

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of )  
the Dayton Power and Light Company for ) Case No. 16-0395-EL-SSO  
Approval of its Electric Security Plan. )

In the Matter of the Application of the )  
Dayton Power and Light Company for ) Case No. 16-0396-EL-ATA  
Approval of Revised Tariffs. )

In the Matter of the Application of the )  
Dayton Power and Light Company for ) Case No. 16-0397-EL-AAM  
Approval of Certain Accounting Authority )  
Pursuant to Ohio Rev. Code § 4905.13. )

**DIRECT TESTIMONY  
OF  
DAVID C. PARCELL**

**On Behalf of the  
The Office of the Ohio Consumers' Counsel**  
*10 West Broad Street, Suite 1800  
Columbus, Ohio 43215-3485*

**November 21, 2016**

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1    **I.       INTRODUCTION**

2

3    ***Q1.    PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS***  
4            ***ADDRESS.***

5    **A1.**    My name is David C. Parcell. I am President and Senior Economist of Technical  
6            Associates, Inc. My business address is Suite 130, 1503 Santa Rosa Rd.,  
7            Richmond, Virginia 23229.

8

9    ***Q2.    PLEASE BRIEFLY DESCRIBE YOUR BACKGROUND AND***  
10           ***EXPERIENCE.***

11   **A2.**    I hold B.A. (1969) and M.A. (1970) degrees in economics from Virginia  
12           Polytechnic Institute and State University (Virginia Tech) and a M.B.A. (1985)  
13           from Virginia Commonwealth University. I have been a consulting economist  
14           with Technical Associates since 1970. The majority of my consulting experience  
15           has involved the provision of cost of capital testimony in public utility ratemaking  
16           proceedings. I have previously testified in about 550 utility proceedings before  
17           over 50 regulatory agencies in the United States and Canada, including the Public  
18           Utilities Commission of Ohio (“PUCO” or “Commission”). Attachment DCP-1  
19           provides a more complete description of my education and relevant business  
20           experience.

21

1   ***Q3.   WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS***  
2       ***PROCEEDING?***

3   ***A3.***   My testimony addresses the respective costs of long-term debt and common  
4       equity of The Dayton Power and Light Company (“DP&L” or “Utility”), relative  
5       to its 2016 Electric Security Plan (“ESP”)<sup>1</sup> filing including the amended  
6       application and related testimonies filed on October 11 and October 31, 2016. I  
7       have performed independent studies and am making recommendations on the  
8       current cost of debt and cost of common equity for DP&L. In addition, because  
9       DP&L is a subsidiary of DPL, Inc. (“DPL”), which in turn is owned by AES  
10      Corp. (“AES”), I have also considered these entities in my analyses.

11

12   ***Q4.   HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR***  
13       ***TESTIMONY?***

14   ***A4.***   Yes. I have prepared one exhibit, made up of 13 schedules.

15

16   ***II.   RECOMMENDATIONS AND SUMMARY***

17

18   ***Q5.   WHAT ARE YOUR RECOMMENDATIONS IN THIS PROCEEDING?***

19   ***A5.***   I recommend use of a cost of debt of 4.4 percent and a cost of common equity of  
20       9.25 percent for DP&L.

21

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<sup>1</sup> *In the Matter of the Application of The Dayton Power and Light Company for Approval of its Electric Security Plan*, Case No. 16-0395-EL-SSO, et al. (February 22, 2016) and subsequent filings on October 11, 2016 and October 31, 2016.

*Direct Testimony of David C. Parcell  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 16-395-EL-SSO et al.*

1 **Q6.** Please summarize your analyses and conclusions.

2 **A6.** First, I examine the embedded cost rate of debt of DP&L. In this proceeding,  
3 DP&L proposes to use a 5.29 percent cost of long-term debt.<sup>2</sup> This 5.29 percent  
4 cost of debt proposed by DP&L assumes that 30 year mortgage bonds were sold  
5 in August of 2016 at a cost of 6.60 percent.<sup>3</sup> In actuality, DP&L “sold \$445  
6 million of six-year debt”<sup>4</sup> at a cost of about 4.41 percent.<sup>5</sup> I recommend that  
7 DP&L’s actual cost of debt be used for any ESP purposes. As of this time, DP&L  
8 has not provided the actual cost of long-term debt, notwithstanding OCC’s  
9 requests for this information.<sup>6</sup>

10

11 Second, I estimate the cost of common equity, or the return on common equity  
12 (“ROE”) of DP&L. I employ three recognized methodologies to estimate  
13 DP&L’s return on equity, each of which I apply to two proxy groups of utilities.  
14 These three methodologies and my findings are:

<b>Methodology</b>	<b>ROE Range</b>
Discounted Cash Flow (“DCF”)	8.6%-9.0% (8.8% mid-point)
Capital Asset Pricing Model (“CAPM”)	5.9-6.5% (6.2% mid-point)
Comparable Earnings (“CE”)	9.0%-10.0% (9.5% mid-point)

15

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<sup>2</sup> See PUCO Case Nos. 16-0395-EL-SSO et al., Direct Testimony of DP&L Witness Craig L. Jackson at 23 (October 11, 2016).

<sup>3</sup> Direct Testimony of Jackson at 23-27 (October 11, 2016).

<sup>4</sup> On August 24, 2016, DP&L entered into a six-year credit agreement to finance \$445 million of First Mortgage Bonds that were scheduled to mature on September 15, 2016.

<sup>5</sup> The calculation of 4.41% is shown in Section VI. of my testimony.

<sup>6</sup> See Schedules DCP-5 and DCP-6.

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1 Based upon these findings, I conclude that DP&L's return on equity is within a  
2 range of 9.0 percent to 9.5 percent, which is based upon the upper end of the  
3 range of the results for the DCF model and the mid-point up the range of results  
4 for the CE model.<sup>7</sup> Instead of the 10.5 percent return on equity requested in  
5 DP&L's distribution rate case (PUCO Case Nos. 15-1830-EL-AIR et al.) and  
6 adopted in this proceeding by DP&L witness Malinak,<sup>8</sup> I recommend a 9.25  
7 percent return on equity for DP&L.

8  
9 **III. ECONOMIC/LEGAL PRINCIPLES AND METHODOLOGIES**

10  
11 ***Q7. WHAT ARE THE PRIMARY PRINCIPLES THAT ESTABLISH THE***  
12 ***STANDARDS FOR DETERMINING A FAIR RATE OF RETURN FOR A***  
13 ***REGULATED UTILITY?***

14 **A7.** Public utility rates are normally established in a manner designed to allow the  
15 utility to have an opportunity to collect its prudently-incurred costs, including a  
16 return on investments the utility makes. This is frequently referred to as "cost of  
17 service" ratemaking. Traditionally, rates for regulated public utilities have been  
18 primarily established using the "rate base – rate of return" concept. Under this  
19 method, a utility is allowed to recover a level of operating expenses, taxes, and  
20 depreciation deemed reasonable for rate-setting purposes and is granted an

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<sup>7</sup> As I indicate in a later section, my return on equity recommendation does not directly incorporate my CAPM results, which I believe to be somewhat low at this time relative to the DCF and CE results.

<sup>8</sup> See PUCO Case Nos. 16-0395-EL-SSO et al., Direct Testimony of R. Jeffrey Malinak at 21 (October 31, 2016).

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1 opportunity to earn a fair rate of return (profits) on the assets utilized (i.e., rate  
2 base) in providing service to its customers.

3  
4 The rate base is derived from the asset side of the utility's balance sheet as a  
5 dollar amount and the rate of return is developed from the liabilities/owners'  
6 equity side of the balance sheet as a percentage. Thus, the revenue impact of the  
7 cost of capital is derived by multiplying the rate base by the rate of return,  
8 including income taxes.

9  
10 The rate of return is developed from the cost of capital, which is estimated by  
11 weighting the capital structure components (i.e., debt, preferred stock, and  
12 common equity) by their percentages in the capital structure and multiplying these  
13 values by their cost rates. This is the weighted cost of capital or overall rate of  
14 return.

15  
16 Technically, a "fair rate of return" is a legal and accounting concept that refers to  
17 an ex post (after the fact) earned return on an asset base, while the cost of capital  
18 is an economic and financial concept that refers to an ex ante (before the fact)  
19 expected, or required, return on a capital base. In regulatory proceedings,  
20 however, the two terms are often used interchangeably. I equate the two concepts  
21 in my testimony.

22



1 From an economic standpoint, a fair rate of return is normally interpreted to mean  
2 that an efficient and economically managed utility will be able to maintain its  
3 financial integrity, attract capital, and have an opportunity to earn comparable  
4 returns for similar risk investments. These concepts are derived from economic  
5 and financial theory and are generally implemented using financial models and  
6 economic concepts.

7

8 **IV. GENERAL ECONOMIC CONDITIONS**

9

10 ***Q8. ARE ECONOMIC AND FINANCIAL CONDITIONS IMPORTANT IN***  
11 ***DETERMINING THE COSTS OF CAPITAL (OR RATE OF RETURN) FOR***  
12 ***A PUBLIC UTILITY THAT CUSTOMERS MUST BEAR?***

13 ***A8.*** Yes. The costs of capital, for both fixed-cost components (debt and preferred  
14 stock) and common equity component, are determined in part by current and  
15 prospective economic and financial conditions. At any given time, for example,  
16 each of the following factors has an influence on the costs of capital:

- 17 • level of economic activity (i.e., growth rate of the economy);
- 18 • stage of the business cycle (i.e., recession, expansion, or
- 19 transition);
- 20 • level of inflation;
- 21 • level and trend of interest rates; and
- 22 • current and expected economic conditions.

1    ***Q9.    WHAT INDICATORS OF ECONOMIC AND FINANCIAL ACTIVITY***  
2            ***DID YOU EVALUATE IN YOUR ANALYSES?***

3    ***A9.***    I examined several sets of economic statistics from 1975 to the present. I chose  
4            this time period because it permits the evaluation of economic conditions over  
5            four full business cycles plus the current cycle, allowing for an assessment of  
6            changes of economic conditions in long-term trends. Consideration of  
7            economic/financial conditions over a relatively long period of time allows me to  
8            assess how such conditions have had impacts on the level and trends of the costs  
9            of capital. This period also approximates the beginning and continuation of active  
10          rate case activities by public utilities, which generally began in the mid-1970s.

11  
12          A business cycle is commonly defined as a complete period of expansion  
13          (recovery and growth) and contraction (recession) of the economy. A full  
14          business cycle is a useful and convenient period over which to measure levels and  
15          trends in long-term capital costs because it incorporates cyclical (i.e., stage of  
16          business cycle) influences and, thus, permits a comparison of structural (or long-  
17          term) trends.

18

19    ***Q10.   PLEASE DESCRIBE THE TIMEFRAMES OF THE FOUR PRIOR***  
20            ***BUSINESS CYCLES AND THE CURRENT CYCLE.***

21    ***A10.***    The four prior complete cycles and current cycle cover the following periods:

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<b>Business Cycle</b>	<b>Expansion Period</b>	<b>Contraction Period</b>
1975-1982	Mar. 1975-July 1981	Aug. 1981-Oct. 1982
1982-1991	Nov. 1982-July 1990	Aug. 1990-Mar. 1991
1991-2001	Mar. 1991-Mar. 2001	Apr. 2001-Nov. 2001
2001-2009	Nov. 2001-Nov. 2007	Dec. 2007-June 2009
Current	July 2009-	

Source: The National Bureau of Economic Research, "U.S. Business Cycle Expansions and Contractions."<sup>9</sup>

1

2 ***Q11. DO YOU HAVE ANY GENERAL OBSERVATIONS CONCERNING THE***  
3 ***RECENT TRENDS IN ECONOMIC CONDITIONS AND THEIR IMPACT***  
4 ***ON THE COSTS OF CAPITAL OVER THIS BROAD PERIOD?***

5 ***A11.*** Yes. From the early 1980s until the end of 2007, the United States economy  
6 enjoyed general prosperity and stability. This period had been characterized by  
7 longer economic expansions, relatively tame contractions, low and declining  
8 inflation, and declining interest rates and other costs of capital.

9

10 However, in 2008 and 2009, the economy declined significantly, initially as a  
11 result of the 2007 collapse of the "sub-prime" mortgage market and the related  
12 liquidity crisis in the financial sector of the economy. Subsequently, this financial  
13 crisis intensified with a more broad-based decline, initially based on a substantial  
14 increase in petroleum prices and a dramatic decline in the U.S. financial sector,  
15 culminating with the collapse and/or bailouts of a significant number of well-  
16 known institutions such as Bear Stearns, Lehman Brothers, Merrill Lynch,

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<sup>9</sup> <http://www.nber.org/cycles/cyclesmain.html>.

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1 Freddie Mac, Fannie Mae, AIG and Wachovia. The recession also witnessed the  
2 demise of national companies such as Circuit City and the bankruptcies of  
3 automotive manufacturers such as Chrysler and General Motors.

4  
5 This decline has been described as the worst financial crisis since the Great  
6 Depression and has been referred to as the “Great Recession.” Beginning in  
7 2008, the U.S. and other governments implemented unprecedented actions to  
8 attempt to correct or minimize the scope and effects of this recession.

9 The recession reached its low point in mid-2009, when the economy began to  
10 expand again, although at a slow and uneven rate. However, the length and  
11 severity of the recession, as well as a relatively slow and uneven recovery,  
12 indicate that the impacts of the recession have been and will be felt for an  
13 extended period of time.

14

15 ***Q12. PLEASE DESCRIBE RECENT AND CURRENT ECONOMIC AND***  
16 ***FINANCIAL CONDITIONS AND THEIR IMPACT ON THE COSTS OF***  
17 ***CAPITAL.***

18 ***A12.*** One impact of the Great Recession has been a reduction in actual and expected  
19 investment returns and a corresponding reduction in the costs of capital. This  
20 decline is evidenced by a decline in both short-term and long-term interest rates  
21 and the expectations of investors and is reflected in return on equity model results  
22 (such as DCF, CAPM and CE). Regulatory agencies throughout the U.S. have

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1 recognized the decline in capital costs by authorizing lower returns on equity for  
2 regulated utilities in each of the last several years.<sup>10</sup>

3  
4 Schedule DCP-1 shows several sets of relevant economic and financial statistics  
5 for the cited time periods. Pages 1 and 2 of Schedule DCP-1 contain general  
6 macroeconomic statistics; pages 3 and 4 show interest rates; and pages 5 and 6  
7 contain equity market statistics.

8  
9 Pages 1 and 2 of Schedule DCP-1 show that in 2007 the economy stalled and  
10 subsequently entered a significant decline, as indicated by the lower growth rate  
11 in real (i.e., adjusted for inflation) Gross Domestic Product (“GDP”), lower levels  
12 of industrial production, and an increase in the unemployment rate. This  
13 recession lasted until mid-2009, making it a longer-than-normal recession, as well  
14 as a much deeper recession. Because economic growth has been somewhat  
15 erratic the economy has grown slower than in prior expansions.

16  
17 Pages 1 and 2 of Schedule DCP-1 also show the rate of inflation. As reflected in  
18 the Consumer Price Index (“CPI”) inflation rose significantly during the 1975-  
19 1982 business cycle and reached double-digit levels in 1979-1980. The rate of  
20 inflation has declined substantially since 1981. Since 2008, the CPI has been  
21 three percent or lower, with 2013 being only 1.5 percent and both 2014 and 2015  
22 being below one percent. It is thus apparent that the rate of inflation has generally

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<sup>10</sup> Regulatory Research Associates, “Regulatory Focus.” October 14, 2016.

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1        been declining over the past several business cycles. Recent and current levels of  
2        inflation are at the lowest levels of the past 35 years, which is reflective of lower  
3        capital costs.<sup>11</sup>

4  
5        ***Q13. WHAT HAVE BEEN THE TRENDS IN INTEREST RATES OVER THE***  
6        ***FOUR PRIOR BUSINESS CYCLES AND AT THE CURRENT TIME?***

7        ***A13.*** Pages 3 and 4 of Schedule DCP-1 show several series of interest rates. Both  
8        short-term and long-term rates rose sharply to record levels in 1975-1981 when  
9        the inflation rate was high. Interest rates declined substantially in conjunction  
10       with the corresponding declines in inflation since the early 1980s.  
11  
12       From 2008 to late-2015, the Federal Reserve System (“Federal Reserve”)  
13       maintained the Federal Funds rate (i.e., short-term interest rate) at 0.25 percent, an  
14       all-time low. The Federal Reserve raised it slightly to 0.50 percent in December  
15       of 2015, but contrary to some expectations, has not raised it further in the first  
16       several months of 2016. The Federal Reserve also purchased U.S. Treasury  
17       securities to stimulate the economy.<sup>12</sup> As seen on page 4 of Schedule DCP-1, in  
18       2012, both U.S. and corporate bond yields declined to their lowest levels in the  
19       past four business cycles and in more than 35 years. Even with the “tapering” and

---

<sup>11</sup> The rate of inflation is one component of interest rate expectations of investors, who generally expect to receive a return in excess of the rate of inflation. Thus, a lower rate of inflation has a downward impact on interest rates and other capital costs.

<sup>12</sup> This is referred to as Quantitative Easing which was comprised of three “rounds.” In “round” 3, known as QE3, the Federal Reserve initially purchased some \$85 billion of U.S. Treasury securities per month in order to stimulate the economy. The Federal Reserve eventually “tapered” its purchase of U.S. Treasury securities through October 2014, at which time Quantitative Easing ended.

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1        eventual ending of the Federal Reserve's Quantitative Easing program, interest  
2        rates have remained low. Currently, both government and corporate lending rates  
3        remain at historically low levels, again reflective of lower costs of capital.

4

5        ***Q14. WHAT DOES SCHEDULE DCP-1 SHOW FOR TRENDS OF COMMON***  
6        ***STOCK SHARE PRICES?***

7        ***A14.*** Pages 5 and 6 of Schedule DCP-1 show several series of common stock prices  
8        and ratios. These indicate that stock prices were essentially stagnant during the  
9        high inflation/high interest rate environment of the late 1970s and early 1980s.  
10       The 1983-1991 business cycle and the more recent cycles witnessed a significant  
11       upward trend in stock prices. The beginning of the recent financial crisis saw  
12       stock prices decline precipitously, as stock prices in 2008 and early 2009 were  
13       down significantly from peak 2007 levels, reflecting the financial/economic crisis.  
14       Beginning in the second quarter of 2009, prices recovered substantially and  
15       ultimately reached and exceeded the levels achieved prior to the "crash." On the  
16       other hand, equity markets have recently been somewhat volatile.

17

18       ***Q15. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR DISCUSSION OF***  
19       ***ECONOMIC AND FINANCIAL CONDITIONS?***

20       ***A15.*** Recent economic and financial circumstances have differed from any that have  
21       prevailed since at least the 1930s. The late-2008 to early-2009 deterioration in  
22       stock prices, the decline in U.S. Treasury bond yields, and an increase in  
23       corporate bond yields were evidenced in the then-evident "flight to safety."

