%	0.00%	13.01%	0.01%
eBay Inc	EBAY	0.14%	1.51%	0.00%	10.67%	0.02%
Goldman Sachs Group Inc/The	GS	0.30%	1.63%	0.00%	7.27%	0.02%
SBA Communications Corp	SBAC	0.08%	n/a	n/a	27.95%	0.02%
Sempra Energy	SRE	0.14%	3.21%	0.00%	10.10%	0.01%
Moody's Corp	MCO	0.14%	1.16%	0.00%	12.80%	0.02%
Booking Holdings Inc	BKNG	0.32%	n/a	n/a	12.50%	0.04%
F5 Networks Inc	FFIV	0.04%	n/a	n/a	9.39%	0.00%
Akamai Technologies Inc	AKAM	0.05%	n/a	n/a	14.50%	0.01%
Devon Energy Corp	DVN	0.05%	1.22%	0.00%	1.15%	0.00%
Alphabet Inc	GOOGL	1.40%	n/a	n/a	15.22%	0.21%
Red Hat Inc	RHT	0.13%	n/a	n/a	18.40%	0.02%
Teleflex Inc	TFX	0.06%	0.47%	0.00%	12.45%	0.01%
Allegion PLC	ALLE	0.04%	1.20%	0.00%	11.24%	0.00%
Netflix Inc	NFLX	0.65%	n/a	n/a	32.07%	0.21%
Agilent Technologies Inc	A	0.10%	0.83%	0.00%	9.50%	0.01%
Anthem Inc	ANTM	0.32%	1.06%	0.00%	11.14%	0.04%
CME Group Inc	CME	0.27%	1.65%	0.00%	13.40%	0.04%
Juniper Networks Inc	JNPR	0.04%	2.81%	0.00%	8.63%	0.00%
BlackRock Inc	BLK	0.29%	2.98%	0.01%	9.69%	0.03%
DTE Energy Co	DTE	0.09%	3.06%	0.00%	5.53%	0.01%
Celanese Corp	CE	0.05%	2.11%	0.00%	7.05%	0.00%
Nasdaq Inc	NDAQ	0.06%	1.92%	0.00%	9.11%	0.01%
Philip Morris International Inc	PM	0.56%	5.25%	0.03%	9.06%	0.05%
salesforce.com Inc	CRM	0.52%	n/a	n/a	23.98%	0.12%
Huntington Ingalls Industries Inc	HII	0.04%	1.64%	0.00%	40.00%	0.01%
MetLife Inc	MET	0.18%	3.72%	0.01%	8.46%	0.02%
Under Armour Inc	UA	0.02%	n/a	n/a	37.34%	0.01%
Tapestry Inc	TPR	0.04%	3.86%	0.00%	11.75%	0.00%
Fluor Corp	FLR	0.02%	2.23%	0.00%	17.99%	0.00%
CSX Corp	CSX	0.25%	1.32%	0.00%	10.47%	0.03%
Edwards Lifesciences Corp	EW	0.15%	n/a	n/a	14.00%	0.02%
Ameriprise Financial Inc	AMP	0.07%	2.73%	0.00%	11.80%	0.01%
TechnipFMC PLC	FTI	0.04%	2.33%	0.00%	15.43%	0.01%
Zimmer Biomet Holdings Inc	ZBHI	0.11%	0.77%	0.00%	4.74%	0.00%
CBRE Group Inc	CBRE	0.07%	n/a	n/a	8.55%	0.01%
Mastercard Inc	MA	0.94%	0.59%	0.01%	19.66%	0.19%
CarMax Inc	KMX	0.04%	n/a	n/a	12.92%	0.01%
Intercontinental Exchange Inc	ICE	0.18%	1.43%	0.00%	8.02%	0.01%
Fidelity National Information Services Inc	FIS	0.14%	1.29%	0.00%	12.00%	0.02%
Chipotle Mexican Grill Inc	CMG	0.07%	n/a	n/a	20.31%	0.01%
Wynn Resorts Ltd	WYNN	0.06%	2.37%	0.00%	31.10%	0.02%
Assurant Inc	AIZ	0.03%	2.33%	0.00%	n/a	n/a
NRG Energy Inc	NRG	0.05%	0.29%	0.00%	46.03%	0.02%
Monster Beverage Corp	MNST	0.14%	n/a	n/a	15.00%	0.02%
Regions Financial Corp	RF	0.07%	3.41%	0.00%	10.88%	0.01%
Mosaic Co/The	MOS	0.05%	0.32%	0.00%	8.40%	0.00%
Expedia Group Inc	EXPE	0.07%	1.04%	0.00%	17.20%	0.01%
Eversource Energy	ESV	0.06%	3.40%	0.00%	7.43%	0.00%
Discovery Inc	DISCA	0.02%	n/a	n/a	12.30%	0.00%
CF Industries Holdings Inc	CF	0.04%	2.84%	0.00%	19.75%	0.01%
Viacom Inc	VIAB	0.04%	2.74%	0.00%	4.93%	0.00%
Alphabet Inc	GOOG	1.62%	n/a	n/a	15.22%	0.25%