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1 Concurrently, there was a decline in the costs and returns of capital, which  
2 significantly reduced the value of most retirement accounts, investment portfolios,  
3 and other assets. One significant aspect of this has been a decline in investor  
4 expectations of returns,<sup>13</sup> even with the return of stock prices to levels achieved  
5 prior to the “crash.” This is evident in several ways: 1) lower interest rates on  
6 bank deposits; 2) lower interest rates on U.S. Treasury and corporate bonds; 3)  
7 lower increases in social security cost of living benefits;<sup>14</sup> and 4) lower authorized  
8 returns on equity for utilities by regulatory commissions. Finally, as noted above,  
9 utility bond interest rates are currently at levels below those prevailing prior to the  
10 financial crisis of late-2008 to early-2009 and are near the lowest levels in the past  
11 35 years. It is also noteworthy that long-term interest rates have declined in 2016,  
12 in spite of the Federal Reserve’s raising of short-term rates in December of 2015.

13  
14 ***Q16. HOW DO THESE ECONOMIC/FINANCIAL CONDITIONS IMPACT***  
15 ***THE DETERMINATION OF A RETURN ON COMMON EQUITY FOR***  
16 ***REGULATED UTILITIES THAT IS FUNDED BY CONSUMERS?***

17 ***A16.*** The costs of capital for regulated utilities have declined in recent years. For  
18 example, the current interest costs that utilities pay on new debt remain near the  
19 low point of the last several decades. In addition, the results of the traditional  
20 return on equity models (i.e., DCF, CAPM, and CE) are lower than was the case

---

<sup>13</sup> See, e.g., Kiplinger’s Personal Finance, “Investors Brace for Smaller Gains, Focus on Long-Term,” August 30, 2015.

<sup>14</sup> The 2015 increase in Social Security benefits was 1.70 percent – near an all-time low. There was no increase in 2016 Social Security benefits and only a 0.3 percent increase for 2017.



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1 prior to the Great Recession. In light of this, it is not surprising that the average  
2 returns on equity authorized by state regulatory agencies have declined and  
3 continue to decline through 2015 and the first three-quarters of 2016,  
4 as follows:<sup>15</sup>

Year	Electric	Natural Gas
2012	10.01%	9.94%
2013	9.94%	9.68%
2014	9.76%	9.78%
2015	9.58%	9.60%
2016 (3Q)	9.64%	9.45%

5

6 **V. DP&L'S OPERATIONS AND BUSINESS RISKS**

7

8 ***Q17. PLEASE DESCRIBE DP&L AND ITS OPERATIONS.***

9 ***A17.*** DP&L is a regulated electric utility that, at the current time, generates, transmits  
10 and distributes electricity to 515,000 customers in 24 counties throughout the  
11 Miami Valley of Ohio. DP&L is a subsidiary of DPL, which is a subsidiary of  
12 AES, following the November 28, 2011 acquisition of DPL by AES.

13

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<sup>15</sup> Average return on equity values for electric utilities exclude Virginia surcharge/rider generation cases that incorporate plan-specific return on equity premiums. See Regulatory Research Associates, Regulatory Focus, October 14, 2016, page 1.

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1 ***Q18. WHAT ARE THE CURRENT SECURITY RATINGS OF DP&L AND ITS***  
2 ***PARENT COMPANIES?***

3 ***A18.*** The ratings of DP&L and its parent companies are as follows:

	DP&L		DPL		AES
	Sen. Sec	Issuer	Sen. Sec	Sen. Unsec	Sen. Unsec
Moody's	Baa2	Baa3	Ba1	Ba3	Ba3
Standard & Poor's	BBB-	BB		BB	BBB-
Fitch		BB+		B+	BB-

4 Sources: Moody's, S&P, Fitch.

5 This indicates that DP&L's ratings are generally higher than those of DPL and  
6 AES.

7  
8 ***Q19. WHAT HAVE BEEN THE TRENDS IN DP&L'S SECURITY RATINGS?***

9 ***A19.*** This is shown on Schedule DCP-2. DP&L's ratings have varied over the past  
10 several years. Prior to the 2011 acquisition by AES, DP&L had A/Aa3 ratings.  
11 But DP&L's ratings have since declined somewhat.

12  
13 ***Q20. ARE DP&L'S RATINGS INDEPENDENT OF DPL AND AES?***

14 ***A20.*** No, they are not. Standard & Poor's made the following comments about the  
15 merger of DP&L into AES in a November 22, 2011 RatingsDirect titled "DPL  
16 Inc., Subsidiary Dayton Power & Light Downgraded To 'BBB-' From 'A-';

17

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1     Outlooks Stable”:

2                     Rating Action

3  
4                     On Nov. 22, 2011, Standard & Poor’s Ratings Services lowered its  
5                     corporate credit ratings on DPL Inc. and principal subsidiary  
6                     Dayton Power & Light Co. (DP&L) to ‘BBB-‘ from ‘A-‘. We also  
7                     removed all ratings on DPL and DP&L from CreditWatch with  
8                     negative implications, where they were placed on April 20, 2011.  
9                     The outlook is stable.

10                    ...  
11                    The lower ratings are attributable to the soon to be completed  
12                    acquisition of DPL by lower rated AES and the substantial amount  
13                    of additional acquisition-related debt leverage at DPL. Moreover,  
14                    we believe that the combination with an entity that has  
15                    significantly weaker business risk and financial risk profiles, and  
16                    the ample leverage employed in this transaction, demonstrates a  
17                    lack of commitment to credit quality by DPL’s management.  
18

19                    Moreover, this situation continues, as Moody’s noted in an October 13, 2015

20                    Credit Opinion:

21                    “The ratings of DP&L and DPL remain constrained by the  
22                    group’s significant financial leverage including the material  
23                    amount of DPL holding company debt. This is largely related to  
24                    the indebtedness used to help fund DP&L’s acquisition by AES in  
25                    November 2011 that was assumed by DPL at the closing of the  
26                    transaction.”  
27                    [Emphasis added]  
28

29     ***Q21. DOES DP&L HAVE ACCESS TO ANY FAVORABLE COST***

30                    ***RECOVERING MECHANISMS UNDER THE PROPOSED ESP?***

31     ***A21.***    Yes. It is apparent that the proposed ESP incorporates several regulatory cost  
32                    recovery mechanisms or riders.<sup>16</sup>

---

<sup>16</sup> See PUCO Case Nos. 16-0395-EL-SSO et al., Amended Application of the Dayton Power and Light Company for Approval of its Electric Security Plan (October 11, 2016). Those mechanisms include Distribution Investment Rider, Reconciliation Rider, Distribution decoupling Rider, and Clean Energy Rider.

1    ***Q22. DO THESE REGULATORY COST RECOVERY MECHANISMS REDUCE***  
2            ***DP&L'S RISK?***

3    **A22.** Yes. Collectively and individually, these regulatory mechanisms have the effect  
4            of transferring a significant portion of DP&L's risk from its shareholders to its  
5            customers. This is the case because the timing and risk of DP&L fully collecting  
6            certain expenses and a return on and of capital investment would be reduced or  
7            eliminated under these regulatory mechanisms.

8  
9    ***Q23. HAS A RATING AGENCY, SUCH AS MOODY'S, COMMENTED ON THE***  
10           ***IMPACT OF REGULATORY MECHANISMS AND REDUCED RISK ON***  
11           ***LOWER AUTHORIZED RETURNS ON EQUITY FOR UTILITIES?***

12   **A23.** Yes. In a March 10, 2015 Sector In-Depth report titled "Lower Authorized  
13           Equity Returns Will Not Hurt Near-Term Credit Profiles", Moody's stated:

14                   The credit profiles of US regulated utilities will remain intact over  
15                   the next few years despite our expectation that regulators will  
16                   continue to trim the sector's profitability by lowering its authorized  
17                   returns on equity (ROE). Persistently low interest rates and a  
18                   comprehensive suite of cost recovery mechanisms ensure a low  
19                   business risk profile for utilities, prompting regulators to scrutinize  
20                   their profitability, which is defined as the ratio of net income to  
21                   book equity.  
22

1    ***Q24.  HOW SHOULD THESE REGULATORY COST RECOVERY***

2                   ***MECHANISMS BE TREATED FROM A RISK-REDUCING AND***

3                   ***RETURN ON EQUITY PERSPECTIVE?***

4    **A24.**  It is important to recognize these mechanisms in determining the return on equity  
5           for a utility, such as DP&L.  Moody's, for example, cites this in the reports  
6           mentioned above.

7  
8           At the very least, the existence of DP&L's regulatory mechanisms (or riders) in  
9           the proposed ESP should be recognized in the return on equity determination.  I  
10          recommend that DP&L's return on equity be set at a level no higher than the mid-  
11          point of the return on equity range for the proxy companies.

12  
13   **VI.  CAPITAL STRUCTURE AND COST OF DEBT OF DP&L**

14  
15   ***Q25.  WHAT ARE THE HISTORIC CAPITAL STRUCTURE RATIOS OF***  
16                   ***DP&L?***

17   **A25.**  I have examined the historic (2011-2015) capital structure ratios of DP&L, DPL  
18           and AES, which are shown on Schedule DCP-3.  The common equity ratios (i.e.,  
19           common equity as percentage of common equity and debt) have been:

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1

	<b>DP&amp;L</b>		<b>DPL</b>		<b>AES</b>	
	Including S-T Debt	Excluding S-T Debt	Including S-T Debt	Excluding S-T Debt	Including S-T Debt	Excluding S-T Debt
2011	59.6%	60.5%	45.7%	45.7%	22.8%	22.8%
2012	59.4%	59.4%	14.0%	14.0%	19.8%	19.8%
2013	58.4%	58.4%	9.4%	9.4%	18.7%	18.7%
2014	57.0%	57.0%	6.4%	6.4%	18.6%	18.6%
2015	61.7%	61.7%	-4.1%	-4.1%	14.7%	14.7%

2

Sources: Response to OCC INT-596 in DP&L's pending Distribution Rate Case  
(Case No. 15-1830-EL-AIR et al.), and DP&L Form 10-Ks.

3

4

5

This indicates that DP&L, on a consolidated basis, has had an equity ratio that has

6

hovered around 60 percent over the past five years. This indicates that DP&L has a

7

financially strong balance sheet such that DP&L does not need any additional subsidy or

8

so-called credit support to be collected from its customers. The DPL capital structure has

9

declined dramatically and, as of 2015, was negative. As noted previously, DPL's equity

10

ratio declined after the 2011 acquisition by AES. The equity ratios of AES, in contrast,

11

are also much lower than those of DP&L and have also declined in recent years, again in

12

part due to the increased debt related to the acquisition of DPL and DP&L. At any event,

13

it is up to AES and DPL to improve their respective capital structures. The customers of

14

DP&L should not be asked to provide significant amount of subsidy to support a more

15

acceptable capital structure of DPL or AES.

1   ***Q26. HOW DO THESE CAPITAL STRUCTURES COMPARE TO THOSE OF***  
2   ***OTHER INVESTOR-OWNED ELECTRIC UTILITIES?***

3   ***A26.*** Schedule DCP-4 shows the common equity ratios (including short-term debt in  
4       capitalization which is how this source defines common equity ratios) for the  
5       groups of electric and combination electric utilities followed by AUS Utility  
6       Reports. These are:

Year	Electric	Combination Gas And Electric
2011	47%	46%
2012	47%	46%
2013	48%	47%
2014	47%	47%
2015	48%	46%

Source: AUS Utility Reports, May  
editions of 2012-2016.

7  
8       These equity ratios are less than those of DP&L, but significantly higher than  
9       those of DPL and AES. The actual equity ratios of the electric groups are similar  
10      to the 50 percent equity ratio that the PUCO has directed DP&L to maintain and  
11      the Utility has proposed in its distribution rate case.

12  
13   ***Q27. WHAT IS THE PROPOSED COST OF DEBT IN DP&L'S APPLICATION?***

14   ***A27.*** DP&L proposes a pro-forma cost of long-term debt of 5.29 percent. This cost rate  
15      is initially developed in DP&L's distribution rate case by Mr. Mackay<sup>17</sup> and is

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<sup>17</sup> See PUCO Case Nos. 15-1830 et al., Direct Testimony of Jeffrey K. MacKay at 9-13 and Schedule D-3a (November 30, 2015).

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1       also endorsed in the current case by Mr. Jackson.<sup>18</sup> This cost of long-term debt  
2       calculation of 5.29 percent assumes a hypothetical September 15, 2016 \$445  
3       million 30-year first mortgage bond issue at an anticipated yield of 6.60 percent  
4       (total cost of 7.16 percent).<sup>19</sup> However, the current yields of triple-B (Baa) utility  
5       bond are well below 6.60 percent and are about 4.2 percent in August 2016 (when  
6       DP&L refinanced its debt), as is shown on Schedule DCP-1, page 4. It should  
7       also be noted that DP&L actually refinanced \$445 million bond using a six-year  
8       credit agreement in late August 2016.

9

10    ***Q28. DID DP&L REVISE ITS COST OF LONG-TERM DEBT TO REFLECT THE***  
11    ***ACTUAL COST OF THE RECENT \$445 MILLION REFINANCING?***

12    ***A28.*** No. According to the Direct Testimony of DP&L witness Jackson, the Utility's  
13       filing continues to assume that it is actually paying a 6.60 percent interest rate  
14       (7.16 percent total cost) on the \$445 million of debt. This methodology used by  
15       DP&L and described on pages 25-26 of Mr. Jackson's testimony is based upon  
16       the following assumptions:

- 17               1.     average 30-year U.S. Treasury yield forecast for 2016 is  
18                     4.00 percent;
- 19               2.     spread between 30 year U.S. Treasury bonds yield and 30  
20                     year mortgage bonds is 260 basis points;

---

<sup>18</sup> Direct Testimony of Jackson at 23-27 (October 11, 2016).

<sup>19</sup> Id.



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- 1                   3.       yield on 30 year mortgage bonds that would have been sold  
2                               in August of 2016 would be 6.60 percent; and  
3                   4.       issuance costs would add 56 basis points to the cost of the  
4                               bonds.

5  
6   ***Q29. THE FIRST ASSUMPTION CITED BY MR. JACKSON IS THAT 30 YEAR***  
7   ***U.S. TREASURY BONDS HAVE A FORECAST YIELD OF 4.0 PERCENT IN***  
8   ***2016. WHAT HAS BEEN THE ACTUAL YIELDS ON 30 YEAR U.S.***  
9   ***TREASURY BONDS IN 2016?***

10   ***A29.*** The monthly yields on 30 year U.S. Treasury bonds during the first ten months of  
11       2016 are as follows:

Jan	2.86%
Feb	2.62%
Mar	2.68%
Apr	2.62%
May	2.63%
June	2.45%
July	2.23%
Aug	2.26%
Sept	2.35%
Oct	2.50%

---

Source: Federal Reserve System,  
H.15 Selected Interest Rates

12  
13       These are all well below the 4.0 percent yield assumed by Mr. Jackson. In  
14       August, the month of the refinancing, 30-year Treasury bonds yielded 2.26  
15       percent.

1   ***Q30. WHAT HAS BEEN THE ACTUAL YIELD ON LONG-TERM UTILITY***  
2       ***BONDS IN 2016?***

3   ***A30.*** The average monthly yields on Baa long-term utility bonds in 2016 have been:

Jan	5.49%
Feb	5.28%
Mar	5.12%
Apr	4.75%
May	4.60%
June	4.47%
July	4.16%
Aug	4.20%
Sept	4.27%
Oct	4.34%

---

Source: Mergent Bond Record.

4

5       These are all well below the 6.60 percent Mr. Jackson assumes in his testimony.

6       Significantly, the August (i.e., month that DP&L refinanced its \$445 million debt)

7       Baa long-term utility bond yield was 4.20 percent.

8

9   ***Q31. WHAT IS THE EFFECT OF ASSUMING A HIGHER COST OF DEBT***  
10       ***THAN THAT ACTUALLY PAID BY DP&L?***

11   ***A31.*** To the extent that the cost of debt is reflected in either DP&L's base rates or any  
12       regulatory mechanism associated with this ESP, DP&L's customers would be  
13       paying rates that exceed DP&L's actual costs. This excessive cost collection  
14       from DP&L's customers would then accrue (as earnings) to DP&L's  
15       shareholders.

16

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1    ***Q32. WAS DP&L ASKED BY OCC TO PROVIDE THE ACTUAL COST OF ITS***  
2            ***\$445 MILLION DEBT REFINANCING AND RELATED TOTAL COST OF***  
3            ***DEBT?***

4    ***A32.*** Yes, in OCC INT-308.  
5

6    ***Q33. DID DP&L PROVIDE A RESPONSE TO THIS INTERROGATORY?***

7    ***A33.*** It did not provide the information requested. A copy is attached as Schedule  
8            DCP-5. In a second response (i.e., OCC INT-309, attached as Schedule DCP-6)  
9            the Utility also declined to provide the actual cost of the new debt, as well as the  
10           actual cost of all of DP&L's debt. DP&L cited only the "Company's Report of  
11           Sale."

12

13   ***Q34. DOES THE REPORT OF SALE (CITED IN THE RESPONSE) INDICATE***  
14           ***THE ACTUAL COST OF THE NEW ISSUE AND TOTAL COST OF DEBT***  
15           ***FOR DP&L?***

16   ***A34.*** No.  
17

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1   ***Q35. IS IT POSSIBLE TO ESTIMATE THE COST OF THE NEW DEBT FROM***  
2   ***THE REPORT OF SALE?***

3   ***A35.*** Yes. I estimate the cost of new debt to be 4.41 percent using the following  
4   information and assumptions from the Report of Sale:

Amount Outstanding	\$445,000,000
Total Estimated Net Proceeds	434,100,000
Difference	<u>10,900,000</u>
Annual Interest (@ 4.0%)	\$17,800,000
1/6 of Difference	1,816,667
Total Annual Cost	19,616,667
Annual Cost	4.41 percent

5  
6   Clearly, the 4.41 percent estimate is well below DP&L's assumption of a 7.16  
7   percent cost.

8  
9   ***Q36. CAN YOU ESTIMATE THE OVERALL COST OF DP&L'S LONG-TERM***  
10   ***DEBT USING THE 4.41 PERCENT COST OF NEW DEBT CITED ABOVE?***

11   ***A36.*** No. Schedule D-3a of Exhibit CLJ-7 shows the derivation of the 5.29 percent  
12   cost rate cited by Mr. Jackson. However, the development of this cost rate does  
13   not provide the necessary detail to re-calculate the Utility's cost of long-term  
14   debt.

15   I again note that DP&L refused to provide this information which was requested  
16   in OCC INT-309 (Schedule DCP-6).

17

1   ***Q37. WHAT COST OF DEBT DO YOU RECOMMEND FOR USE IN THIS***  
2       ***PROCEEDING?***

3   ***A37.*** I recommend that DP&L's actual cost of debt be used, reflecting in part the actual  
4       cost of the \$445 million of debt issued in August of 2016. Should DP&L  
5       continue to refuse providing this information, I recommend a 4.4 percent cost of  
6       debt be used.