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Name	Ticker	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
TE Connectivity Ltd	TEL	0.12%	2.14%	0.00%	11.18%	0.01%
Cooper Cos Inc/The	COO	0.06%	0.02%	0.00%	4.70%	0.00%
Discover Financial Services	DFS	0.10%	2.23%	0.00%	8.80%	0.01%
TripAdvisor Inc	TRIP	0.03%	n/a	n/a	11.39%	0.00%
Visa Inc	V	1.07%	0.68%	0.01%	15.59%	0.17%
Mid-America Apartment Communities Inc	MAA	0.05%	3.71%	0.00%	7.00%	0.00%
Xylem Inc/NY	XYL	0.06%	1.27%	0.00%	14.00%	0.01%
Marathon Petroleum Corp	MPC	0.17%	3.42%	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	0.05%	1.30%	0.00%	12.09%	0.01%
ResMed Inc	RMD	0.06%	1.44%	0.00%	12.50%	0.01%
Mettler-Toledo International Inc	MTD	0.07%	n/a	n/a	12.66%	0.01%
Copart Inc	CPRT	0.06%	n/a	n/a	20.00%	0.01%
Fortinet Inc	FTNT	0.06%	n/a	n/a	22.10%	0.01%
Albemarle Corp	ALB	0.04%	1.61%	0.00%	11.41%	0.00%
Essex Property Trust Inc	ESS	0.08%	2.79%	0.00%	6.06%	0.00%
Realty Income Corp	O	0.09%	3.91%	0.00%	4.39%	0.00%
Seagate Technology PLC	STX	0.05%	5.41%	0.00%	3.37%	0.00%
Westrock Co	WRK	0.04%	4.87%	0.00%	4.73%	0.00%
IHS Markit Ltd	INFO	0.09%	n/a	n/a	11.21%	0.01%
Wabtec Corp	WAB	0.03%	0.66%	0.00%	14.00%	0.00%
Western Digital Corp	WDC	0.06%	3.98%	0.00%	2.72%	0.00%
PepsiCo Inc	PEP	0.67%	3.21%	0.02%	5.48%	0.04%
Diamondback Energy Inc	FANG	0.07%	0.49%	0.00%	17.55%	0.01%
Nektar Therapeutics	NKTR	0.03%	n/a	n/a	n/a	n/a
Maxim Integrated Products Inc	MXIM	0.06%	3.38%	0.00%	8.93%	0.01%
Church & Dwight Co Inc	CHD	0.07%	1.38%	0.00%	8.21%	0.01%
Duke Realty Corp	DRE	0.04%	2.91%	0.00%	4.50%	0.00%
Federal Realty Investment Trust	FRT	0.04%	3.05%	0.00%	6.15%	0.00%
MGM Resorts International	MGM	0.06%	1.94%	0.00%	3.32%	0.00%
Twenty-First Century Fox Inc	FOX	0.17%	0.72%	0.00%	2.66%	0.00%
JB Hunt Transport Services Inc	JBHT	0.05%	0.97%	0.00%	18.78%	0.01%
Lam Research Corp	LRCX	0.11%	2.50%	0.00%	-0.42%	0.00%
Mohawk Industries Inc	MHK	0.04%	n/a	n/a	7.59%	0.00%
Pentair PLC	PNR	0.03%	1.69%	0.00%	10.29%	0.00%
Vertex Pharmaceuticals Inc	VRTX	0.20%	n/a	n/a	49.41%	0.10%
Facebook Inc	FB	1.59%	n/a	n/a	21.88%	0.35%
United Rentals Inc	URI	0.04%	n/a	n/a	17.76%	0.01%
Alexandria Real Estate Equities Inc	ARE	0.06%	2.86%	0.00%	4.80%	0.00%
ABIOMED Inc	ABMD	0.06%	n/a	n/a	29.00%	0.02%
Delta Air Lines Inc	DAL	0.14%	2.82%	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%	1.50%	0.00%	-9.13%	0.00%
Centene Corp	CNC	0.10%	n/a	n/a	13.68%	0.01%
Macerich Co/The	MAC	0.03%	6.88%	0.00%	-0.12%	0.00%
Martin Marietta Materials Inc	MLM	0.05%	1.02%	0.00%	13.29%	0.01%
PayPal Holdings Inc	PYPL	0.48%	n/a	n/a	22.12%	0.11%
Coty Inc	COTY	0.03%	4.55%	0.00%	8.76%	0.00%
DISH Network Corp	DISH	0.03%	n/a	n/a	-20.68%	-0.01%
Alexion Pharmaceuticals Inc	ALXN	0.13%	n/a	n/a	15.94%	0.02%
Everest Re Group Ltd	RE	0.04%	2.48%	0.00%	10.00%	0.00%
WellCare Health Plans Inc	WCG	0.05%	n/a	n/a	17.08%	0.01%
News Corp	NWSA	0.02%	1.54%	0.00%	-9.13%	0.00%
Global Payments Inc	GP	0.09%	0.03%	0.00%	14.67%	0.01%
Crown Castle International Corp	CCI	0.20%	3.79%	0.01%	15.50%	0.03%
Aptiv PLC	APTIV	0.09%	1.06%	0.00%	10.66%	0.01%
Advance Auto Parts Inc	AAP	0.05%	0.15%	0.00%	16.17%	0.01%
Capri Holdings Ltd	CPRI	0.03%	n/a	n/a	6.73%	0.00%
Align Technology Inc	ALGN	0.09%	n/a	n/a	23.19%	0.02%
Illumina Inc	ILMN	0.19%	n/a	n/a	25.16%	0.05%
Alliance Data Systems Corp	ADS	0.04%	1.46%	0.00%	2.54%	0.00%
LKQ Corp	LKQ	0.04%	n/a	n/a	13.85%	0.01%
Nielsen Holdings PLC	NLSN	0.04%	5.34%	0.00%	n/a	n/a
Garmin Ltd	GRMN	0.07%	2.72%	0.00%	7.28%	0.00%
Cimarex Energy Co	XEC	0.03%	1.11%	0.00%	66.37%	0.02%
Zoetis Inc	ZTS	0.19%	0.70%	0.00%	15.36%	0.03%
Digital Realty Trust Inc	DLR	0.10%	3.82%	0.00%	18.00%	0.02%
Equinix Inc	EQIX	0.15%	2.32%	0.00%	20.00%	0.03%
Discovery Inc	DISCK	0.04%	n/a	n/a	12.30%	0.00%