7  
8   ***Q38. CAN THE RETURN ON EQUITY BE DETERMINED WITH THE SAME***  
9       ***DEGREE OF PRECISION AS THE COST OF DEBT?***

10   ***A38.*** No. The cost rate of debt is largely determined by interest payments, issue prices,  
11       and related expenses. The return on equity, on the other hand, cannot be precisely  
12       quantified, primarily because this cost is an opportunity cost. There are several  
13       models that can be employed to estimate the return on equity. Three of the  
14       primary methods – Discounted Cash Flow (“DCF”), Capital Asset Pricing Model  
15       (“CAPM”), and Comparable Earnings (“CE”) – are developed in the following  
16       sections of my testimony.

17

18   **VII. SELECTION OF PROXY GROUPS**

19

20   ***Q39. HOW HAVE YOU ESTIMATED THE RETURN ON EQUITY FOR***  
21       ***DP&L?***

22   ***A39.*** DP&L is not a publicly-traded company, nor is DPL. Consequently, it is not  
23       possible to directly apply return on equity models to these entities. However, in

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1 cost of capital analyses, it is customary to analyze groups of comparison, or  
2 “proxy” companies, as a substitute for DP&L to determine its return on equity.  
3 I have accordingly selected two groups for comparison to DP&L. I selected one  
4 group of electric utilities similar to DP&L using the criteria listed on Schedule  
5 DCP-7. These criteria area as follows:

- 6 (1) market cap of \$1 billion to \$10 billion;
- 7 (2) electric revenues 50% or greater;
- 8 (3) common equity ratio 40% or greater;
- 9 (4) Value Line Safety rank of 1 or 2;
- 10 (5) Standard & Poor’s (“S&P”) stock ranking of A or B;
- 11 (6) S&P and/or Moody’s bond ratings of BBB;
- 12 (7) currently pays dividends; and
- 13 (8) not currently involved in major merger or acquisition.

14

15 In addition, I have conducted studies of the cost of equity for the electric proxy  
16 group that was selected by DP&L witness Dr. Roger A. Morin in DP&L’s  
17 distribution rate case<sup>20</sup> and cited by DP&L witness Malinak in this proceeding.<sup>21</sup>

18

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<sup>20</sup> See PUCO Case Nos. 15-1830-EL-AIR et al., Direct Testimony of Roger A. Morin (November 30, 2015).

<sup>21</sup> See PUCO Case Nos. 16-0395-EL-SSO et al., Direct Testimony of R. Jeffrey Malinak at 5 and 13 (October 31, 2016).

1   ***Q40. PLEASE EXPLAIN WHY YOU ARE USING TWO PROXY GROUPS IN***  
2       ***YOUR COST OF EQUITY ANALYSES.***

3   ***A40.*** It has long been my practice to develop my own independently-determined proxy  
4       group and to also conduct cost of equity analyses on the utility witness' proxy  
5       group. My conclusions and recommendations, in turn, are based upon my review  
6       of the results of both proxy groups.

7  
8   **VIII. DCF ANALYSIS**

9  
10   ***Q41. WHAT IS THE THEORY AND METHODOLOGICAL BASIS OF THE***  
11       ***DISCOUNTED CASH FLOW MODEL?***

12   ***A41.*** The DCF model is one of the oldest and most commonly-used models for  
13       estimating the return on equity for public utilities.<sup>22</sup> The DCF model is based on  
14       the “dividend discount model” of financial theory, which maintains that the value  
15       (price) of any security or commodity is the discounted present value of all future  
16       cash flows.

17  
18       The most common variant of the DCF model assumes that dividends are expected  
19       to grow at a constant rate (the “constant growth” or “Gordon DCF model”). In  
20       this framework, the return on equity is derived from the following formula:

---

<sup>22</sup> Certain regulatory commissions (e.g., Federal Energy Regulatory Commission) rely primarily on the DCF methodology in determining the return on equity for public utilities.

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$$K = \frac{D}{P} + g$$

where: P = current price

D = current dividend rate

K = discount rate (cost of capital)

g = constant rate of expected growth

This formula essentially recognizes that the return expected or required by investors is comprised of two factors: the dividend yield (current income) and expected growth in dividends (future income).

**A. RECOMMENDED DCF ANALYSIS**

***Q42. PLEASE EXPLAIN HOW YOU EMPLOY THE DCF MODEL.***

**A42.** I use the constant growth DCF model. In doing so, I combine the current dividend yield for each of the proxy utility stocks described in the previous section with several indicators of expected dividend growth.

***Q43. HOW DID YOU DERIVE THE DIVIDEND YIELD COMPONENT OF THE DCF EQUATION?***

**A43.** Several methods can be used to calculate the dividend yield component. These methods generally differ in the manner in which the dividend rate is employed (i.e., current versus future dividends or annual versus quarterly compounding



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1 variant). I use a version of the quarterly compounding variant, which is expressed  
2 as follows:

$$\text{Yield} = \frac{D_0(1 + 0.5g)}{P_0}$$

3  
4 This dividend yield component recognizes the timing of dividend payments and  
5 dividend increases.

6 The  $P_0$  in my yield calculation is the average of the high and low stock price for  
7 each proxy company for the most recent three-month period (June-August 2016).

8 The  $D_0$  is the current annualized dividend rate for each proxy company.  
9

10 ***Q44. HOW DO YOU ESTIMATE THE DIVIDEND GROWTH COMPONENT***  
11 ***OF THE DCF EQUATION?***

12 ***A44.*** The DCF model's dividend growth rate component is usually the most crucial and  
13 controversial element involved in using this methodology. The objective of  
14 estimating the dividend growth component is to reflect the growth expected by  
15 investors that is embodied in the price (and yield) of a company's stock. As such,  
16 it is important to recognize that individual investors have different expectations  
17 and consider alternative indicators in deriving their expectations. This is  
18 evidenced by the fact that every investment decision resulting in the purchase of a  
19 particular stock is matched by another investment decision to sell that stock.  
20

21 A wide array of indicators exists for estimating investors' growth expectations.

22 As a result, it is evident that investors do not always use one single indicator of

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1 growth. It therefore is necessary to consider alternative dividend growth  
2 indicators in deriving the growth component of the DCF model. I have  
3 considered five indicators of growth in my DCF analyses. These are:

- 4 1. years 2011-2015 (5-year average) earnings retention, or  
5 fundamental growth (per Value Line);
- 6 2. five-year average of historic growth in earnings per share (EPS),  
7 dividends per share (DPS), and book value per share (BVPS) (per  
8 Value Line);
- 9 3. years 2016, 2017 and 2019-2021 projections of earnings retention  
10 growth (per Value Line);
- 11 4. years 2013-2015 to 2019-2021 projections of EPS, DPS, and  
12 BVPS (per Value Line); and
- 13 5. five-year projections of EPS growth (per First Call).

14

15 I believe this combination of growth indicators is a representative and appropriate  
16 set with which to begin the process of estimating investor expectations of  
17 dividend growth for the groups of proxy companies. I also believe that these  
18 growth indicators reflect the types of information that investors consider in  
19 making their investment decisions. As I indicated previously, investors have an  
20 array of information available to them, all of which would be expected to have  
21 some impact on their decision-making process.

22

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1 ***Q45. PLEASE DESCRIBE YOUR DCF CALCULATIONS.***

2 ***A45.*** Schedule DCP-8 presents my DCF analysis. Page 1 shows the calculation of the  
3 “raw” (i.e., prior to adjustment for growth) dividend yield for each proxy  
4 company. Pages 2 and 3 show the growth rates for the groups of proxy  
5 companies. Page 4 of Schedule DCP-8 shows the DCF calculations that are  
6 presented on several bases: mean, median, and low and high values of each.  
7 These results can be summarized as follows:

	Mean	Median	Mean Low <sup>23</sup>	Mean High <sup>24</sup>	Median Low <sup>21</sup>	Median High <sup>22</sup>
Parcell Proxy Group	7.8%	7.7%	6.6%	8.9%	6.5%	9.0%
Morin Proxy Group	7.8%	7.8%	7.1%	8.6%	6.9%	8.6%

8

9 I note that the individual DCF calculations shown on Schedule DCP-8 should not  
10 be interpreted to reflect the expected cost of capital for individual companies in  
11 the proxy groups. Rather, the individual values shown should be interpreted as  
12 alternative information considered by investors.

13

14 ***Q46. WHAT DO YOU CONCLUDE FROM YOUR DCF ANALYSES?***

15 ***A46.*** The DCF rates (the estimated return on common equity) resulting from the  
16 analysis of the proxy groups fall into a wide range between 6.5 percent and 9.0  
17 percent. The highest DCF rates are 8.6 percent to 9.0 percent.

18

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<sup>23</sup> Using the lowest growth rate.

<sup>24</sup> Using only the highest growth rate.

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1 I believe a range of 8.6 percent to 9.0 percent (8.8 percent mid-point) represents  
2 the current DCF-derived return on equity for the proxy groups. This range  
3 includes the highest DCF rates and exceeds the low and mean/median DCF rates.

4  
5 I focus on the higher DCF results because recent financial conditions have had the  
6 effect of driving many of the DCF results to low levels relative to those of recent  
7 years. Had I used the average of the DCF results, my recommendation would  
8 have been lower. As such, my recommendation can be viewed as conservative or  
9 favorable from the Utility's perspective, as use of the lower results would have  
10 resulted in a lower DCF cost of equity conclusion.

11  
12 **B. CRITIQUE OF DR. MORIN'S DCF ANALYSES**

13  
14 ***Q47. WHAT IS YOUR UNDERSTANDING OF DR. MORIN'S DCF***  
15 ***ANALYSES?***

16 ***A47.*** Dr. Morin performs two sets of DCF analyses for a group of electric utilities using  
17 data as of May 2015.<sup>25</sup> In these analyses, he uses "spot" dividend yields for each  
18 company. For the growth rates, he used two indicators of growth – five-year EPS  
19 (earnings per share) growth projections and Value Line projections of EPS  
20 growth.

21  

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<sup>25</sup> Exhibits RAM-2 and RAM-3 in Case No. 15-1830-EL-AIR.

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1 The major problem with Dr. Morin's DCF analyses is the fact that he has used  
2 only one indicator of growth – projections of EPS growth. As I indicated in my  
3 DCF analysis, it is customary and proper to use alternative measures of growth.

4  
5 Dr. Morin's DCF analyses implicitly assume that investors rely exclusively on  
6 EPS projections in making investment decisions. This is a very dubious  
7 assumption and Dr. Morin has offered no evidence that it is correct. I note, for  
8 example, that Value Line – one of the sources of his growth rate estimates –  
9 contains many statistics, both of a historic and projected nature, for the benefit of  
10 investors who subscribe to this publication and presumably make investment  
11 decisions based at least in part from the information contained in Value Line.  
12 Yet, Dr. Morin would have us believe that Value Line subscribers and investors  
13 focus exclusively on one single number from this publication.

14  
15 I note in this regard that the DCF model is a "cash flow" model. The cash flow to  
16 investors in a DCF framework is dividends. Dr. Morin's DCF model, in contrast,  
17 does not even consider dividend growth rates.

18  
19 Finally, I note that Dr. Morin's DCF analyses are based upon data that is some 18  
20 months old. I also note that it is customary in cost of capital analyses to use the  
21 currently-available market data at the time the analyses are prepared. This is done  
22 in order for the cost of capital analyses to be current and thus, more reliable.

23

## 1 IX. CAPM ANALYSIS

2

3 Q48. PLEASE DESCRIBE THE THEORY AND METHODOLOGICAL BASIS  
4 OF THE CAPM.

5    **A48.**    CAPM was developed in the 1960s and 1970s as an extension of modern portfolio  
6            theory (MPT), which studies the relationships among risk, diversification, and  
7            expected returns. The CAPM describes and measures the relationship between a  
8            security's investment risk and its market rate of return.

9

10 **Q49. HOW IS THE CAPM DERIVED?**

11 **A49.** The general form of the CAPM is:

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

13                      where:    K = cost of equity

14  $R_f$  = risk free rate

15  $R_m$  = return on market

16                      β = beta

17  $R_m - R_f =$  market risk premium

The CAPM is a variant of the Risk Premium (“RP”) method. RP methodologies generally focus on the historic and/or expected future differential between various measures of stocks and debt returns, which is then applied to current levels of debt to estimate the return on equity. I believe the CAPM is generally superior to the simple RP method because the CAPM specifically recognizes the risk of a particular company or industry (i.e., beta), whereas the simple RP method

1 assumes the same return on equity for all companies exhibiting similar bond  
2 ratings or other characteristics.

3

4 **A. RECOMMENDED CAPM ANALYSIS**

5

6 ***Q50. WHAT DO YOU USE FOR THE RISK-FREE RATE?***

7 ***A50.*** The first input of the CAPM is the risk-free rate ( $R_f$ ). The risk-free rate reflects  
8 the level of return that can be achieved without accepting any risk.

9 In CAPM applications, the risk-free rate is generally recognized by using the  
10 yields of U.S. Treasury securities. Two general types of U.S. Treasury securities  
11 are often utilized as the  $R_f$  component, short-term U.S. Treasury bills and long-  
12 term U.S. Treasury bonds.

13

14 I have performed CAPM calculations using the three-month average yield (June-  
15 August 2016) for 20-year U.S. Treasury bonds. I use the yields on long-term  
16 Treasury bonds because this matches the long-term perspective of return on  
17 equity analyses. Over this three-month period, these bonds had an average yield  
18 of 1.91 percent.

19

20 ***Q51. WHAT IS BETA AND WHAT BETAS DO YOU EMPLOY IN YOUR***  
21 ***CAPM?***

22 ***A51.*** Beta is a measure of the relative volatility (and thus risk) of a particular stock in  
23 relation to the overall market. Betas less than 1.0 are considered less risky than

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1 the market, whereas betas greater than 1.0 are more risky. Utility stocks  
2 traditionally have had betas below 1.0. I utilize the most recent Value Line betas  
3 for each company in the proxy groups.

4  
5 ***Q52. HOW DO YOU ESTIMATE THE MARKET RISK PREMIUM***  
6 ***COMPONENT?***

7 ***A52.*** The market risk premium component ( $R_m - R_f$ ) represents the investor-expected  
8 premium of common stocks over the risk-free rate, or long-term government  
9 bonds. For the purpose of estimating the market risk premium, I considered  
10 alternative measures of returns of the S&P 500 (a broad-based group of large U.S.  
11 companies) and 20-year U.S. Treasury bonds (i.e., same timeframe as employed  
12 in the Duff & Phelps – previously Morningstar/Ibbotson - source used to develop  
13 risk premiums).

14  
15 First, I compared the actual annual returns on equity of the S&P 500 with the  
16 actual annual income returns of U.S. Treasury bonds. Schedule DCP-9 shows the  
17 returns on equity for the S&P 500 group for the period 1978-2014. Schedule  
18 DCP-9 also indicates the annual income returns on 20-year U.S. Treasury bonds  
19 and the annual differentials (i.e., risk premiums) between the S&P 500 and U.S.  
20 Treasury 20-year bonds. Based upon these returns, I conclude that the risk  
21 premium from this analysis is 6.85 percent.

22



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1 I next considered the total returns (i.e., dividends/interest plus capital  
2 gains/losses) for the S&P 500 group as well as for long-term government bonds,  
3 as tabulated by Duff & Phelps,<sup>26</sup> using both arithmetic and geometric means. I  
4 considered the total returns for the entire 1926-2015 period reported by this  
5 source, which are as follows:

	S&P 500	L-T Gov't Bonds	Risk Premium
Arithmetic	12.0%	6.0%	6.0%
Geometric	10.0%	5.6%	4.4%

6  
7 I conclude from this analysis that the expected risk premium is about 5.75 percent  
8 (i.e., average of all three risk premiums: 6.85 percent from Schedule DCP-9; 6.0  
9 percent arithmetic and 4.4 percent geometric from Morningstar/Ibbotson). I  
10 believe that a combination of arithmetic and geometric means is appropriate  
11 because investors have access to both types of means<sup>27</sup> and presumably, both  
12 types are reflected in investment decisions and thus, stock prices and the return on  
13 equity.

14

15 ***Q53. WHAT ARE YOUR CAPM RESULTS?***

16 **A53.** Schedule DCP-10 shows my CAPM calculations. The results are:

	Mean	Median
Parcell Proxy Group	6.5%	6.5%
Morin Proxy Group	6.0%	5.9%

17

---

<sup>26</sup> Duff & Phelps, "2016 SBBI Yearbook."

<sup>27</sup> For example, Value Line uses compound (i.e., geometric) growth rates in its projection. In addition, mutual funds report growth rates on a compound basis.

1   ***Q54. WHAT IS YOUR CONCLUSION CONCERNING THE CAPM RETURN***  
2       ***ONEQUITY?***

3   ***A54.*** The CAPM results collectively indicate a return on equity of 5.9 percent to 6.5  
4       percent for the groups of proxy utilities. I conclude that an appropriate CAPM  
5       return on equity estimation for DP&L is 5.9 percent to 6.5 percent.

6

7       **B. CRITIQUE OF DR. MORIN'S CAPM ANALYSES**

8

9   ***Q55. WHAT IS YOUR UNDERSTANDING OF DR. MORIN'S CAPM***  
10       ***ANALYSES?***

11   ***A55.*** Dr. Morin performs CAPM analyses for a group of electric utilities (0.77 average  
12       beta). He combines a 0.77 beta with a 4.5 percent “forecast” cost of long-term  
13       (30-year) Treasury bonds and a 7.2 percent risk premium to get the following  
14       CAPM results:<sup>28</sup>

15                                $K = RF + \beta(RP) = 4.5\% + 0.77(7.2\%) = 10.0\%$

16

17   ***Q56. DO YOU AGREE WITH THIS CAPM ANALYSIS?***

18   ***A56.*** No. I also note that his CAPM analyses, like his DCF analyses, used data as of  
19       the first half of 2015.

20

---

<sup>28</sup> See PUCO Case Nos. 15-1830-EL-AIR et al., Testimony of Morin at 43 (November 30, 2015).

1   ***Q57. WITH WHICH COMPONENTS OF HIS CAPM ANALYSIS DO YOU***  
2       ***DISAGREE?***

3   **A57.** I disagree with the use of forecasted interest rates and the risk premium  
4       component.

5

6   ***Q58. WHY IS IT NOT PROPER TO USE PROJECTED INTEREST RATES AS***  
7       ***THE RISK-FREE RATE?***

8   **A58.** It is proper to use the current (i.e., actual) yield as the risk-free rate in a CAPM  
9       context. This is the case because the current yield is known and measurable and  
10      reflects investors' collective assessment of all capital market conditions.  
11      Prospective interest rates, in contrast, are not measurable and not achievable. For  
12      example, if the current yield on 20-year U.S. Treasury Bonds is about 2.0 percent,  
13      this reflects the rate that investors can actually receive on their investment.  
14      Investors cannot receive a prospective yield on their investments because such a  
15      yield is not actual but rather speculative.

16

17      Use of the current risk-free rate in a CAPM context is similar to using the current  
18      yield in a DCF context. Analysts do not use prospective stock prices as the basis  
19      for the dividend yield in a DCF analysis, as the use of prospective stock prices is  
20      speculative. Use of current stock prices is appropriate, as are used by Dr. Morin.  
21      Likewise, current levels of interest rates reflect all current information (i.e., the  
22      efficient market hypothesis) and should be used as the risk-free rate in the CAPM.

23

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1 As further indication of the inappropriateness of using forecasted interest rates,  
2 Dr. Morin's Table 2 on page 34 showed the following "Forecasts" (as of May of  
3 2015) of 2016 30-Year Treasury Yields:

Global Insight	3.8%
Value Line	4.1%
Average	4.0%

4  
5 In actuality, ten months into 2016, actual yields on 30-Year U.S. Treasury bonds  
6 are about 2.5 percent.<sup>29</sup> Thus, the "forecasts" employed by Dr. Morin have  
7 proved to be substantially inaccurate.

8

9 ***Q59. WHAT IS YOUR DISAGREEMENT WITH DR. MORIN'S MARKET***  
10 ***RISK PREMIUM COMPONENT?***

11 ***A59.*** Dr. Morin's 7.2 percent risk premium is partially derived from the 1926-2014  
12 Morningstar/Ibbotson study (cited previously) showing a 7.0 percent differential  
13 between common stocks and the "income component" of Treasury bonds.

14

15 I disagree with this study because Dr. Morin improperly used "income returns"  
16 from the Morningstar study rather than "total returns." What Dr. Morin did was  
17 compare the differential between total returns for common stocks (i.e., dividends  
18 and capital gains) and only income returns for Treasury bonds. As such, he has  
19 ignored the capital gains component of the Treasury bonds return. As I indicated  
20 earlier in my testimony, the differential between total returns of common stocks

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<sup>29</sup> See [www.federalreserve.gov/releases/h15/](http://www.federalreserve.gov/releases/h15/).

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1 and Treasury bonds is 6.0 percent (a figure Dr. Morin acknowledges on page 37).

2 In addition, Dr. Morin's use of the Morningstar/Ibbotson study only used half of  
3 the reported data (arithmetic means) and ignored the other half of the reported  
4 data (geometric means).

5

6 ***Q60. PLEASE DESCRIBE DR. MORIN'S "EMPIRICAL" CAPM ANALYSIS.***

7 ***A60.*** Dr. Morin also employs what he describes as an "empirical" CAPM analysis.

8 This form of the CAPM assumes that beta for an industry understates the  
9 industry's volatility, therefore, risk is understated. As a result, it is necessary to  
10 substitute the overall market's beta (i.e., 1.0) for one-fourth of the industry's  
11 actual beta. Dr. Morin assumed that the appropriate beta in a CAPM analysis is a  
12 combination of the actual industry beta with a 75 percent weight and a beta of 1  
13 with a 25 percent weight.

14

15 The use of an empirical CAPM overstates the cost of equity for companies with  
16 betas below that of the market. What the empirical CAPM actually does is inflate  
17 the CAPM cost for the selected company or industry on one-fourth of its equity  
18 and assumes that one-fourth of the company has the risk of the overall market.

19 This essentially creates a hypothetical beta and CAPM result, which is not  
20 appropriate for DP&L or for other utilities.

21

1           **C.       CRITIQUE OF DR. MORIN'S RISK PREMIUM ANALYSES**

2

3   ***Q61.   PLEASE DESCRIBE YOUR UNDERSTANDING OF DR. MORIN'S RISK***  
4       ***PREMIUM ANALYSES.***

5   ***A61.*** Dr. Morin performs two sets of risk premium analyses that involve the estimation  
6       of an equity risk premium over the forecasted (as of May 2015) 4.5 percent long-  
7       term government bond yield developed in his CAPM analyses.

8

9   ***Q62.   PLEASE DESCRIBE DR. MORIN'S HISTORIC RISK PREMIUM FOR***  
10       ***THE ELECTRIC UTILITY INDUSTRY.***

11   ***A62.*** Dr. Morin's historic risk premium for the electric utility industry involves an  
12       examination of the total returns of long-term government bonds (capital  
13       gains/losses plus interest) and the S&P Electric Utilities Index (capital  
14       gains/losses plus dividend yield) over the period 1931-2014. The average  
15       historical difference between the electric utility returns and the utility bond  
16       returns was 5.5 percent. His historic risk premium for the electric utility industry  
17       simply added the 4.5 percent forecast long-term government bond yield to the 5.5  
18       percent historic risk premium to get a 10.0 percent result.

19

20   ***Q63.   DO YOU AGREE WITH THIS METHODOLOGY FOR ESTIMATING***  
21       ***THE COST OF EQUITY FOR DP&L?***

22   ***A63.*** No. Dr. Morin's historic risk premium of 5.5 percent is simply an examination of  
23       historical events going back to 1931. He has made no demonstration that

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1 economic and financial conditions in 2016 are similar to those over the past  
2 seventy-five years. The use of such a methodology implicitly assumes that the  
3 events of each of these years can have the same influences at the current time.

4  
5 In addition, the risk premiums developed by Dr. Morin are generally dominated  
6 by the influence of capital gains in many years. I do not believe it is proper to  
7 assign DP&L's cost of equity based directly upon a methodology that is  
8 dominated by stock market changes and bond market changes.

9 Finally, Dr. Morin uses forecasted interest rates. As I indicated previously, this is  
10 improper.

11

12 ***Q64. PLEASE DESCRIBE DR. MORIN'S ANALYSIS OF ALLOWED RISK***  
13 ***PREMIUMS FOR THE ELECTRIC UTILITY INDUSTRY.***

14 ***A64.*** In this phase of his risk premium testimony, Dr. Morin compares the differential  
15 between allowed returns on equity for electric utilities and long-term Treasury  
16 bonds over the 1986-2014 period. The average spread over this period was 5.59  
17 percent, but Dr. Morin does not utilize this differential as his risk premium.  
18 Instead, he performs regression analyses to track the risk premium in terms of  
19 rising and falling interest rates. He then concludes that a 6.2 percent risk  
20 premium is appropriate in conjunction with a 4.5 percent Treasury bond yield.  
21 This adjustment is not consistent with Dr. Morin's historic risk premium analyses  
22 where he simply took the average risk premium over the entire 1931-2014 period  
23 and applied it to the current level of Treasury bond yields.

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I also note that there has been a downward trend in allowed returns on equity for electric utilities in recent years. According to the source of Dr. Morin's allowed risk premium analysis (Regulatory Focus, published by Regulatory Research Associates, as cited earlier in my testimony) the annual average return on equity awards have been:

2000	11.43%
2001	11.09%
2002	11.16%
2003	10.97%
2004	10.75%
2005	10.54%
2006	10.36%
2007	10.36%
2008	10.46%
2009	10.46%
2010	10.34%
2011	10.29%
2012	10.01%
2013	9.94%
2014	9.76%
2015	9.58%

It is noteworthy that the average authorized return on equity has not been as large as Dr. Morin's 10.5 percent return on equity recommendation since 2005.

**X. CE ANALYSIS**

**Q65. PLEASE DESCRIBE THE BASIS OF THE CE METHODOLOGY.**

**A65.** The CE method is derived from the "corresponding risk" concept discussed in the cases of public utility regulation in the US. This method is thus based upon the economic concept of opportunity cost. The CE method examines historic and



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1 projected returns on equity for similar-risk utility companies, along with the  
2 acceptance of the returns on equity by investors in terms of market-to-book ratios  
3 (“M/B”). As previously noted, the return on equity is an opportunity cost: the  
4 prospective return available to investors from alternative investments of similar  
5 risk.

6  
7 The CE method is designed to measure the returns expected to be earned on the  
8 original cost book value of similar risk enterprises. Thus, it provides a direct  
9 measure of the fair return, because it translates into practice the competitive  
10 principle upon which regulation rests.

11  
12 The CE method normally examines the experienced and/or projected return on  
13 book common equity. The logic for examining returns on book equity follows  
14 from the use of original cost rate base regulation for public utilities, which uses a  
15 utility’s book common equity to determine the cost of capital. This cost of capital  
16 is, in turn, used as the fair rate of return which is then applied (multiplied) to the  
17 book value of rate base to establish the dollar level of capital costs to be recovered  
18 by the utility. This technique is thus consistent with the rate-base, rate-of-return  
19 methodology used to set utility rates.

1   ***Q66. HOW DO YOU APPLY THE CE METHODOLOGY IN YOUR ANALYSIS***  
2       ***OF DP&L'S RETURN ON EQUITY?***

3   ***A66.*** I apply the CE methodology by examining realized returns on equity for the  
4       groups of proxy utilities, as well as unregulated companies, and evaluating  
5       investor acceptance of these returns by reference to the resulting M/Bs. In this  
6       manner it is possible to assess the degree to which a given level of return equates  
7       to the cost of capital. It is generally recognized for utilities that an M/B of greater  
8       than one (i.e., 100 percent) reflects a situation where a company is able to attract  
9       new equity capital without dilution (i.e., above book value). As a result, one  
10      objective of a fair cost of equity is the maintenance of stock prices at or above  
11      book value. There is no regulatory obligation to set rates designed to maintain an  
12      M/B significantly above one.

13  
14      I further note that my CE analysis is based upon market data (through the use of  
15      M/Bs) and is thus essentially a market test. As a result, my CE analysis is not  
16      subject to the criticisms occasionally made by some who maintain that past earned  
17      returns do not represent the cost of capital. In addition, my CE analysis also uses  
18      prospective returns and thus is not backward looking.

19  
20   ***Q67. WHAT TIME PERIODS DO YOU EXAMINE IN YOUR CE ANALYSIS?***

21   ***A67.*** My CE analysis considers the experienced returns on equity of the proxy groups  
22      of utilities for the period 2002-2015 (i.e., the last 14 years). The CE analysis  
23      requires that I examine a relatively long period of time in order to determine

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1 trends in earnings over at least a full business cycle. Further, in estimating a fair  
2 level of return for a future period, it is important to examine earnings over a  
3 diverse period of time in order to avoid any undue influence from unusual or  
4 abnormal conditions that may occur in a single year or shorter period. Therefore,  
5 in forming my judgment of the current cost of equity, I focused on two periods:  
6 2009-2015 (the current business cycle) and 2002-2008 (the most recent business  
7 cycle). I have also considered projected returns on equity for 2016, 2017 and  
8 2019-2021.

9  
10 ***Q68. PLEASE DESCRIBE YOUR CE ANALYSIS.***

11 ***A68.*** Schedules DCP-11 and DCP-12 contain summaries of experienced returns on  
12 equity and M/Bs for three groups of companies, while Schedule DCP-13 presents  
13 a risk comparison of utilities versus unregulated firms.

14  
15 Schedule DCP-11 shows the returns on equity and M/Bs for the groups of proxy  
16 utilities. These can be summarized as follows:

	<b>Parcell Proxy Group</b>	<b>Morin Proxy Group</b>
<b>Historic Return on Equity</b>		
Mean	9.1-9.2%	10.3-10.4%
Median	8.9-9.0%	10.0-10.2%
<b>Historic M/B</b>		
Mean	147-148%	158-160%
Median	139-148%	148-153%
<b>Prospective Return on Equity</b>		
Mean	8.8-9.8%	10.0-11.2%
Median	9.0-10.0%	9.8-10.5%

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1        These results indicate that historic returns on equity of 8.9 percent to 10.4 percent  
2        have been adequate to produce M/Bs of 139 to 160 percent for the groups of  
3        utilities. Furthermore, projected returns on equity for 2016, 2017, and 2019-2021  
4        are within a range of 8.8 percent to 11.2 percent for the utility groups. These  
5        relate to 2015 M/Bs of 156 percent or greater.

6

7        ***Q69. DO YOU ALSO REVIEW THE EARNINGS OF UNREGULATED FIRMS?***

8        ***A69.*** Yes. As an alternative, I also examine the S&P's 500 Composite group. This is a  
9        well-recognized group of firms that is widely utilized in the investment  
10       community and is indicative of the competitive sector of the economy. Schedule  
11       DCP-12 presents the earned returns on equity and M/Bs for the S&P 500 group  
12       over the past 13 years (i.e., 2002-2014). As this schedule indicates, over the two  
13       business cycle periods this group's average returns on equity ranged from 12.4  
14       percent to 13.6 percent, with average M/Bs ranging between 220 percent and 275  
15       percent.

16

17       ***Q70. HOW CAN THE ABOVE INFORMATION BE USED TO ESTIMATE***  
18       ***DP&L'S RETURN ON EQUITY?***

19       ***A70.*** The recent returns on equity of the proxy utilities and S&P 500 group can be  
20       viewed as an indication of the level of return realized and expected in the  
21       regulated and competitive sectors of the economy. In order to apply these returns  
22       to the return on equity for the proxy utilities, however, it is necessary to compare  
23       the risk levels of the utilities and the competitive companies. I do this in Schedule

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1 DCP-13, which compares several risk indicators for the S&P 500 group and the  
2 utility groups. The information in this schedule indicates that the S&P 500 group  
3 is more risky than the utility proxy groups.

4  
5 ***Q71. WHAT RETURN ON EQUITY IS INDICATED BY YOUR CE***  
6 ***ANALYSIS?***

7 ***A71.*** Based on recent returns on equity and M/Bs, my CE analysis indicates that the  
8 return on equity for the proxy utilities is no more than 9.0 percent to 10.0 percent  
9 (9.5 percent mid-point). Recent returns on equity of 8.9 percent to 10.4 percent  
10 have resulted in M/Bs of 140 percent and over. Prospective returns on equity of  
11 8.8 percent to 11.2 percent have been accompanied by M/Bs over 150 percent.  
12 As a result, it is apparent that authorized returns below this level would continue  
13 to result in M/Bs of well above 100 percent. As I indicated earlier, the fact that  
14 M/Bs substantially exceeds 100 percent indicates that historic and prospective  
15 returns on equity of 9.5 percent reflect earning levels that are well above the  
16 actual cost of equity for those regulated companies. I also note that a company  
17 whose stock sells above book value can attract capital in a way that enhances the  
18 book value of existing stockholders, thus creating a favorable environment for  
19 financial integrity. Finally, I note that my 9.5 percent CE recommendation  
20 generally reflects most of the actual and prospective returns on equity for the  
21 proxy groups. I have made no adjustments to these return levels to reflect the  
22 high M/Bs.

23

1    **XI.    RETURN ON EQUITY RECOMMENDATION**

2

3    ***Q72.    PLEASE SUMMARIZE THE RESULTS OF YOUR THREE RETURN ON***  
4    ***EQUITY ANALYSES.***

5    **A72.** My three return on equity analyses produced the following:

	<u>Mid-Point</u>	<u>Range</u>
<b>DCF</b>	8.8%	8.6-9.0%
<b>CAPM</b>	6.2%	5.9-6.5%
<b>CE</b>	9.5%	9.0-10.0%

6

7        These results indicate an overall broad range of 5.9 percent to 10.0 percent, which  
8        focuses on the respective individual model results. Using mid-point values, the  
9        range is 6.2 percent to 9.5 percent. I recommend a return on equity range of 9.0  
10       percent to 9.5 percent for DP&L (approximate mid-point of 9.25 percent). This  
11       range includes the upper end of my DCF results and the mid-point of my CE  
12       results. My return on equity recommendation is 9.25 percent.

13

14    ***Q73.    IT APPEARS THAT YOUR CAPM RESULTS ARE LESS THAN YOUR***  
15    ***DCF AND CE RESULTS. DOES THIS IMPLY THAT THE CAPM***  
16    ***RESULTS SHOULD NOT BE CONSIDERED IN DETERMINING THE***  
17    ***COST OF EQUITY FOR DP&L?***

18    **A73.** No. It is apparent that the CAPM results are less than the DCF and CE results.

19        There are two reasons for the lower CAPM results. First, risk premiums are lower  
20        currently than was the case in prior years. This is the result of lower equity  
21        returns that have been experienced over the past several years. This is also

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On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 16-395-EL-SSO et al.*

1 reflective of a decline in investor expectations of equity returns and risk  
2 premiums. Second, the level of interest rates on U.S. Treasury bonds (i.e., the  
3 risk free rate) has been lower in recent years. This is partially the result of the  
4 actions of the Federal Reserve to stimulate the economy. This also impacts  
5 investor expectations of returns in a negative fashion. I note that, initially,  
6 investors may have believed that the decline in Treasury yields was a temporary  
7 factor that would soon be replaced by a rise in interest rates. However, this has  
8 not been the case as interest rates have remained low and continued to decline for  
9 the past six-plus years. As a result, it cannot be maintained that low interest rates  
10 (and low CAPM results) are temporary and do not reflect investor expectations.  
11 Consequently, the CAPM results should be considered as one factor in  
12 determining the cost of equity for DP&L.

13  
14 ***Q74. DOES THIS CONCLUDE YOUR TESTIMONY?***

15 ***A74.*** Yes. However, I reserve the right to supplement my testimony in the event that  
16 additional testimony is filed, or if new information or data in connection with this  
17 proceeding becomes available.

## CERTIFICATE OF SERVICE

It is hereby certified that a true copy of the foregoing *Direct Testimony of David C. Parcell on Behalf of the Office of the Ohio Consumers' Counsel* was served via electronic transmission to the persons listed below this 21<sup>st</sup> day of November 2016.

/s/ William J. Michael  
William J. Michael  
Assistant Consumers' Counsel

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**BACKGROUND AND EXPERIENCE PROFILE**  
**DAVID C. PARCELL, MBA, CRRA**  
**PRESIDENT/SENIOR ECONOMIST**

**EDUCATION**

1985	M.B.A., Virginia Commonwealth University
1970	M.A., Economics, Virginia Polytechnic Institute and State University, (Virginia Tech)
1969	B.A., Economics, Virginia Polytechnic Institute and State University, (Virginia Tech)

**POSITIONS**

2007-Present	President, Technical Associates, Inc.
1995-2007	Executive Vice President and Senior Economist, Technical Associates, Inc.
1993-1995	Vice President and Senior Economist, C. W. Amos of Virginia
1972-1993	Vice President and Senior Economist, Technical Associates, Inc.
1969-1972	Research Economist, Technical Associates, Inc.
1968-1969	Research Associate, Department of Economics, Virginia Polytechnic Institute and State University

**ACADEMIC HONORS**

Omicron Delta Epsilon - Honor Society in Economics  
Beta Gamma Sigma - National Scholastic Honor Society of Business Administration  
Alpha Iota Delta - National Decision Sciences Honorary Society  
Phi Kappa Phi - Scholastic Honor Society

**PROFESSIONAL DESIGNATIONS**

Certified Rate of Return Analyst - Founding Member

**RELEVANT EXPERIENCE**

Financial Economics -- Advised and assisted many Virginia banks and savings and loan associations on organizational and regulatory matters. Testified approximately 25 times before the Virginia State Corporation Commission and the Regional Administrator of National Banks on matters related to branching and organization for banks, savings and loan associations, and consumer finance companies. Advised financial institutions on interest rate structure and loan maturity. Testified before Virginia State Corporation Commission on maximum rates for consumer finance companies.