Notes:

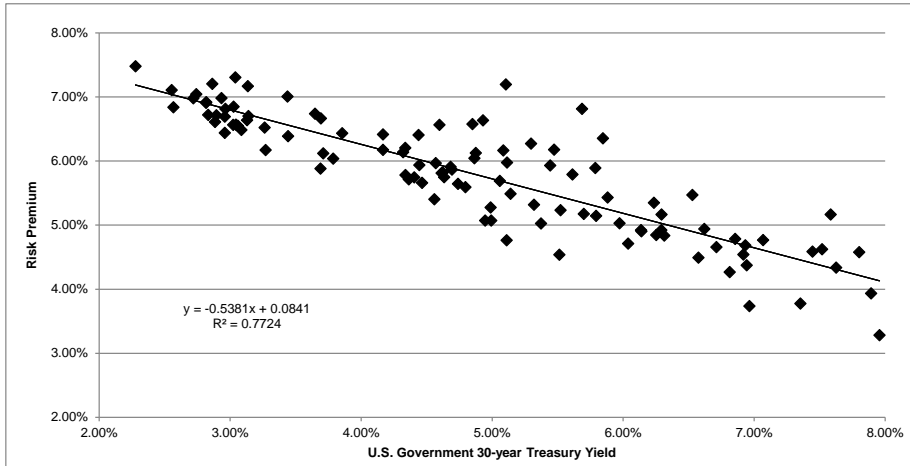
[9] Equals sum of Col. [16]
[10] Equals sum of Col. [18]
[11] Equals ([9] x (1 + (0.5 x [10]))) + [10]
[12] Source: Attachment AEB-9, at 1
[13] Equals [11] - [12]
[14] Equals weight in S&P 500 based on market capitalization
[15] Source: Bloomberg Professional, as of February 28, 2019
[16] Equals [14] x [15]
[17] Source: Bloomberg Professional, as of February 28, 2019
[18] Equals [14] x [17]

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
1992.1	12.38%	7.80%	4.58%
1992.2	11.83%	7.89%	3.93%
1992.3	12.03%	7.45%	4.59%
1992.4	12.14%	7.52%	4.62%
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%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
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%
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%	6.85%
AVERAGE	10.66%	4.87%	5.79%
MEDIAN	10.54%	4.85%	5.89%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.878846
R Square	0.772370
Adjusted R Square	0.770242
Standard Error	0.004400
Observations	109