Testified before several committees and subcommittees of Virginia General Assembly on numerous banking matters.

Clients have included First National Bank of Rocky Mount, Patrick Henry National Bank, Peoples Bank of Danville, Blue Ridge Bank, Bank of Essex, and Signet Bank.

Published articles in law reviews and other periodicals on structure and regulation of banking/financial services industry.

Utility Economics -- Performed numerous financial studies of regulated public utilities. Testified in over 545 cases before some fifty state and federal regulatory agencies.

Prepared numerous rate of return studies incorporating cost of equity determination based on DCF, CAPM, comparable earnings and other models. Developed procedures for identifying differential risk characteristics by nuclear construction and other factors.

Conducted studies with respect to cost of service and indexing for determining utility rates, the development of annual review procedures for regulatory control of utilities, fuel and power plant cost recovery adjustment clauses, power supply agreements among affiliates, utility franchise fees, and use of short-term debt in capital structure.

Presented expert testimony before federal regulatory agencies Federal Energy Regulatory Commission, Federal Power Commission, and National Energy Board (Canada), state regulatory agencies in Alabama, Alaska, Arizona, Arkansas, California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, Ohio, Oklahoma, Ontario (Canada), Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, West Virginia, Washington, Wisconsin, U. S. Virgin Islands and Yukon Territory (Canada).

Published articles in law reviews and other periodicals on the theory and purpose of regulation and other regulatory subjects.

Clients served include state regulatory agencies in Alaska, Arizona, Delaware, Georgia, Massachusetts, Mississippi, Missouri, New Hampshire, New Mexico, North Carolina, Ontario (Canada), South Carolina, Washington, Vermont and Virginia; consumer advocates and attorneys general in Alabama, Arizona, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Maryland, Nevada, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, and West Virginia; federal agencies including Defense Communications Agency, the Department of Energy, Department of the Navy, and General Services Administration; and various organizations such as Bath Iron Works, Illinois Citizens' Utility Board, Illinois Governor's Office of Consumer Services, Illinois Small Business Utility Advocate, Wisconsin's Environmental Decade, Wisconsin's Citizens

Utility Board, and Old Dominion Electric Cooperative.

Insurance Economics -- Conducted analyses of the relationship between the investment income earned by insurance companies on their portfolios and the premiums charged for insurance. Analyzed impact of diversification on financial strength of Blue Cross/Blue Shield Plans in Virginia.

Conducted studies of profitability and cost of capital for property/casualty insurance industry. Evaluated risk of and required return on surplus for various lines of insurance business.

Presented expert testimony before Virginia State Corporation Commission concerning cost of capital and expected gains from investment portfolio. Testified before insurance bureaus of Maine, Massachusetts, New Jersey, New Mexico, North Carolina, Rhode Island, South Carolina and Vermont concerning cost of equity for insurance companies.

Prepared cost of capital and investment income return analyses for numerous insurance companies concerning several lines of insurance business. Analyses used by Virginia Bureau of Insurance for purposes of setting rates.

Special Studies -- Conducted analyses which evaluated the financial and economic implications of legislative and administrative changes. Subject matter of analyses include returnable bottles, retail beer sales, wine sales regulations, taxi-cab taxation, and bank regulation. Testified before several Virginia General Assembly subcommittees.

Testified before Virginia ABC Commission concerning economic impact of mixed beverage license.

Clients include Virginia Beer Wholesalers, Wine Institute, Virginia Retail Merchants Association, and Virginia Taxicab Association.

Franchise, Merger & Anti-Trust Economics -- Conducted studies on competitive impact on market structures due to joint ventures, mergers, franchising and other business restructuring. Analyzed the costs and benefits to parties involved in mergers. Testified in federal courts and before banking and other regulatory bodies concerning the structure and performance of markets, as well as on the impact of restrictive practices.

Clients served include Dominion Bankshares, asphalt contractors, and law firms.

Transportation Economics -- Conducted cost of capital studies to assess profitability of oil pipelines, trucks, taxicabs and railroads. Analyses have been presented before the Federal Energy Regulatory Commission and Alaska Pipeline Commission in rate proceedings. Served as a consultant to the Rail Services Planning Office on the reorganization of rail services in the U.S.  
Economic Loss Analyses -- Testified in federal courts, state courts, and other adjudicative

forums regarding the economic loss sustained through personal and business injury whether due to bodily harm, discrimination, non-performance, or anticompetitive practices. Testified on economic loss to a commercial bank resulting from publication of adverse information concerning solvency. Testimony has been presented on behalf of private individuals and business firms.

## **MEMBERSHIPS**

American Economic Association  
Virginia Association of Economists  
Richmond Society of Financial Analysts  
Financial Analysts Federation  
Society of Utility and Regulatory Financial Analysts  
    Board of Directors     1992-2000  
    Secretary/Treasurer   1994-1998  
    President               1998-2000

## **RESEARCH ACTIVITY**

### **Books and Major Research Reports**

"Stock Price As An Indicator of Performance," Master of Arts Thesis, Virginia Tech, 1970

"Revision of the Property and Casualty Insurance Ratemaking Process Under Prior Approval in the Commonwealth of Virginia," prepared for the Bureau of Insurance of the Virginia State Corporation Commission, with Charles Schotta and Michael J. Ileo, 1971

"An analysis of the Virginia Consumer Finance Industry to Determine the Need for Restructuring the Rate and Size Ceilings on Small Loans in Virginia and the Process by which They are Governed," prepared for the Virginia Consumer Finance Association, with Michael J. Ileo, 1973

State Banks and the State Corporation Commission: A Historical Review, Technical Associates, Inc., 1974

"A Study of the Implications of the Sale of Wine by the Virginia Department of Alcoholic Beverage Control", prepared for the Virginia Wine Wholesalers Association, Virginia Retail Merchants Association, Virginia Food Dealers Association, Virginia Association of Chain Drugstores, Southland Corporation, and the Wine Institute, 1983.

"Performance and Diversification of the Blue Cross/Blue Shield Plans in Virginia: An Operational Review", prepared for the Bureau of Insurance of the Virginia State

Corporation Commission, with Michael J. Ileo and Alexander F. Skirpan, 1988.

The Cost of Capital - A Practitioners' Guide, Society of Utility and Regulatory Financial Analysts, 2010 (previous editions in 1991, 1992, 1993, 1994, 1995 and 1997).

### **Papers Presented and Articles Published**

"The Differential Effect of Bank Structure on the Transmission of Open Market Operations," Western Economic Association Meeting, with Charles Schotta, 1971

"The Economic Objectives of Regulation: The Trend in Virginia," (with Michael J. Ileo), William and Mary Law Review, Vol. 14, No. 2, 1973

"Evolution of the Virginia Banking Structure, 1962-1974: The Effects of the Buck-Holland Bill", (with Michael J. Ileo), William and Mary Law Review, Vol. 16, No. 3, 1975

"Banking Structure and Statewide Branching: The Potential for Virginia", William and Mary Law Review, Vol. 18, No. 1, 1976

"Bank Expansion and Electronic Banking: Virginia Banking Structure Changes Past, Present, and Future," William and Mary Business Review, Vol. 1, No. 2, 1976

"Electronic Banking - Wave of the Future?" (with James R. Marchand), Journal of Management and Business Consulting, Vol. 1, No. 1, 1976

"The Pricing of Electricity" (with James R. Marchand), Journal of Management and Business Consulting, Vol. 1, No. 2, 1976

"The Public Interest - Bank and Savings and Loan Expansion in Virginia" (with Richard D. Rogers), University of Richmond Law Review, Vol. 11, No. 3, 1977

"When Is It In the 'Public Interest' to Authorize a New Bank?", University of Richmond Law Review, Vol. 13, No. 3, 1979

"Banking Deregulation and Its Implications on the Virginia Banking Structure," William and Mary Business Review, Vol. 5, No. 1, 1983

"The Impact of Reciprocal Interstate Banking Statutes on The Performance of Virginia Bank Stocks", with William B. Harrison, Virginia Social Science Journal, Vol. 23, 1988

"The Financial Performance of New Banks in Virginia", Virginia Social Science Journal, Vol. 24, 1989

"Identifying and Managing Community Bank Performance After Deregulation", with William B. Harrison, Journal of Managerial Issues, Vol. II, No. 2, Summer 1990

"The Flotation Cost Adjustment To Utility Cost of Common Equity - Theory, Measurement and Implementation," presented at Twenty-Fifth Financial Forum, National Society of Rate of Return Analysts, Philadelphia, Pennsylvania, April 28, 1993.

Biography of Myon Edison Bristow, Dictionary of Virginia Biography, Volume 2, 2001.

## ECONOMIC INDICATORS

Year	Real GDP* Growth	Industrial Production Growth	Unemploy- ment Rate	Consumer Price Index
<b>1975 - 1982 Cycle</b>				
1975	-1.1%	-8.9%	8.5%	7.0%
1976	5.4%	10.8%	7.7%	4.8%
1977	5.5%	5.9%	7.0%	6.8%
1978	5.0%	5.7%	6.0%	9.0%
1979	2.8%	4.4%	5.8%	13.3%
1980	-0.2%	-1.9%	7.0%	12.4%
1981	1.8%	1.9%	7.5%	8.9%
1982	-2.1%	-4.4%	9.5%	3.8%
<b>1983 - 1991 Cycle</b>				
1983	4.0%	3.7%	9.5%	3.8%
1984	6.8%	9.3%	7.5%	3.9%
1985	3.7%	1.7%	7.2%	3.8%
1986	3.1%	0.9%	7.0%	1.1%
1987	2.9%	4.9%	6.2%	4.4%
1988	3.8%	4.5%	5.5%	4.4%
1989	3.5%	1.8%	5.3%	4.6%
1990	1.8%	-0.2%	5.6%	6.1%
1991	-0.5%	-2.0%	6.8%	3.1%
<b>1992 - 2001 Cycle</b>				
1992	3.0%	3.1%	7.5%	2.9%
1993	2.7%	3.4%	6.9%	2.7%
1994	4.0%	5.5%	6.1%	2.7%
1995	3.7%	4.8%	5.6%	2.5%
1996	4.5%	4.3%	5.4%	3.3%
1997	4.5%	7.3%	4.9%	1.7%
1998	4.2%	5.8%	4.5%	1.6%
1999	3.7%	4.5%	4.2%	2.7%
2000	4.1%	4.0%	4.0%	3.4%
2001	1.1%	-3.4%	4.7%	1.6%
<b>2002 - 2009 Cycle</b>				
2002	1.8%	0.2%	5.8%	2.4%
2003	2.8%	1.2%	6.0%	1.9%
2004	3.8%	2.3%	5.5%	3.3%
2005	3.3%	3.2%	5.1%	3.4%
2006	2.7%	2.2%	4.6%	2.5%
2007	1.8%	2.5%	4.6%	4.1%
2008	-0.3%	-3.6%	5.8%	0.1%
2009	-2.8%	-11.5%	9.3%	2.7%
<b>Current Cycle</b>				
2010	2.5%	5.5%	9.6%	1.5%
2011	1.6%	2.9%	8.9%	3.0%
2012	2.2%	2.8%	8.1%	1.7%
2013	1.7%	1.9%	7.4%	1.5%
2014	2.4%	2.9%	6.2%	0.8%
2015	2.6%	0.3%	5.3%	0.7%

\*GDP=Gross Domestic Product

Source: Council of Economic Advisors, Economic Indicators, various issues.

**ECONOMIC INDICATORS**

Year	Real GDP* Growth	Industrial Production Growth	Unemploy- ment Rate	Consumer Price Index
<b>2002</b>				
1st Qtr.	2.7%	-3.8%	5.6%	2.8%
2nd Qtr.	2.2%	-1.2%	5.9%	0.9%
3rd Qtr.	2.4%	0.8%	5.8%	2.4%
4th Qtr.	0.2%	1.4%	5.9%	1.6%
<b>2003</b>				
1st Qtr.	1.2%	1.1%	5.8%	4.8%
2nd Qtr.	3.5%	-0.9%	6.2%	0.0%
3rd Qtr.	7.5%	-0.9%	6.1%	3.2%
4th Qtr.	2.7%	1.5%	5.9%	-0.3%
<b>2004</b>				
1st Qtr.	3.0%	2.8%	5.6%	5.2%
2nd Qtr.	3.5%	4.9%	5.6%	4.4%
3rd Qtr.	3.6%	4.6%	5.4%	0.8%
4th Qtr.	2.5%	4.3%	5.4%	3.6%
<b>2005</b>				
1st Qtr.	4.1%	3.8%	5.3%	4.4%
2nd Qtr.	1.7%	3.0%	5.1%	1.6%
3rd Qtr.	3.1%	2.7%	5.0%	8.8%
4th Qtr.	2.1%	2.9%	4.9%	-2.0%
<b>2006</b>				
1st Qtr.	5.4%	3.4%	4.7%	4.8%
2nd Qtr.	1.4%	4.5%	4.6%	4.8%
3rd Qtr.	0.1%	5.2%	4.7%	0.4%
4th Qtr.	3.0%	3.5%	4.5%	0.0%
<b>2007</b>				
1st Qtr.	0.9%	2.5%	4.5%	4.8%
2nd Qtr.	3.2%	1.6%	4.5%	5.2%
3rd Qtr.	2.3%	1.8%	4.6%	1.2%
4th Qtr.	2.9%	1.7%	4.8%	6.4%
<b>2008</b>				
1st Qtr.	-1.8%	1.9%	4.9%	2.8%
2nd Qtr.	1.3%	0.2%	5.3%	7.6%
3rd Qtr.	-3.7%	-3.0%	6.0%	2.8%
4th Qtr.	-8.9%	6.0%	6.9%	-13.2%
<b>2009</b>				
1st Qtr.	-5.3%	-11.6%	8.1%	2.4%
2nd Qtr.	-0.3%	-12.9%	9.3%	3.2%
3rd Qtr.	1.4%	-9.3%	9.6%	2.0%
4th Qtr.	4.0%	-4.5%	10.0%	2.5%
<b>2010</b>				
1st Qtr.	1.6%	2.7%	9.7%	0.9%
2nd Qtr.	3.9%	6.5%	9.7%	-1.2%
3rd Qtr.	2.8%	6.9%	9.6%	2.8%
4th Qtr.	2.8%	6.2%	9.6%	2.8%
<b>2011</b>				
1st Qtr.	-1.5%	5.4%	9.0%	4.8%
2nd Qtr.	2.9%	3.6%	9.0%	3.2%
3rd Qtr.	0.8%	3.3%	9.1%	2.4%
4th Qtr.	4.6%	4.0%	8.7%	0.4%
<b>2012</b>				
1st Qtr.	2.3%	4.5%	8.3%	3.2%
2nd Qtr.	1.6%	4.7%	8.2%	0.0%
3rd Qtr.	2.5%	3.4%	8.1%	4.0%
4th Qtr.	0.1%	2.8%	7.8%	0.0%
<b>2013</b>				
1st Qtr.	1.9%	2.5%	7.7%	2.0%
2nd Qtr.	1.1%	2.0%	7.6%	1.2%
3rd Qtr.	3.0%	2.6%	7.3%	1.6%
4th Qtr.	3.9%	3.3%	7.0%	1.2%
<b>2014</b>				
1st Qtr.	-1.2%	3.2%	6.6%	1.6%
2nd Qtr.	4.0%	4.2%	6.2%	3.6%
3rd Qtr.	5.0%	4.7%	6.1%	0.0%
4th Qtr.	2.3%	4.5%	5.7%	-2.8%
<b>2015</b>				
1st Qtr.	2.0%	3.5%	5.6%	-1.2%
2nd Qtr.	2.6%	0.4%	5.4%	3.2%
3rd Qtr.	2.0%	0.1%	5.2%	-0.1%
4th Qtr.	0.9%	-1.6%	5.0%	0.0%
<b>2016</b>				
1st Qtr.	0.8%	-1.6%	4.9%	-0.4%
2nd Qtr.	1.4%	-1.1%	4.9%	3.2%
3rd Qtr.	2.9%	-1.0%	4.9%	2.0%

\*GDP=Gross Domestic Product

Source: Council of Economic Advisors, Economic Indicators, various issue



## INTEREST RATES

Year	Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aaa	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
<b>1975 - 1982 Cycle</b>							
1975	7.86%	5.84%	7.99%	9.03%	9.44%	10.09%	10.96%
1976	6.84%	4.99%	7.61%	8.63%	8.92%	9.29%	9.82%
1977	6.83%	5.27%	7.42%	8.19%	8.43%	8.61%	9.06%
1978	9.06%	7.22%	8.41%	8.87%	9.10%	9.29%	9.62%
1979	12.67%	10.04%	9.44%	9.86%	10.22%	10.49%	10.96%
1980	15.27%	11.51%	11.46%	12.30%	13.00%	13.34%	13.95%
1981	18.89%	14.03%	13.93%	14.64%	15.30%	15.95%	16.60%
1982	14.86%	10.69%	13.00%	14.22%	14.79%	15.86%	16.45%
<b>1983 - 1991 Cycle</b>							
1983	10.79%	8.63%	11.10%	12.52%	12.83%	13.66%	14.20%
1984	12.04%	9.58%	12.44%	12.72%	13.66%	14.03%	14.53%
1985	9.93%	7.48%	10.62%	11.68%	12.06%	12.47%	12.96%
1986	8.33%	5.98%	7.68%	8.92%	9.30%	9.58%	10.00%
1987	8.21%	5.82%	8.39%	9.52%	9.77%	10.10%	10.53%
1988	9.32%	6.69%	8.85%	10.05%	10.26%	10.49%	11.00%
1989	10.87%	8.12%	8.49%	9.32%	9.56%	9.77%	9.97%
1990	10.01%	7.51%	8.55%	9.45%	9.65%	9.86%	10.06%
1991	8.46%	5.42%	7.86%	8.85%	9.09%	9.36%	9.55%
<b>1992 - 2001 Cycle</b>							
1992	6.25%	3.45%	7.01%	8.19%	8.55%	8.69%	8.86%
1993	6.00%	3.02%	5.87%	7.29%	7.44%	7.59%	7.91%
1994	7.15%	4.29%	7.09%	8.07%	8.21%	8.31%	8.63%
1995	8.83%	5.51%	6.57%	7.68%	7.77%	7.89%	8.29%
1996	8.27%	5.02%	6.44%	7.48%	7.57%	7.75%	8.16%
1997	8.44%	5.07%	6.35%	7.43%	7.54%	7.60%	7.95%
1998	8.35%	4.81%	5.26%	6.77%	6.91%	7.04%	7.26%
1999	8.00%	4.66%	5.65%	7.21%	7.51%	7.62%	7.88%
2000	9.23%	5.85%	6.03%	7.88%	8.06%	8.24%	8.36%
2001	6.91%	3.44%	5.02%	7.47%	7.59%	7.78%	8.02%
<b>2002 - 2009 Cycle</b>							
2002	4.67%	1.62%	4.61%	[1]	7.19%	7.37%	8.02%
2003	4.12%	1.01%	4.01%		6.40%	6.58%	6.84%
2004	4.34%	1.38%	4.27%		6.04%	6.16%	6.40%
2005	6.19%	3.16%	4.29%		5.44%	5.65%	5.93%
2006	7.96%	4.73%	4.80%		5.84%	6.07%	6.32%
2007	8.05%	4.41%	4.63%		5.94%	6.07%	6.33%
2008	5.09%	1.48%	3.66%		6.18%	6.53%	7.25%
2009	3.25%	0.16%	3.26%		5.75%	6.04%	7.06%
<b>Current Cycle</b>							
2010	3.25%	0.14%	3.22%		5.24%	5.46%	5.96%
2011	3.25%	0.06%	2.78%		4.78%	5.04%	5.57%
2012	3.25%	0.09%	1.80%		3.83%	4.13%	4.86%
2013	3.25%	0.06%	2.35%		4.24%	4.47%	4.98%
2014	3.25%	0.03%	2.54%		4.19%	4.28%	4.80%
2015	3.26%	0.60%	2.14%		4.00%	4.12%	5.03%

[1] Note: Moody's has not published Aaa utility bond yields since 2001.