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.007030	0.007030	363.060777	0.000000
Residual	107	0.002072	0.000019		
Total	108	0.009102			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0841	0.001437	58.54	0.000000	0.081282	0.086980	0.081282	0.086980
U.S. Govt. 30-year Treasury	(0.5381)	0.028243	(19.05)	0.000000	(0.594128)	(0.482153)	(0.594128)	(0.482153)

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-Day Average [4]	3.04%	6.78%	9.82%
Blue Chip Consensus Forecast (Q2 2019 - Q2 2020) [5]	3.28%	6.65%	9.93%
Blue Chip Consensus Forecast (2020-2024) [6]	3.90%	6.31%	10.21%
AVERAGE			9.99%

Notes:

- [1] Source: Regulatory Research Associates, accessed March 12, 2019.
[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] - Column [2]
[4] Source: Bloomberg Professional, 30-day average as of February 28, 2019
[5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 3, March 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 $0.084131 + (-0.538140 \times \text{Column [7]})$
[9] Equals Column [7] + Column [8]

**COMPARISON OF PSNH AND PROXY GROUP COMPANIES
REGULATORY FRAMEWORK - ADJUSTMENT CLAUSES**

Proxy Group Company	Operation State	Operation		Test Year	New Capital	
					Generation Capacity	Generic Infrastructure
ALLETE, Inc.	Minnesota	Electric	1	Partially Forecast		
Alliant Energy Corporation	Iowa	Electric	1	Historical		
	Wisconsin	Electric	1	Fully Forecast		
Avangrid, Inc.	Connecticut	Electric	1	Historical		
	Maine	Electric	1	Partially Forecast		
	New York	Electric	1	Fully Forecast		
FirstEnergy Corp.	Maryland	Electric	1	Partially Forecast		
	New Jersey	Electric	1	Partially Forecast		
	Ohio	Electric	1	Partially Forecast		x
	Pennsylvania	Electric	1	Fully Forecast		x
	West Virginia	Electric	1	Historical		x
Hawaiian Electric Industries, Inc.	Hawaii	Electric	1	Fully Forecast	x	x
NorthWestern Corporation	Montana	Electric	1	Historical		
	South Dakota	Electric	1	Historical		
Portland General Electric Company	Oregon	Electric	1	Fully Forecast		
PPL Corporation	Kentucky	Electric	1	Fully Forecast		
	Pennsylvania	Electric	1	Fully Forecast		x
	Virginia	Electric	1	Fully Forecast		
				Historical: 5 Forecast: 13	1	5
Proxy Companies						
Total Jurisdictions	18					
Percent of Jurisdictions				Forecast: 72%	5.6%	27.8%
Public Service Co. of New Hampshire	New Hampshire			Historical		x

Notes:

[1] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated September 28, 2018. Operating subsidiaries not covered in this report were excluded from this exhibit.

[2] This exhibit only includes the adjustment mechanisms for the electric operating subsidiaries. Natural Gas subsidiaries were excluded from this exhibit.

FLOTATION COST ADJUSTMENT

Company	Date [i]	Shares Issued (000)	Offering Price	Under-writing Discount [ii]	Offering Expense (\$000)	Net Proceeds Per Share	Total Flotation Costs (\$000)	Equity Issue Before Costs (\$000)	Net Proceeds (\$000)	Flotation Cost Percentage
Eversource Energy	12/6/2005	23,000	\$ 19.09	\$ 0.6200	\$ 340	\$ 18.46	\$ 14,600	\$ 439,070	\$ 424,470	3.33%
Eversource Energy	3/16/2009	18,975	\$ 20.20	\$ 0.6565	\$ 335	\$ 19.53	\$ 12,792	\$ 383,295	\$ 370,503	3.34%
							\$ 27,392	\$ 822,365	\$ 794,973	3.33%

Notes:

[i] Offering Completion Date

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

The flotation cost adjustment is derived by dividing the dividend yield by $1 - F$ (where F = flotation costs expressed in percentage terms), or by 0.9667, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

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

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
						Expected Dividend Adjusted for Flotation Costs	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	ROE	ROE Adjusted for Flotation Costs
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Dividend Yield Adjusted for Flotation Costs						
ALLETE, Inc.	ALE	\$2.35	\$77.59	3.03%	3.10%	3.21%	3.50%	6.00%	n/a	4.75%	7.85%	7.96%
Alliant Energy Corporation	LNT	\$1.42	\$44.35	3.20%	3.31%	3.42%	6.50%	7.25%	6.00%	6.58%	9.89%	10.00%
Avangrid, Inc.	AGR	\$1.76	\$49.52	3.55%	3.73%	3.86%	12.00%	9.20%	8.40%	9.87%	13.60%	13.72%
FirstEnergy Corporation	FE	\$1.52	\$39.36	3.86%	3.98%	4.12%	6.50%	Negative	6.00%	6.25%	10.23%	10.37%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$37.34	3.43%	3.53%	3.65%	3.50%	7.80%	6.20%	5.83%	9.36%	9.48%
NorthWestern Corporation	NWE	\$2.20	\$64.39	3.42%	3.46%	3.58%	2.50%	2.59%	3.10%	2.73%	6.19%	6.31%
Portland General Electric Company	POR	\$1.45	\$48.17	3.01%	3.07%	3.18%	4.00%	4.90%	4.00%	4.30%	7.37%	7.48%
PPL Corporation	PPL	\$1.64	\$30.94	5.30%	5.40%	5.59%	3.00%	3.59%	5.00%	3.86%	9.27%	9.45%
Mean											9.22%	9.35%
Flotation Cost Adjustment											[12]	0.13%

Notes:

[1] Source: Bloomberg Professional.

[2] Source: Bloomberg Professional, equals 30-day average as of February 28, 2019

[3] Equals [1] / [2]

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

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

[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 Average ([11]) - Average ([10])

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]										
Combined Utility Proxy Group Company	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE, Inc.	ALE	61.24%	60.33%	60.26%	60.43%	60.03%	59.64%	59.10%	58.70%	59.97%
Alliant Energy Corporation	LNT	51.27%	49.65%	49.68%	48.48%	48.57%	49.42%	48.65%	48.86%	49.32%
Avangrid, Inc.	AGR	56.10%	55.39%	53.42%	54.41%	53.74%	53.25%	53.42%	53.52%	54.16%
FirstEnergy Corporation	FE	57.42%	58.23%	57.00%	55.81%	56.81%	55.99%	54.98%	53.65%	56.24%
Hawaiian Electric Industries, Inc.	HE	57.55%	54.69%	54.28%	55.34%	57.33%	58.00%	56.96%	57.68%	56.48%
NorthWestern Corporation	NWE	47.88%	48.36%	48.41%	47.48%	45.83%	45.40%	44.74%	45.64%	46.72%
Portland General Electric Company	POR	50.19%	50.51%	50.29%	50.14%	49.80%	50.17%	50.32%	50.28%	50.21%
PPL Corporation	PPL	53.35%	53.91%	53.53%	53.22%	53.79%	54.08%	56.35%	55.02%	54.16%
MEAN		54.37%	53.88%	53.36%	53.16%	53.24%	53.24%	53.06%	52.92%	53.41%
LOW		47.88%	48.36%	48.41%	47.48%	45.83%	45.40%	44.74%	45.64%	46.72%
HIGH		61.24%	60.33%	60.26%	60.43%	60.03%	59.64%	59.10%	58.70%	59.97%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES [2]										
Company Name	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE (Minnesota Power)	ALE	61.39%	60.43%	60.33%	60.38%	60.04%	59.73%	59.16%	58.71%	60.02%
Superior Water, Light and Power Company	ALE	55.76%	56.58%	57.34%	62.68%	59.67%	55.83%	56.26%	58.21%	57.79%
Interstate Power and Light Company	LNT	51.26%	47.96%	48.62%	48.01%	48.37%	49.64%	48.78%	47.98%	48.83%
Wisconsin Power and Light Company	LNT	51.29%	52.04%	51.09%	49.09%	48.82%	49.13%	48.46%	50.03%	50.00%
Central Maine Power Company	AGR	63.20%	62.83%	62.27%	64.17%	63.80%	63.96%	63.26%	62.82%	63.29%
New York State Electric & Gas Corporation	AGR	53.50%	53.68%	49.19%	48.08%	47.49%	46.76%	49.97%	48.37%	49.63%
Rochester Gas and Electric Corporation	AGR	48.89%	48.16%	47.78%	50.80%	49.63%	48.94%	48.46%	45.83%	48.56%
United Illuminating Company	AGR	56.46%	53.89%	51.64%	51.84%	50.85%	49.62%	47.98%	53.98%	52.03%
Cleveland Electric Illuminating Company	FE	55.19%	56.50%	56.27%	55.45%	55.23%	51.93%	52.02%	51.18%	54.22%
Jersey Central Power & Light Company	FE	67.54%	66.41%	64.90%	62.05%	65.30%	65.26%	62.73%	58.69%	64.11%
Metropolitan Edison Company	FE	50.71%	52.40%	50.43%	49.22%	52.33%	52.00%	50.54%	49.40%	50.88%
Monongahela Power Company	FE	46.68%	50.71%	49.50%	50.57%	49.15%	48.18%	46.60%	46.37%	48.47%
Ohio Edison Company	FE	69.93%	69.14%	67.33%	66.89%	64.91%	62.27%	62.80%	62.74%	65.75%
Pennsylvania Electric Company	FE	52.81%	52.71%	52.77%	51.43%	51.56%	53.29%	52.05%	51.61%	52.28%
Pennsylvania Power Company	FE	49.03%	57.01%	54.79%	52.23%	52.41%	55.74%	52.84%	52.09%	53.27%
Potomac Edison Company	FE	52.35%	52.92%	52.65%	52.64%	51.59%	51.27%	51.15%	50.74%	51.91%
Toledo Edison Company	FE	60.39%	62.25%	60.71%	59.04%	58.47%	55.49%	60.01%	61.00%	59.67%
West Penn Power Company	FE	49.75%	50.13%	48.01%	47.15%	52.82%	52.10%	50.33%	49.77%	50.01%
Hawaiian Electric Company, Inc.	HE	57.55%	54.69%	54.28%	55.34%	57.33%	58.00%	56.96%	57.68%	56.48%
NorthWestern Corporation	NWE	47.88%	48.36%	48.41%	47.48%	45.83%	45.40%	44.74%	45.64%	46.72%
Portland General Electric Company	POR	50.19%	50.51%	50.29%	50.14%	49.80%	50.17%	50.32%	50.28%	50.21%
Kentucky Utilities Company	PPL	52.46%	53.43%	53.13%	53.26%	53.53%	53.93%	58.21%	58.25%	54.53%
Louisville Gas and Electric Company	PPL	52.26%	53.06%	52.59%	52.66%	52.71%	53.42%	57.15%	57.10%	53.87%
PPL Electric Utilities Corporation	PPL	54.52%	54.65%	54.28%	53.50%	54.57%	54.54%	54.43%	51.04%	53.94%