Sources: Council of Economic Advisors, Economic Indicators; Moody's Bond Record; Federal Reserve Bulletin; various issues.

# INTEREST RATES

	Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
<b>2012</b>						
Jan	3.25%	0.02%	1.97%	4.03%	4.34%	5.06%
Feb	3.25%	0.08%	1.97%	4.02%	4.36%	5.02%
Mar	3.25%	0.09%	2.17%	4.16%	4.48%	5.13%
Apr	3.25%	0.08%	2.05%	4.10%	4.40%	5.11%
May	3.25%	0.09%	1.80%	3.92%	4.20%	4.97%
June	3.25%	0.09%	1.62%	3.79%	4.08%	4.91%
July	3.25%	0.10%	1.53%	3.58%	3.93%	4.85%
Aug	3.25%	0.11%	1.68%	3.65%	4.00%	4.88%
Sept	3.25%	0.10%	1.72%	3.69%	4.02%	4.81%
Oct	3.25%	0.10%	1.75%	3.68%	3.91%	4.54%
Nov	3.25%	0.11%	1.65%	3.60%	3.84%	4.42%
Dec	3.25%	0.08%	1.72%	3.75%	4.00%	4.56%
<b>2013</b>						
Jan	3.25%	0.07%	1.91%	3.90%	4.15%	4.66%
Feb	3.25%	0.10%	1.98%	3.95%	4.18%	4.74%
Mar	3.25%	0.09%	1.96%	3.90%	4.15%	4.66%
Apr	3.25%	0.06%	1.76%	3.74%	4.00%	4.49%
May	3.25%	0.05%	1.93%	3.91%	4.17%	4.65%
June	3.25%	0.05%	2.30%	4.27%	4.53%	5.08%
July	3.25%	0.04%	2.58%	4.44%	4.68%	5.21%
Aug	3.25%	0.04%	2.74%	4.53%	4.73%	5.28%
Sept	3.25%	0.02%	2.81%	4.58%	4.80%	5.31%
Oct	3.25%	0.06%	2.62%	4.48%	4.70%	5.17%
Nov	3.25%	0.07%	2.72%	4.56%	4.77%	5.24%
Dec	3.25%	0.07%	2.90%	4.59%	4.81%	5.25%
<b>2014</b>						
Jan	3.25%	0.05%	2.86%	4.44%	4.63%	5.09%
Feb	3.25%	0.06%	2.71%	4.38%	4.53%	5.01%
Mar	3.25%	0.05%	2.72%	4.40%	4.51%	5.00%
Apr	3.25%	0.04%	2.71%	4.30%	4.41%	4.85%
May	3.25%	0.03%	2.56%	4.16%	4.26%	4.69%
June	3.25%	0.03%	2.60%	4.23%	4.29%	4.73%
July	3.25%	0.03%	2.54%	4.16%	4.23%	4.66%
Aug	3.25%	0.03%	2.42%	4.07%	4.13%	4.65%
Sept	3.25%	0.02%	2.53%	4.18%	4.24%	4.79%
Oct	3.25%	0.02%	2.30%	3.96%	4.06%	4.67%
Nov	3.25%	0.02%	2.33%	4.03%	4.09%	4.75%
Dec	3.25%	0.04%	2.21%	3.90%	3.95%	4.70%
<b>2015</b>						
Jan	3.25%	0.03%	1.88%	3.52%	3.58%	4.39%
Feb	3.25%	0.03%	1.98%	3.62%	3.67%	4.44%
Mar	3.25%	0.03%	2.04%	3.67%	3.74%	4.51%
Apr	3.25%	0.02%	1.94%	3.63%	3.75%	4.51%
May	3.25%	0.02%	2.20%	4.05%	4.17%	4.91%
June	3.25%	0.04%	2.36%	4.29%	4.39%	5.13%
July	3.25%	0.03%	2.32%	4.27%	4.40%	5.22%
Aug	3.25%	0.09%	2.17%	4.13%	4.25%	5.23%
Sep	3.25%	0.06%	2.17%	4.25%	4.39%	5.42%
Oct	3.25%	0.01%	2.07%	4.13%	4.29%	5.47%
Nov	3.25%	0.13%	2.26%	4.22%	4.40%	5.57%
Dec	3.50%	0.26%	2.24%	4.18%	4.35%	5.55%
<b>2016</b>						
Jan	3.50%	0.25%	2.09%	4.09%	4.27%	5.49%
Feb	3.50%	0.32%	1.78%	3.94%	4.11%	5.28%
Mar	3.50%	0.32%	1.89%	3.93%	4.16%	5.12%
Apr	3.50%	0.23%	1.81%	3.74%	4.00%	4.75%
May	3.50%	0.27%	1.81%	3.65%	3.93%	4.60%
June	3.50%	0.29%	1.64%	3.56%	3.78%	4.47%
July	3.50%	0.31%	1.50%	3.36%	3.57%	4.16%
Aug	3.50%	0.30%	1.56%	3.39%	3.59%	4.20%
Sep	3.50%	0.32%	1.63%	3.47%	3.66%	4.27%
Oct	3.50%	0.34%	1.76%	3.59%	3.77%	4.34%

Sources: Council of Economic Advisors, Economic Indicators; Moody's Bond Record; Federal Reserve Bulletin; various issues.

## STOCK PRICE INDICATORS

	S&P Composite [1]	NASDAQ Composite [1]	DJIA	S&P D/P	S&P E/P
<b>1975 - 1982 Cycle</b>					
1975			802.49	4.31%	9.15%
1976			974.92	3.77%	8.90%
1977			894.63	4.62%	10.79%
1978			820.23	5.28%	12.03%
1979			844.40	5.47%	13.46%
1980			891.41	5.26%	12.66%
1981			932.92	5.20%	11.96%
1982			884.36	5.81%	11.60%
<b>1983 - 1991 Cycle</b>					
1983			1,190.34	4.40%	8.03%
1984			1,178.48	4.64%	10.02%
1985			1,328.23	4.25%	8.12%
1986			1,792.76	3.49%	6.09%
1987			2,275.99	3.08%	5.48%
1988	[1]	[1]	2,060.82	3.64%	8.01%
1989	322.84		2,508.91	3.45%	7.41%
1990	334.59		2,678.94	3.61%	6.47%
1991	376.18	491.69	2,929.33	3.24%	4.79%
<b>1992 - 2001 Cycle</b>					
1992	415.74	\$599.26	3,284.29	2.99%	4.22%
1993	451.21	715.16	3,522.06	2.78%	4.46%
1994	460.42	751.65	3,793.77	2.82%	5.83%
1995	541.72	925.19	4,493.76	2.56%	6.09%
1996	670.50	1,164.96	5,742.89	2.19%	5.24%
1997	873.43	1,469.49	7,441.15	1.77%	4.57%
1998	1,085.50	1,794.91	8,625.52	1.49%	3.46%
1999	1,327.33	2,728.15	10,464.88	1.25%	3.17%
2000	1,427.22	2,783.67	10,734.90	1.15%	3.63%
2001	1,194.18	2,035.00	10,189.13	1.32%	2.95%
<b>2002 - 2009 Cycle</b>					
2002	993.94	1,539.73	9,226.43	1.61%	2.92%
2003	965.23	1,647.17	8,993.59	1.77%	3.84%
2004	1,130.65	1,986.53	10,317.39	1.72%	4.89%
2005	1,207.23	2,099.32	10,547.67	1.83%	5.36%
2006	1,310.46	2,263.41	11,408.67	1.87%	5.78%
2007	1,477.19	2,578.47	13,169.98	1.86%	5.29%
2008	1,220.04	2,161.65	11,252.62	2.37%	3.54%
2009	948.05	1,845.38	8,876.15	2.40%	1.86%
<b>Current Cycle</b>					
2010	1,139.97	2,349.89	10,662.80	1.98%	6.04%
2011	1,268.89	2,677.44	11,966.36	2.05%	6.77%
2012	1,379.35	2,965.56	12,967.08	2.24%	6.20%
2013	1,462.51	3,537.69	14,999.67	2.14%	5.57%
2014	1,930.67	4,374.31	16,773.99	2.04%	5.25%
2015	2,061.20	4,943.49	17,590.81	2.10%	4.59%

[1] Note: this source did not publish the S&P Composite prior to 1988 and the NASDAQ Composite prior to 1991.

Source: Council of Economic Advisors, Economic Indicators, various issues.

STOCK PRICE INDICATORS

	S&P Composite	NASDAQ Composite	DJIA	S&P D/P	S&P E/P
<b>2004</b>					
1st Qtr.	1,133.29	2,041.95	10,488.43	1.64%	4.62%
2nd Qtr.	1,122.87	1,984.13	10,289.04	1.71%	4.92%
3rd Qtr.	1,104.15	1,872.90	10,129.85	1.79%	5.18%
4th Qtr.	1,162.07	2,050.22	10,362.25	1.75%	4.83%
<b>2005</b>					
1st Qtr.	1,191.98	2,056.01	10,648.48	1.77%	5.11%
2nd Qtr.	1,181.65	2,012.24	10,382.35	1.85%	5.32%
3rd Qtr.	1,225.91	2,144.61	10,532.24	1.83%	5.42%
4th Qtr.	1,262.07	2,246.09	10,827.79	1.86%	5.60%
<b>2006</b>					
1st Qtr.	1,283.04	2,287.97	10,996.04	1.85%	5.61%
2nd Qtr.	1,281.77	2,240.46	11,188.84	1.90%	5.86%
3rd Qtr.	1,288.40	2,141.97	11,274.49	1.91%	5.88%
4th Qtr.	1,389.48	2,390.26	12,175.30	1.81%	5.75%
<b>2007</b>					
1st Qtr.	1,425.30	2,444.85	12,470.97	1.84%	5.85%
2nd Qtr.	1,496.43	2,552.37	13,214.26	1.82%	5.65%
3rd Qtr.	1,490.81	2,609.68	13,488.43	1.86%	5.15%
4th Qtr.	1,494.09	2,701.59	13,502.95	1.91%	4.51%
<b>2008</b>					
1st Qtr.	1,350.19	2,332.91	12,383.86	2.11%	4.55%
2nd Qtr.	1,371.65	2,426.26	12,508.59	2.10%	4.05%
3rd Qtr.	1,251.94	2,290.87	11,322.40	2.29%	3.94%
4th Qtr.	909.80	1,599.64	8,795.61	2.98%	1.65%
<b>2009</b>					
1st Qtr.	809.31	1,485.14	7,774.06	3.00%	0.86%
2nd Qtr.	892.23	1,731.41	8,327.83	2.45%	0.82%
3rd Qtr.	996.68	1,985.25	9,229.93	2.16%	1.19%
4th Qtr.	1,088.70	2,162.33	10,172.78	1.99%	4.57%
<b>2010</b>					
1st Qtr.	1,121.60	2,274.88	10,454.42	1.94%	5.21%
2nd Qtr.	1,135.25	2,343.40	10,570.54	1.97%	6.51%
3rd Qtr.	1,096.39	2,237.97	10,390.24	2.09%	6.30%
4th Qtr.	1,204.00	2,534.62	11,236.02	1.95%	6.15%
<b>2011</b>					
1st Qtr.	1,302.74	2,741.01	12,024.62	1.85%	6.13%
2nd Qtr.	1,319.04	2,766.64	12,370.73	1.97%	6.35%
3rd Qtr.	1,237.12	2,613.11	11,671.47	2.15%	7.69%
4th Qtr.	1,225.65	2,600.91	11,798.65	2.25%	6.91%
<b>2012</b>					
1st Qtr.	1,347.44	2,902.90	12,839.80	2.12%	6.29%
2nd Qtr.	1,350.39	2,928.62	12,765.58	2.30%	6.45%
3rd Qtr.	1,402.21	3,029.86	13,118.72	2.27%	6.00%
4th Qtr.	1,418.21	3,001.69	13,142.91	2.28%	6.07%
<b>2013</b>					
1st Qtr.	1,514.41	3,177.10	14,000.30	2.21%	5.59%
2nd Qtr.	1,609.77	3,369.49	14,961.28	2.15%	5.66%
3rd Qtr.	1,675.31	3,643.63	15,255.25	2.14%	5.61%
4th Qtr.	1,770.45	3,960.54	15,751.96	2.06%	5.42%
<b>2014</b>					
1st Qtr.	1,834.30	4,210.06	16,170.26	2.04%	5.38%
2nd Qtr.	1,900.37	4,195.81	16,603.50	2.06%	5.26%
3rd Qtr.	1,975.95	4,483.51	16,953.85	2.02%	5.37%
4th Qtr.	2,012.04	4,607.88	17,368.36	2.03%	4.97%
<b>2015</b>					
1st Qtr.	2,063.46	4,821.99	17,806.47	2.02%	4.80%
2nd Qtr.	2,094.37	5,029.47	18,007.48	2.05%	4.60%
3rd Qtr.	2,026.14	4,921.81	17,065.52	2.16%	4.72%
4th Qtr.	2,053.17	5,000.70	18,482.97	2.16%	4.23%
<b>2016</b>					
1st Qtr.	1,948.32	4,609.47	16,635.76	2.31%	4.20%
2nd Qtr.	2,074.99	4,845.88	17,763.85	2.10%	4.14%
3rd Qtr.	2,159.40	5,242.39	18,315.71	2.14%	4.13%

Source: Council of Economic Advisors, Economic Indicators, various issues.

**Schedule DCP-2**

**DAYTON POWER AND LIGHT COMPANY**

**HISTORY OF CREDIT RATINGS**

Year	Dayton Power and Light	
	S&P	Moody's
2005	BBB-	Baa1
2006	BBB	A3
2007	A-	A2
2008	A-	A2
2009	A	Aa3
2010	A	Aa3
2011	BBB+	A3
2012	BBB-	A3
2013	BBB-	Baa1
2014	BBB-	Baa2
2015	BBB-	Baa2
2016		

Sources: Schedule D-5 of DP&L's Distribution Rate Case filing (Case No. 15-1830-EL-AIR et. al.) and Response to OCC 12th Set INT-597 in Distribution Rate Case.

**DAYTON POWER AND LIGHT COMPANY**  
**CAPITAL STRUCTURE RATIOS**  
**2011 - 2015**  
**(\$000)**

YEAR	COMMON EQUITY	PREFERRED STOCK	LONG-TERM DEBT 1/	SHORT-TERM DEBT
2011	\$1,359,184 59.6% 60.5%	\$21,551 0.9% 1.0%	\$864,463 37.9% 38.5%	\$35,000 1.5%
2012	\$1,300,299 59.4% 59.4%	\$21,713 1.0% 1.0%	\$866,400 39.6% 39.6%	\$0 0.0%
2013	\$1,204,827 58.4% 58.4%	\$21,875 1.1% 1.1%	\$835,587 40.5% 40.5%	\$0 0.0%
2014	\$1,144,187 57.0% 57.0%	\$22,037 1.1% 1.1%	\$839,808 41.9% 41.9%	\$0 0.0%
2015	\$1,213,200 61.7% 61.7%	\$22,200 1.1% 1.1%	\$729,600 37.1% 37.1%	\$0 0.0%

1/ Includes current portion of long-term debt.

Note: Percentages may not total 100.0% due to rounding.

Sources: Schedule D-5 of DP&L's Distribution Rate Case filing (Case No. 15-1830-EL-AIR et. al.), Response to OCC 12th Set INT-596 in Distribution Rate Case, and DP&L Form 10-Ks.

**DPL, INC.**  
**CAPITAL STRUCTURE RATIOS**  
**2011 - 2015**  
**(\$millions)**

YEAR	COMMON EQUITY	PREFERRED STOCK	LONG-TERM DEBT 1/	SHORT-TERM DEBT
2011	\$2,230.7 45.7% 45.7%	\$18.4 0.4% 0.4%	\$2,629.3 53.9% 53.9%	\$0.0 0.0%
2012	\$426.8 14.0% 14.0%	\$18.4 0.6% 0.6%	\$2,609.9 85.4% 85.4%	\$0.0 0.0%
2013	\$239.5 9.4% 9.4%	\$18.4 0.7% 0.7%	\$2,294.4 89.9% 89.9%	\$0.0 0.0%
2014	\$148.2 6.4% 6.4%	\$18.4 0.8% 0.8%	\$2,159.7 92.8% 92.8%	\$0.0 0.0%
2015	-\$80.4 -4.1% -4.1%	\$18.4 0.9% 0.9%	\$2,009.4 103.2% 103.2%	\$0.0 0.0%

1/ Includes current portion of long-term debt.

**AES CORP.**  
**CAPITAL STRUCTURE RATIOS**  
**2011 - 2015**  
**(\$millions)**

YEAR	COMMON EQUITY	LONG-TERM DEBT
2011	\$5,946.0 22.8% 22.8%	\$20,116.0 77.2% 77.2%
2012	\$4,569.0 19.8% 19.8%	\$18,519.0 80.2% 80.2%
2013	\$4,330.0 18.7% 18.7%	\$18,869.0 81.3% 81.3%
2014	\$4,272.0 18.6% 18.6%	\$18,725.0 81.4% 81.4%
2015	\$3,149.0 14.7% 14.7%	\$18,278.0 85.3% 85.3%

Source: Value Line Investment Survey.



**Schedule DCP-4**

**AUS UTILITY REPORTS  
ELECTRIC UTILITY GROUPS  
AVERAGE COMMON EQUITY RATIOS**

Year	Electric	Combination Electric and Gas
2011	47%	46%
2012	47%	46%
2013	48%	47%
2014	47%	47%
2015	48%	46%

Note: Averages include short-term debt.

Source: AUS Utility Reports.

**OBJECTIONS AND RESPONSES TO INTERROGATORIES**

INT-308. Referring to the "Credit Agreement" identified in Form 8K filed with the U.S. Securities and Exchange Commission on August 24, 2016, by DPL Inc. and The Dayton Power and Light Company, please provide a calculation and schedule showing the actual or estimated cost rate, including all issuance and other related expenses, associated with the Credit Agreement. Please provide the actual cost rate currently being used.