Notes:

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

[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]										
Combined Utility Proxy Group Company	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE, Inc.	ALE	38.71%	39.67%	39.74%	39.45%	39.77%	40.12%	40.69%	41.17%	39.92%
Alliant Energy Corporation	LNT	45.15%	47.92%	47.87%	48.93%	48.88%	45.54%	46.41%	47.40%	47.26%
Avangrid, Inc.	AGR	43.48%	42.35%	42.95%	40.58%	41.40%	44.14%	44.80%	41.98%	42.71%
FirstEnergy Corporation	FE	40.06%	39.67%	39.61%	41.18%	42.90%	43.24%	42.13%	43.31%	41.51%
Hawaiian Electric Industries, Inc.	HE	41.71%	42.81%	43.03%	41.01%	42.52%	41.81%	41.65%	42.27%	42.10%
NorthWestern Corporation	NWE	52.12%	51.64%	51.59%	52.52%	46.03%	47.51%	47.31%	48.24%	49.62%
Portland General Electric Company	POR	49.81%	49.49%	49.71%	49.86%	50.20%	49.83%	49.68%	49.72%	49.79%
PPL Corporation	PPL	43.79%	44.38%	44.67%	44.25%	44.73%	44.70%	42.15%	40.57%	43.66%
MEAN		44.35%	44.74%	44.90%	44.72%	44.55%	44.61%	44.35%	44.33%	44.57%
LOW		38.71%	39.67%	39.61%	39.45%	39.77%	40.12%	40.69%	40.57%	39.92%
HIGH		52.12%	51.64%	51.59%	52.52%	50.20%	49.83%	49.68%	49.72%	49.79%

LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES [2]										
Company Name	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE (Minnesota Power)	ALE	38.61%	39.57%	39.67%	39.62%	39.96%	40.27%	40.84%	41.29%	39.98%
Superior Water, Light and Power Company	ALE	42.31%	43.42%	42.66%	32.58%	32.15%	33.74%	34.37%	35.91%	37.14%
Interstate Power and Light Company	LNT	44.51%	48.66%	47.72%	48.17%	47.78%	46.20%	47.07%	47.55%	47.21%
Wisconsin Power and Light Company	LNT	46.04%	46.85%	48.08%	49.94%	50.35%	44.65%	45.53%	47.20%	47.33%
Central Maine Power Company	AGR	36.78%	35.08%	35.75%	35.81%	36.18%	36.02%	36.72%	37.16%	36.19%
New York State Electric & Gas Corporation	AGR	45.02%	45.82%	47.28%	40.12%	41.61%	50.11%	49.49%	48.98%	46.05%
Rochester Gas and Electric Corporation	AGR	51.11%	51.84%	52.24%	49.20%	50.36%	51.06%	51.54%	37.11%	49.31%
United Illuminating Company	AGR	43.54%	38.67%	38.27%	39.59%	39.95%	41.69%	43.99%	44.38%	41.26%
Cleveland Electric Illuminating Company	FE	44.36%	43.50%	43.67%	44.49%	44.70%	44.13%	43.81%	48.75%	44.68%
Jersey Central Power & Light Company	FE	29.70%	29.37%	29.42%	32.66%	34.70%	34.74%	34.12%	40.17%	33.11%
Metropolitan Edison Company	FE	44.59%	44.18%	44.54%	45.12%	47.67%	47.42%	46.71%	47.00%	45.90%
Monongahela Power Company	FE	48.85%	49.29%	46.55%	49.43%	50.85%	51.82%	51.30%	42.01%	48.76%
Ohio Edison Company	FE	30.07%	30.86%	32.67%	33.11%	35.09%	37.73%	37.20%	37.26%	34.25%
Pennsylvania Electric Company	FE	45.19%	44.88%	45.13%	45.45%	47.47%	46.71%	45.87%	46.60%	45.91%
Pennsylvania Power Company	FE	50.97%	40.83%	41.53%	41.55%	44.97%	44.26%	44.16%	45.49%	44.22%
Potomac Edison Company	FE	47.65%	47.08%	47.35%	47.36%	48.41%	48.73%	48.85%	49.26%	48.09%
Toledo Edison Company	FE	39.55%	37.75%	36.82%	38.39%	38.92%	40.50%	37.47%	36.55%	38.24%
West Penn Power Company	FE	43.23%	44.20%	44.16%	45.14%	47.18%	47.90%	41.73%	42.81%	44.54%
Hawaiian Electric Company, Inc.	HE	41.71%	42.81%	43.03%	41.01%	42.52%	41.81%	41.65%	42.27%	42.10%
NorthWestern Corporation	NWE	52.12%	51.64%	51.59%	52.52%	46.03%	47.51%	47.31%	48.24%	49.62%
Portland General Electric Company	POR	49.81%	49.49%	49.71%	49.86%	50.20%	49.83%	49.68%	49.72%	49.79%
Kentucky Utilities Company	PPL	43.19%	44.15%	44.34%	45.23%	45.60%	46.07%	40.90%	41.12%	43.82%
Louisville Gas and Electric Company	PPL	41.39%	42.80%	43.08%	44.04%	42.39%	41.49%	38.01%	38.06%	41.41%
PPL Electric Utilities Corporation	PPL	45.48%	45.35%	45.72%	43.70%	45.43%	45.46%	45.57%	41.67%	44.80%

Notes:

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

[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

PREFERRED EQUITY RATIO [1]										
Combined Utility Proxy Group Company	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE, Inc.	ALE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Alliant Energy Corporation	LNT	1.97%	1.98%	2.10%	2.18%	2.20%	2.32%	2.36%	2.44%	2.19%
Avangrid, Inc.	AGR	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FirstEnergy Corporation	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hawaiian Electric Industries, Inc.	HE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NorthWestern Corporation	NWE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Portland General Electric Company	POR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PPL Corporation	PPL	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MEAN		0.25%	0.25%	0.26%	0.27%	0.28%	0.29%	0.30%	0.31%	0.27%
LOW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
HIGH		1.97%	1.98%	2.10%	2.18%	2.20%	2.32%	2.36%	2.44%	2.19%

PREFERRED EQUITY RATIO - UTILITY OPERATING COMPANIES [2]										
Company Name	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE (Minnesota Power)	ALE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Superior Water, Light and Power Company	ALE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Interstate Power and Light Company	LNT	3.38%	3.37%	3.66%	3.81%	3.85%	4.07%	4.15%	4.27%	3.82%
Wisconsin Power and Light Company	LNT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Central Maine Power Company	AGR	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
New York State Electric & Gas Corporation	AGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Rochester Gas and Electric Corporation	AGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
United Illuminating Company	AGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cleveland Electric Illuminating Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Jersey Central Power & Light Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Metropolitan Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Monongahela Power Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ohio Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pennsylvania Electric Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pennsylvania Power Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Potomac Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Toledo Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
West Penn Power Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hawaiian Electric Company, Inc.	HE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NorthWestern Corporation	NWE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Portland General Electric Company	POR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Kentucky Utilities Company	PPL	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Louisville Gas and Electric Company	PPL	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PPL Electric Utilities Corporation	PPL	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Notes:

[1] Ratios are weighted by actual common capital, preferred capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