**RESPONSE:** General Objections Nos. 1 (relevance), 2 (unduly burdensome), 4 (proprietary), 5 (inspection of business records), 7 (publicly available), 9 (vague or undefined). Subject to all general objections, DP&L states that a Report of Sale was filed with the PUCO on October 5, 2016 (Case No. 16-563-EL-AIS) which contains relevant information of this issuance.

Witness Responsible: Craig L. Jackson

INT-309. Please provide a schedule (similar to pages 5, 6, and 7 of Exhibit CLJ-7 to Company Witness Jackson's testimony filed on October 11, 2016) that indicates the current actual embedded cost of all of DP&L's long term debt, including the actual cost of the "Credit Agreement" identified in Form 8K filed with the U.S. Securities and Exchange Commission on August 24, 2016, by DPL Inc. and The Dayton Power and Light Company.

**RESPONSE:** General Objections Nos. 1 (relevance), 2 (unduly burdensome), 4 (proprietary), 5 (inspection of business records), 9 (vague or undefined), 12 (seeks information that DP&L does not know at this time). DP&L further objects because the request is unduly burdensome, and can be performed by OCC. Subject to all general objections, DP&L states that Exhibit CLJ-7 has not been updated with this information, and it would be unduly burdensome to provide. CLJ Exhibits 1-6 reflect the updated costs related to the "Credit Agreement" identified in Form 8K filed with the U.S. Securities and Exchange Commission on August 24, 2016. DP&L-SSO 0007958 also reflects the updated costs related to the "Credit Agreement" identified in Form 8K filed with the U.S. Securities and Exchange Commission on August 24, 2016.

Witness Responsible: Craig L. Jackson

**PROXY COMPANIES  
BASIS FOR SELECTION**

Company	Market Capitalization (\$ millions)	Percent Reg Electric Revenues	Common Equity Ratio	Value Line Safety	S&P Stock Ranking	S&P Bond Rating	Moody's Bond Rating
<b>Dayton Power &amp; Light</b>	\$2,700,000 (Net Plant)					BBB-	Baa3
<b>Parcell Proxy Group</b>							
Avista Corp	\$2,500,000	67%	50%	2	A-	A-	Baa1
Black Hills Corp	\$3,000,000	55%	44%	2	B	BBB	A3/Baa1
El Paso Electric	\$1,800,000	100%	47%	2	B	BBB	Baa1
OGE Energy	\$5,200,000	100%	56%	2	A-	BBB+	A3
Otter Tail Corp	\$1,100,000	52%	58%	2	B	BBB-	Baa2
Pinnacle West Capital	\$8,300,000	100%	57%	1	B+	BBB	A3/Baa1
<b>Morin Proxy Group</b>							
Alliant Energy	\$8,700,000	85%	51%	2	B+	A-	A2/A3
Ameren Corp	\$12,000,000	85%	50%	2	B	BBB+/BBB	Baa1
Avista Corp	\$2,500,000	67%	50%	2	A-	A-	Baa1
Black Hills Corp	\$3,000,000	55%	44%	2	B	BBB	A3/Baa1
CenterPoint Energy	\$10,000,000	38%	31%	3	B	A-/BBB+	A3/Baa1
CMS Energy	\$12,000,000	66%	31%	2	B	BBB+/BBB	A3/Baa1
Consolidated Edison	\$22,000,000	70%	52%	1	B+	A-/BBB+	A3
Dominion Resources	\$43,000,000	64%	35%	2	B	A-	A3/Baa1
DTE Energy	\$17,000,000	47%	50%	2	A-	A-/BBB+	A2/A3
Duke Energy	\$55,000,000	91%	51%	2	B	BBB+	A3
Empire District Electric	\$1,500,000	92%	49%	2	B+	A-	Baa1
Entergy Corp	\$14,000,000	81%	41%	3	A-	BBB+/BBB	Baa2/Baa3
Eversource Energy	\$18,000,000	88%	54%	1	A-	A-	A3/Baa1
Integrus Energy	Acquired by Wisconsin Electric						
MGE Energy	\$1,800,000	73%	64%	1	A-	AA-	Aa2
NorthWestern Corp	\$2,900,000	78%	47%	3	A+	NR	A3
Pepco Holdings	Acquired by Exelon						
PG&E Corp	\$29,000,000	81%	50%	3	B	BBB/BBB-	A3/Baa1
Public Service Enterprise	\$23,000,000	44%	60%	1	B+	A-/BBB+	A2
SCANA Corp	\$10,000,000	58%	48%	2	A	BBB+	Baa1/Baa2
Sempra Energy	\$26,000,000	34%	47%	3	B+	A/A-	A2/A3
TECO Energy	Acquired by Emera						
UIL Holdings	Acquired by AVANGRID, a subsidiary of Iberdrola, SA						
Vectren Corp	\$4,200,000	25%	49%	2	B+	A/A-	A2
Wisconsin Energy (WEC Energy)	\$19,000,000	68%	49%	1	A	A-/BBB+	A1/A2
Xcel Energy	\$21,000,000	84%	46%	1	A-	A-	A3

Sources: AUS Utility Reports, Value Line, and Standard & Poor's Stock Guide.

## PROXY COMPANIES DIVIDEND YIELD

COMPANY	Qtr DPS	June - August 2016				YIELD
		DPS	HIGH	LOW	AVERAGE	
Parcell Proxy Group						
Avista Corp	\$0.343	\$1.37	\$45.22	\$40.00	\$42.61	3.2%
Black Hills Corp	\$0.420	\$1.68	\$64.58	\$56.86	\$60.72	2.8%
El Paso Electric	\$0.310	\$1.24	\$48.38	\$44.37	\$46.38	2.7%
OGE Energy	\$0.275	\$1.10	\$32.96	\$29.91	\$31.44	3.5%
Otter Tail Corp	\$0.313	\$1.25	\$35.42	\$29.44	\$32.43	3.9%
Pinnacle West Capital	\$0.625	\$2.50	\$82.78	\$73.07	\$77.93	3.2%
Average						3.2%
Morin Proxy Group						
Alliant Energy	\$0.294	\$1.18	\$40.99	\$36.92	\$38.96	3.0%
Ameren Corp	\$0.425	\$1.70	\$54.08	\$48.69	\$51.39	3.3%
Avista Corp	\$0.343	\$1.37	\$45.22	\$40.00	\$42.61	3.2%
Black Hills Corp	\$0.420	\$1.68	\$64.58	\$56.86	\$60.72	2.8%
CenterPoint Energy	\$0.258	\$1.03	\$24.71	\$22.47	\$23.59	4.4%
CMS Energy	\$0.310	\$1.24	\$46.25	\$41.49	\$43.87	2.8%
Consolidated Edison	\$0.670	\$2.68	\$82.77	\$72.94	\$77.86	3.4%
Dominion Resources	\$0.700	\$2.80	\$78.97	\$70.75	\$74.86	3.7%
DTE Energy	\$0.730	\$2.92	\$100.45	\$90.02	\$95.24	3.1%
Duke Energy	\$0.855	\$3.42	\$87.31	\$77.96	\$82.64	4.1%
Empire District Electric	\$0.260	\$1.04	\$34.10	\$33.13	\$33.62	3.1%
Entergy Corp	\$0.850	\$3.40	\$82.09	\$75.56	\$78.83	4.3%
Eversource Energy	\$0.445	\$1.78	\$60.44	\$53.58	\$57.01	3.1%
MGE Energy	\$0.308	\$1.23	\$57.48	\$50.05	\$53.77	2.3%
NorthWestern Corp	\$0.500	\$2.00	\$63.75	\$57.09	\$60.42	3.3%
PG&E Corp	\$0.490	\$1.96	\$65.43	\$59.76	\$62.60	3.1%
Public Service Enterprise	\$0.410	\$1.64	\$46.81	\$42.25	\$44.53	3.7%
SCANA Corp	\$0.575	\$2.30	\$76.41	\$69.40	\$72.91	3.2%
Sempra Energy	\$0.755	\$3.02	\$114.66	\$103.62	\$109.14	2.8%
Vectren Corp	\$0.400	\$1.60	\$53.33	\$48.56	\$50.95	3.1%
Wisconsin Energy (WEC Energy)	\$0.495	\$1.98	\$66.10	\$59.32	\$62.71	3.2%
Xcel Energy	\$0.340	\$1.36	\$45.42	\$40.99	\$43.21	3.1%
Average						3.3%

Source: Yahoo! Finance.

**PROXY COMPANIES  
RETENTION GROWTH RATES**

COMPANY	2011	2012	2013	2014	2015	Average	2016	2017	2019-'21	Average
<b>Parcell Proxy Group</b>										
Avista Corp	3.1%	0.8%	2.9%	2.4%	2.3%	2.3%	2.5%	3.0%	3.0%	2.8%
Black Hills Corp	0.0%	1.8%	3.7%	4.3%	3.8%	2.7%	3.5%	5.0%	5.0%	4.5%
El Paso Electric	10.0%	6.3%	4.9%	4.8%	3.4%	5.9%	2.5%	3.5%	3.5%	3.2%
OGE Energy	7.7%	7.2%	7.3%	6.5%	4.0%	6.5%	3.5%	3.5%	3.0%	3.3%
Otter Tail Corp	0.0%	0.0%	1.2%	2.2%	2.0%	1.1%	1.5%	2.0%	3.5%	2.3%
Pinnacle West Capital	2.8%	4.1%	4.1%	3.5%	3.9%	3.7%	3.5%	3.5%	3.5%	3.5%
Average						<b>3.7%</b>				<b>3.3%</b>
<b>Morin Proxy Group</b>										
Alliant Energy	3.3%	3.9%	4.9%	4.3%	3.4%	4.0%	4.0%	4.5%	5.5%	4.7%
Ameren Corp	2.8%	3.0%	1.9%	2.9%	2.5%	2.6%	3.0%	3.0%	3.5%	3.2%
Avista Corp	3.1%	0.8%	2.9%	2.4%	2.3%	2.3%	2.5%	3.0%	3.0%	2.8%
Black Hills Corp	0.0%	1.8%	3.7%	4.3%	3.8%	2.7%	3.5%	5.0%	5.0%	4.5%
CenterPoint Energy	5.0%	5.5%	4.2%	4.5%	1.1%	4.1%	0.0%	2.0%	2.5%	1.5%
CMS Energy	5.6%	5.0%	5.2%	5.0%	5.2%	5.2%	4.5%	5.5%	5.0%	5.0%
Consolidated Edison	3.1%	3.6%	3.6%	2.6%	3.5%	3.3%	3.0%	3.0%	3.0%	3.0%
Dominion Resources	4.0%	3.5%	4.2%	3.3%	2.9%	3.6%	4.0%	3.5%	5.5%	4.3%
DTE Energy	3.4%	3.5%	2.7%	5.2%	3.4%	3.6%	3.5%	4.0%	4.0%	3.8%
Duke Energy	2.2%	0.9%	1.5%	1.7%	1.5%	1.6%	2.0%	2.0%	2.0%	2.0%
Empire District Electric	4.1%	1.9%	2.7%	2.9%	1.4%	2.6%	2.0%	2.0%	2.5%	2.2%
Entergy Corp	8.4%	5.2%	3.0%	4.4%	4.8%	5.2%	6.5%	3.5%	3.5%	4.5%
Eversource Energy	5.0%	1.6%	3.4%	3.5%	3.4%	3.4%	3.5%	3.5%	4.0%	3.7%
MGE Energy	4.7%	4.9%	6.1%	6.4%	4.5%	5.3%	5.0%	5.5%	7.0%	5.8%
NorthWestern Corp	4.7%	3.2%	3.5%	3.8%	3.0%	3.6%	3.5%	4.0%	4.0%	3.8%
PG&E Corp	3.4%	1.0%	0.2%	3.9%	0.7%	1.8%	2.5%	4.5%	4.0%	3.7%
Public Service Enterprise	8.6%	4.8%	4.4%	6.3%	6.8%	6.2%	3.5%	4.5%	4.5%	4.2%
SCANA Corp	3.6%	3.9%	4.1%	4.9%	4.3%	4.2%	4.0%	4.0%	4.0%	4.0%
Sempra Energy	6.5%	5.1%	4.1%	5.0%	5.8%	5.3%	2.5%	4.0%	6.5%	4.3%
Vectren Corp	1.9%	2.9%	1.2%	2.9%	4.2%	2.6%	4.0%	4.5%	5.5%	4.7%
Wisconsin Energy (WEC Energy)	6.8%	6.5%	5.9%	5.3%	2.1%	5.3%	3.5%	3.5%	3.5%	3.5%
Xcel Energy	4.3%	4.7%	4.5%	4.5%	4.3%	4.5%	4.0%	4.0%	4.0%	4.0%
Average						<b>3.8%</b>				<b>3.8%</b>

Source: Value Line Investment Survey.

**PROXY COMPANIES  
PER SHARE GROWTH RATES**

COMPANY	5-Year Historic Growth Rates				Est'd '13-'15 to '19-'21 Growth Rates			
	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
<b>Parcell Proxy Group</b>								
Avista Corp	4.0%	9.0%	4.0%	5.7%	5.0%	4.0%	3.5%	4.2%
Black Hills Corp	15.0%	2.0%	1.5%	6.2%	7.5%	6.0%	5.0%	6.2%
El Paso Electric	4.0%		7.5%	5.8%	2.5%	5.0%	3.5%	3.7%
OGE Energy	6.5%	6.0%	8.5%	7.0%	3.0%	9.5%	3.5%	5.3%
Otter Tail Corp	15.5%	0.5%	-3.5%	4.2%	6.0%	1.5%	5.5%	4.3%
Pinnacle West Capital	8.5%	2.0%	3.5%	4.7%	4.0%	5.0%	3.5%	4.2%
Average				<b>5.6%</b>				<b>4.6%</b>
<b>Morin Proxy Group</b>								
Alliant Energy	7.0%	6.5%	4.0%	5.8%	6.0%	4.5%	4.0%	4.8%
Ameren Corp	-4.0%	-3.0%	-3.0%	neg	6.0%	4.0%	3.5%	4.5%
Avista Corp	4.0%	9.0%	4.0%	5.7%	5.0%	4.0%	3.5%	4.2%
Black Hills Corp	15.0%	2.0%	1.5%	6.2%	7.5%	6.0%	5.0%	6.2%
CenterPoint Energy	2.0%	4.0%	7.5%	4.5%	2.0%	4.5%	-1.0%	1.8%
CMS Energy	8.5%	16.5%	4.0%	9.7%	6.0%	6.5%	6.0%	6.2%
Consolidated Edison	3.0%	1.5%	3.5%	2.7%	2.5%	3.0%	3.5%	3.0%
Dominion Resources	1.5%	7.0%	1.5%	3.3%	9.0%	8.0%	6.0%	7.7%
DTE Energy	6.5%	5.0%	4.0%	5.2%	6.0%	5.5%	4.5%	5.3%
Duke Energy	3.0%	2.5%	3.0%	2.8%	4.0%	3.5%	1.5%	3.0%
Empire District Electric	4.0%	-4.5%	2.5%	0.7%	3.5%	2.5%	2.0%	2.7%
Entergy Corp	-3.0%	1.5%	3.5%	0.7%	2.0%	3.0%	3.0%	2.7%
Eversource Energy	6.0%	11.0%	9.0%	8.7%	6.0%	6.0%	4.0%	5.3%
MGE Energy	7.0%	2.5%	5.5%	5.0%	7.0%	4.0%	5.0%	5.3%
NorthWestern Corp	7.0%	4.5%	7.0%	6.2%	6.5%	5.5%	4.5%	5.5%
PG&E Corp	-5.5%	1.5%	3.5%	-0.2%	12.0%	7.0%	4.5%	7.8%
Public Service Enterprise	-0.5%	2.5%	7.0%	3.0%	3.0%	5.0%	5.0%	4.3%
SCANA Corp	4.5%	2.5%	5.0%	4.0%	4.5%	5.0%	5.0%	4.8%
Sempra Energy	1.5%	12.0%	5.5%	6.3%	8.0%	7.0%	3.0%	6.0%
Vectren Corp	3.5%	2.0%	2.5%	2.7%	9.0%	5.0%	5.0%	6.3%
Wisconsin Energy (WEC Energy)	8.0%	18.5%	7.5%	11.3%	6.0%	7.0%	7.0%	6.7%
Xcel Energy	6.0%	4.5%	4.5%	5.0%	5.5%	6.0%	4.0%	5.2%
Average				<b>4.7%</b>				<b>5.0%</b>

Source: Value Line Investment Survey.

**PROXY COMPANIES  
DCF COST RATES**

COMPANY	ADJUSTED YIELD	HISTORIC RETENTION GROWTH	PROSPECTIVE RETENTION GROWTH	HISTORIC PER SHARE GROWTH	PROSPECTIVE PER SHARE GROWTH	FIRST CALL EPS GROWTH	AVERAGE GROWTH	DCF RATES
<b>Parcell Proxy Group</b>								
Avista Corp	3.3%	2.3%	2.8%	5.7%	4.2%	5.0%	4.0%	7.3%
Black Hills Corp	2.8%	2.7%	4.5%	6.2%	6.2%	7.9%	5.5%	8.3%
El Paso Electric	2.7%	5.9%	3.2%	5.8%	3.7%	7.0%	5.1%	7.8%
OGE Energy	3.6%	6.5%	3.3%	7.0%	5.3%	4.3%	5.3%	8.9%
Otter Tail Corp	3.9%	1.1%	2.3%	4.2%	4.3%	6.0%	3.6%	7.5%
Pinnacle West Capital	3.3%	3.7%	3.5%	4.7%	4.2%	3.8%	4.0%	7.2%
Mean	3.3%	3.7%	3.3%	5.6%	4.6%	5.7%	4.6%	<b>7.8%</b>
Median	3.3%	3.2%	3.3%	5.7%	4.3%	5.5%	4.5%	<b>7.7%</b>
Composite - Mean		7.0%	<b>6.6%</b>	8.8%	7.9%	<b>8.9%</b>	7.8%	
Composite - Median		<b>6.5%</b>	<b>6.5%</b>	<b>9.0%</b>	7.5%	8.8%	7.8%	
<b>Morin Proxy Group</b>								
Alliant Energy	3.1%	4.0%	4.7%	5.8%	4.8%	6.6%	5.2%	8.3%
Ameren Corp	3.4%	2.6%	3.2%	neg	4.5%	5.2%	3.9%	7.2%
Avista Corp	3.3%	2.3%	2.8%	5.7%	4.2%	5.0%	4.0%	7.3%
Black Hills Corp	2.8%	2.7%	4.5%	6.2%	6.2%	7.9%	5.5%	8.3%
CenterPoint Energy	4.4%	4.1%	1.5%	4.5%	1.8%	5.3%	3.4%	7.9%
CMS Energy	2.9%	5.2%	5.0%	9.7%	6.2%	7.3%	6.7%	9.6%
Consolidated Edison	3.5%	3.3%	3.0%	2.7%	3.0%	2.0%	2.8%	6.3%
Dominion Resources	3.8%	3.6%	4.3%	3.3%	7.7%	6.0%	5.0%	8.8%
DTE Energy	3.1%	3.6%	3.8%	5.2%	5.3%	5.4%	4.7%	7.8%
Duke Energy	4.2%	1.6%	2.0%	2.8%	3.0%	4.4%	2.7%	6.9%
Empire District Electric	3.1%	2.6%	2.2%	0.7%	2.7%	5.0%	2.6%	5.8%
Entergy Corp	4.4%	5.2%	4.5%	0.7%	2.7%	neg	3.2%	7.6%
Eversource Energy	3.2%	3.4%	3.7%	8.7%	5.3%	5.7%	5.3%	8.5%
MGE Energy	2.3%	5.3%	5.8%	5.0%	5.3%	4.0%	5.1%	7.4%
NorthWestern Corp	3.4%	3.6%	3.8%	6.2%	5.5%	5.0%	4.8%	8.2%
PG&E Corp	3.2%	1.8%	3.7%	-0.2%	7.8%	5.7%	3.8%	7.0%
Public Service Enterprise	3.8%	6.2%	4.2%	3.0%	4.3%	1.4%	3.8%	7.6%
SCANA Corp	3.2%	4.2%	4.0%	4.0%	4.8%	5.4%	4.5%	7.7%
Sempra Energy	2.8%	5.3%	4.3%	6.3%	6.0%	6.8%	5.7%	8.6%
Vectren Corp	3.2%	2.6%	4.7%	2.7%	6.3%	5.0%	4.3%	7.5%
Wisconsin Energy (WEC Energy)	3.3%	5.3%	3.5%	11.3%	6.7%	6.7%	6.7%	10.0%
Xcel Energy	3.2%	4.5%	4.0%	5.0%	5.2%	5.4%	4.8%	8.0%
Mean	3.4%	3.8%	3.8%	4.7%	5.0%	5.3%	4.5%	<b>7.8%</b>
Median	3.2%	3.6%	3.9%	5.0%	5.3%	5.4%	4.6%	<b>7.8%</b>
Composite - Mean		<b>7.1%</b>	7.1%	8.1%	8.3%	<b>8.6%</b>	7.8%	
Composite - Median		<b>6.9%</b>	7.1%	8.2%	8.5%	<b>8.6%</b>	7.8%	

Note: negative values not used in calculations.