SHORT-TERM DEBT RATIO [1]										
Combined Utility Proxy Group Company	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE, Inc.	ALE	0.05%	0.00%	0.00%	0.11%	0.20%	0.24%	0.21%	0.13%	0.12%
Alliant Energy Corporation	LNT	1.61%	0.45%	0.35%	0.41%	0.35%	2.73%	2.59%	1.30%	1.23%
Avangrid, Inc.	AGR	0.42%	2.26%	3.62%	5.01%	4.85%	2.61%	1.77%	4.49%	3.13%
FirstEnergy Corporation	FE	2.52%	2.11%	3.40%	3.02%	0.28%	0.77%	2.88%	3.04%	2.25%
Hawaiian Electric Industries, Inc.	HE	0.73%	2.50%	2.69%	3.65%	0.16%	0.19%	1.39%	0.05%	1.42%
NorthWestern Corporation	NWE	0.00%	0.00%	0.00%	0.00%	8.14%	7.09%	7.95%	6.11%	3.66%
Portland General Electric Company	POR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PPL Corporation	PPL	2.86%	1.71%	1.79%	2.53%	1.48%	1.22%	1.49%	4.41%	2.19%
MEAN		1.02%	1.13%	1.48%	1.84%	1.93%	1.86%	2.29%	2.44%	1.75%
LOW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
HIGH		2.86%	2.50%	3.62%	5.01%	8.14%	7.09%	7.95%	6.11%	3.66%

SHORT-TERM DEBT RATIO - UTILITY OPERATING COMPANIES [2]										
Company Name	Ticker	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	2017Q2	2017Q1	Average
ALLETE (Minnesota Power)	ALE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Superior Water, Light and Power Company	ALE	1.93%	0.00%	0.00%	4.74%	8.18%	10.43%	9.37%	5.88%	5.07%
Interstate Power and Light Company	LNT	0.85%	0.00%	0.00%	0.00%	0.00%	0.08%	0.00%	0.20%	0.14%
Wisconsin Power and Light Company	LNT	2.67%	1.10%	0.83%	0.96%	0.82%	6.22%	6.00%	2.77%	2.67%
Central Maine Power Company	AGR	0.00%	2.08%	1.96%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%
New York State Electric & Gas Corporation	AGR	1.49%	0.50%	3.53%	11.80%	10.90%	3.12%	0.53%	2.65%	4.31%
Rochester Gas and Electric Corporation	AGR	0.00%	0.00%	-0.02%	0.00%	0.00%	0.00%	0.00%	17.06%	2.13%
United Illuminating Company	AGR	0.00%	7.44%	10.09%	8.56%	9.20%	8.69%	8.04%	1.64%	6.71%
Cleveland Electric Illuminating Company	FE	0.44%	0.00%	0.06%	0.06%	0.06%	3.94%	4.17%	0.06%	1.10%
Jersey Central Power & Light Company	FE	2.75%	4.22%	5.67%	5.30%	0.00%	0.00%	3.15%	1.14%	2.78%
Metropolitan Edison Company	FE	4.69%	3.43%	5.03%	5.66%	0.00%	0.58%	2.75%	3.61%	3.22%
Monongahela Power Company	FE	4.47%	0.00%	3.95%	0.00%	0.00%	0.00%	2.10%	11.62%	2.77%
Ohio Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pennsylvania Electric Company	FE	2.01%	2.41%	2.10%	3.12%	0.96%	0.00%	2.08%	1.79%	1.81%
Pennsylvania Power Company	FE	0.00%	2.16%	3.68%	6.22%	2.62%	0.00%	3.00%	2.42%	2.51%
Potomac Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Toledo Edison Company	FE	0.06%	0.00%	2.47%	2.58%	2.61%	4.01%	2.52%	2.45%	2.09%
West Penn Power Company	FE	7.02%	5.66%	7.83%	7.72%	0.00%	0.00%	7.94%	7.41%	5.45%
Hawaiian Electric Company, Inc.	HE	0.73%	2.50%	2.69%	3.65%	0.16%	0.19%	1.39%	0.05%	1.42%
NorthWestern Corporation	NWE	0.00%	0.00%	0.00%	0.00%	8.14%	7.09%	7.95%	6.11%	3.66%
Portland General Electric Company	POR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Kentucky Utilities Company	PPL	4.35%	2.42%	2.53%	1.51%	0.88%	0.00%	0.89%	0.63%	1.65%
Louisville Gas and Electric Company	PPL	6.35%	4.14%	4.33%	3.31%	4.90%	5.08%	4.84%	4.84%	4.72%
PPL Electric Utilities Corporation	PPL	0.00%	0.00%	0.00%	2.80%	0.00%	0.00%	0.00%	7.29%	1.26%

Notes:

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

[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.