Sources: Prior pages of this schedule.



**STANDARD & POOR'S 500 COMPOSITE  
20-YEAR U.S. TREASURY BOND YIELDS  
RISK PREMIUMS**

Year	EPS	BVPS	ROE	20-YEAR T-BOND YIELD	RISK PREMIUM
1977		\$79.07			
1978	\$12.33	\$85.35	15.00%	7.90%	7.10%
1979	\$14.86	\$94.27	16.55%	8.86%	7.69%
1980	\$14.82	\$102.48	15.06%	9.97%	5.09%
1981	\$15.36	\$109.43	14.50%	11.55%	2.95%
1982	\$12.64	\$112.46	11.39%	13.50%	-2.11%
1983	\$14.03	\$116.93	12.23%	10.38%	1.85%
1984	\$16.64	\$122.47	13.90%	11.74%	2.16%
1985	\$14.61	\$125.20	11.80%	11.25%	0.55%
1986	\$14.48	\$126.82	11.49%	8.98%	2.51%
1987	\$17.50	\$134.04	13.42%	7.92%	5.50%
1988	\$23.75	\$141.32	17.25%	8.97%	8.28%
1989	\$22.87	\$147.26	15.85%	8.81%	7.04%
1990	\$21.73	\$153.01	14.47%	8.19%	6.28%
1991	\$16.29	\$158.85	10.45%	8.22%	2.23%
1992	\$18.86	\$149.74	12.22%	7.29%	4.93%
1993	\$21.89	\$180.88	13.24%	7.17%	6.07%
1994	\$30.60	\$193.06	16.37%	6.59%	9.78%
1995	\$33.96	\$216.51	16.58%	7.60%	8.98%
1996	\$38.73	\$237.08	17.08%	6.18%	10.90%
1997	\$39.72	\$249.52	16.33%	6.64%	9.69%
1998	\$37.71	\$266.40	14.62%	5.83%	8.79%
1999	\$48.17	\$290.68	17.29%	5.57%	11.72%
2000	\$50.00	\$325.80	16.22%	6.50%	9.72%
2001	\$24.70	\$338.37	7.44%	5.53%	1.91%
2002	\$27.59	\$321.72	8.36%	5.59%	2.77%
2003	\$48.73	\$367.17	14.15%	4.80%	9.35%
2004	\$58.55	\$414.75	14.98%	5.02%	9.96%
2005	\$69.93	\$453.06	16.12%	4.69%	11.43%
2006	\$81.51	\$504.39	17.03%	4.68%	12.35%
2007	\$66.17	\$529.59	12.80%	4.86%	7.94%
2008	\$14.88	\$451.37	3.03%	4.45%	-1.42%
2009	\$50.97	\$513.58	10.56%	3.47%	7.09%
2010	\$77.35	\$579.14	14.16%	4.25%	9.91%
2011	\$86.95	\$613.14	14.59%	3.81%	10.78%
2012	\$86.51	\$666.97	13.52%	2.40%	11.12%
2013	\$100.20	\$715.84	14.49%	2.86%	11.63%
2014	\$102.31	\$726.96	14.18%	3.33%	10.85%
Average					6.85%

Source: Standard & Poor's Analysts' Handbook, Ibbotson Associates Handbook.

**PROXY COMPANIES  
CAPM COST RATES**

COMPANY	RISK-FREE RATE	BETA	RISK PREMIUM	CAPM RATES
<b>Parcell Proxy Group</b>				
Avista Corp	1.91%	0.75	5.75%	6.2%
Black Hills Corp	1.91%	0.90	5.75%	7.1%
El Paso Electric	1.91%	0.70	5.75%	5.9%
OGE Energy	1.91%	0.90	5.75%	7.1%
Otter Tail Corp	1.91%	0.85	5.75%	6.8%
Pinnacle West Capital	1.91%	0.70	5.75%	5.9%
Mean				<b>6.5%</b>
Median				<b>6.5%</b>
<b>Morin Proxy Group</b>				
Alliant Energy	1.91%	0.75	5.75%	6.2%
Ameren Corp	1.91%	0.70	5.75%	5.9%
Avista Corp	1.91%	0.75	5.75%	6.2%
Black Hills Corp	1.91%	0.90	5.75%	7.1%
CenterPoint Energy	1.91%	0.80	5.75%	6.5%
CMS Energy	1.91%	0.65	5.75%	5.6%
Consolidated Edison	1.91%	0.55	5.75%	5.1%
Dominion Resources	1.91%	0.70	5.75%	5.9%
DTE Energy	1.91%	0.70	5.75%	5.9%
Duke Energy	1.91%	0.60	5.75%	5.4%
Empire District Electric	1.91%	0.75	5.75%	6.2%
Entergy Corp	1.91%	0.65	5.75%	5.6%
Eversource Energy	1.91%	0.70	5.75%	5.9%
MGE Energy	1.91%	0.70	5.75%	5.9%
NorthWestern Corp	1.91%	0.70	5.75%	5.9%
PG&E Corp	1.91%	0.65	5.75%	5.6%
Public Service Enterprise	1.91%	0.70	5.75%	5.9%
SCANA Corp	1.91%	0.70	5.75%	5.9%
Sempra Energy	1.91%	0.80	5.75%	6.5%
Vectren Corp	1.91%	0.75	5.75%	6.2%
Wisconsin Energy (WEC Energy)	1.91%	0.65	5.75%	5.6%
Xcel Energy	1.91%	0.65	5.75%	5.6%
Mean				<b>6.0%</b>
Median				<b>5.9%</b>

Sources: Value Line Investment Survey, Standard & Poor's Analysts' Handbook, Federal Reserve.

<u>20-year Treasury Bonds</u>	
Month	Rate
June 2016	2.02%
July 2016	1.82%
Aug 2016	1.89%
Average	1.91%

**PROXY COMPANIES**  
**RATES OF RETURN ON AVERAGE COMMON EQUITY**

COMPANY	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2002-2008 Average	2009-2015 Average	2016	2017	2019-21
<b>Parcell Proxy Group</b>																			
Avista Corp	4.5%	6.7%	4.6%	5.8%	8.8%	4.1%	7.6%	8.4%	8.5%	8.6%	6.4%	8.7%	8.1%	7.8%	6.0%	8.1%	8.0%	8.5%	8.5%
Black Hills Corp	12.1%	8.9%	7.9%	9.4%	9.6%	10.9%	0.7%	8.4%	5.9%	3.6%	7.1%	9.1%	9.6%	9.5%	8.5%	7.6%	9.0%	10.5%	10.5%
El Paso Electric	6.3%	6.5%	6.3%	6.7%	10.5%	11.9%	11.4%	9.4%	11.7%	13.0%	11.4%	10.0%	9.5%	8.2%	8.5%	10.5%	7.5%	8.0%	8.5%
OGE Energy	11.1%	13.2%	12.7%	12.5%	15.0%	14.7%	13.0%	12.9%	13.5%	14.0%	13.2%	13.2%	12.5%	10.4%	13.2%	12.8%	10.0%	10.5%	11.5%
Otter Tail Corp	15.2%	12.0%	10.8%	11.6%	10.4%	10.4%	5.9%	3.7%	2.1%	2.7%	6.9%	9.4%	10.3%	9.9%	10.9%	6.4%	9.0%	9.0%	10.0%
Pinnacle West Capital	8.6%	8.3%	8.2%	6.7%	9.2%	8.5%	6.1%	6.8%	9.3%	8.7%	9.8%	9.9%	9.2%	9.7%	7.9%	9.1%	9.5%	9.5%	10.0%
Average	9.6%	9.3%	8.4%	8.8%	10.6%	10.1%	7.5%	8.3%	8.5%	8.4%	9.1%	10.1%	9.9%	9.3%	9.2%	9.1%	8.8%	9.3%	9.8%
Median	9.9%	8.6%	8.1%	8.1%	10.0%	10.7%	6.9%	8.4%	8.9%	8.7%	8.5%	9.7%	9.6%	9.6%	8.9%	9.0%	9.0%	9.3%	10.0%
<b>Morin Proxy Group</b>																			
Alliant Energy	5.7%	7.6%	8.5%	10.3%	9.4%	11.4%	10.2%	7.5%	10.8%	10.3%	11.0%	11.4%	11.5%	10.3%	9.0%	10.4%	11.0%	11.0%	12.5%
Ameren Corp	10.8%	12.2%	10.0%	10.3%	8.5%	9.3%	8.8%	8.4%	8.5%	7.6%	8.0%	7.7%	8.8%	8.5%	10.0%	8.2%	9.0%	9.0%	9.5%
Avista Corp	4.5%	6.7%	4.6%	5.8%	8.8%	4.1%	7.6%	8.4%	8.5%	8.6%	6.4%	8.7%	8.1%	7.8%	6.0%	8.1%	8.0%	8.5%	8.5%
Black Hills Corp	12.1%	8.9%	7.9%	9.4%	9.6%	10.9%	0.7%	8.4%	5.9%	3.6%	7.1%	9.1%	9.6%	9.5%	8.5%	7.6%	9.0%	10.5%	10.5%
CenterPoint Energy	9.6%	26.1%	13.1%	17.2%	29.1%	22.1%	22.6%	16.0%	15.0%	14.6%	13.5%	12.3%	13.7%	11.6%	20.0%	13.8%	12.5%	15.5%	15.5%
CMS Energy	-27.1%	-3.3%	7.2%	10.4%	6.2%	6.6%	12.1%	8.3%	11.8%	12.5%	12.7%	13.2%	13.2%	13.7%	1.7%	12.2%	13.0%	13.5%	13.5%
Consolidated Edison	11.5%	10.0%	8.0%	10.2%	9.7%	10.9%	9.9%	8.7%	9.3%	9.3%	9.7%	9.5%	8.5%	9.3%	10.0%	9.2%	8.5%	9.0%	8.5%
Dominion Resources	14.9%	12.0%	12.9%	9.4%	14.3%	12.2%	18.1%	14.7%	14.7%	13.5%	14.3%	16.1%	15.3%	15.6%	13.4%	14.9%	15.0%	15.0%	18.5%
DTE Energy	13.7%	9.7%	8.1%	10.2%	7.5%	7.7%	7.5%	8.7%	9.6%	9.1%	9.2%	8.6%	11.1%	9.3%	9.2%	9.4%	9.5%	10.0%	10.0%
Duke Energy	8.9%	0.6%	8.6%	9.5%	4.8%	6.4%	6.1%	6.8%	8.0%	8.1%	6.8%	6.8%	7.1%	7.1%	6.4%	7.2%	7.5%	8.0%	8.0%
Empire District Electric	8.4%	8.7%	5.7%	6.2%	9.2%	6.9%	7.4%	7.5%	7.4%	8.1%	7.9%	8.6%	8.7%	7.1%	7.5%	7.9%	7.5%	7.5%	8.5%
Entergy Corp	10.7%	10.1%	10.3%	11.9%	14.1%	13.8%	15.0%	14.4%	14.3%	15.4%	11.7%	9.4%	10.5%	11.1%	12.3%	12.4%	12.5%	9.5%	10.0%
Eversource Energy	6.4%	7.1%	5.1%	5.4%	4.5%	8.6%	9.8%	9.6%	4.9%	10.0%	7.3%	8.3%	8.3%	8.6%	6.7%	8.1%	8.5%	9.0%	9.5%
MGE Energy	13.2%	12.5%	11.4%	9.4%	11.8%	12.1%	11.8%	10.4%	11.3%	11.3%	11.4%	12.5%	12.6%	10.6%	11.7%	11.4%	11.0%	11.0%	13.0%
NorthWestern Corp					6.4%	6.9%	8.4%	9.4%	9.6%	10.9%	9.3%	9.5%	10.3%	9.0%		9.7%	9.0%	9.5%	10.0%
PG&E Corp	-22.1%	20.9%	13.8%	11.7%	13.2%	11.9%	12.8%	11.3%	10.0%	9.6%	6.9%	5.9%	9.5%	6.0%	8.9%	8.5%	7.5%	10.5%	10.5%
Public Service Enterprise	19.9%	18.3%	12.8%	14.9%	12.2%	19.2%	19.5%	18.8%	16.9%	15.8%	11.7%	11.1%	12.7%	13.2%	16.7%	14.3%	10.0%	11.0%	10.5%
SCANA Corp	11.7%	12.4%	12.6%	12.4%	10.9%	11.0%	11.5%	10.7%	10.5%	10.0%	10.2%	10.5%	11.1%	10.4%	11.8%	10.5%	10.0%	10.0%	10.0%
Sempra Energy	20.7%	19.4%	20.7%	15.7%	16.1%	14.1%	13.7%	13.8%	10.9%	11.4%	10.4%	9.7%	10.2%	11.2%	17.2%	11.1%	9.0%	10.5%	13.5%
Vectren Corp	13.3%	11.6%	9.9%	12.3%	9.5%	11.6%	9.9%	10.6%	9.4%	9.7%	10.6%	8.9%	10.5%	12.0%	11.2%	10.2%	11.5%	11.5%	13.0%
Wisconsin Energy (WEC Energy)	12.8%	11.8%	9.0%	11.6%	11.1%	11.1%	11.0%	10.8%	12.2%	13.0%	13.3%	13.6%	13.5%	10.0%	11.2%	12.3%	10.5%	10.5%	11.0%
Xcel Energy	2.8%	10.0%	9.8%	9.1%	9.8%	9.3%	9.7%	9.5%	9.5%	10.1%	10.4%	10.2%	10.3%	10.2%	8.6%	10.0%	10.0%	10.5%	11.0%
Average	7.7%	11.1%	10.0%	10.6%	10.8%	10.8%	11.1%	10.6%	10.4%	10.6%	10.0%	10.1%	10.7%	10.1%	10.4%	10.3%	10.0%	10.5%	11.2%
Median	10.8%	10.1%	9.8%	10.3%	9.7%	11.0%	10.1%	9.6%	9.8%	10.1%	10.3%	9.5%	10.4%	10.1%	10.2%	10.0%	9.8%	10.5%	10.5%

Source: Calculations made from data contained in Value Line Investment Survey.

**PROXY COMPANIES  
MARKET TO BOOK RATIOS**

COMPANY	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2002-2008 Average	2009-2015 Average
<b>Parcell Proxy Group</b>																
Avista Corp	85%	94%	111%	115%	135%	127%	110%	94%	106%	119%	123%	125%	143%	141%	111%	122%
Black Hills Corp	143%	34%	134%	165%	153%	164%	124%	77%	108%	109%	121%	161%	181%	152%	131%	130%
El Paso Electric	140%	120%	148%	176%	179%	179%	134%	102%	134%	164%	163%	161%	158%	152%	154%	148%
OGE Energy	147%	154%	178%	187%	205%	197%	145%	139%	180%	197%	204%	231%	228%	185%	173%	195%
Otter Tail Corp	245%	209%	185%	183%	178%	200%	167%	108%	120%	123%	152%	196%	196%	186%	195%	154%
Pinnacle West Capital	116%	114%	130%	130%	129%	127%	100%	90%	113%	125%	141%	153%	158%	160%	121%	134%
Average	146%	121%	148%	159%	163%	166%	130%	102%	127%	140%	151%	171%	177%	163%	<b>148%</b>	<b>147%</b>
Median	142%	117%	141%	171%	166%	172%	129%	98%	117%	124%	147%	161%	170%	156%	<b>148%</b>	<b>139%</b>
<b>Morin Proxy Group</b>																
Alliant Energy	110%	97%	12%	131%	155%	173%	131%	102%	131%	147%	162%	170%	198%	190%	116%	157%
Ameren Corp	163%	162%	161%	172%	164%	159%	122%	83%	81%	92%	106%	125%	152%	149%	158%	113%
Avista Corp	85%	94%	111%	115%	135%	127%	110%	94%	106%	119%	123%	125%	143%	141%	111%	122%
Black Hills Corp	143%	34%	134%	165%	153%	164%	124%	77%	108%	109%	121%	161%	181%	152%	131%	130%
CenterPoint Energy	116%	142%	236%	329%	312%	330%	224%	187%	158%	210%	200%	223%	227%	214%	241%	203%
CMS Energy	137%	80%	90%	125%	142%	177%	127%	117%	148%	170%	192%	218%	239%	254%	125%	191%
Consolidated Edison	144%	146%	143%	154%	149%	151%	123%	110%	124%	145%	150%	144%	143%	148%	144%	138%
Dominion Resources	158%	180%	196%	242%	229%	256%	238%	186%	207%	235%	272%	313%	362%	352%	214%	275%
DTE Energy	145%	142%	132%	140%	134%	143%	101%	91%	116%	121%	137%	153%	170%	173%	134%	137%
Duke Energy	171%	106%	139%	157%	153%	102%	102%	90%	101%	115%	120%	120%	133%	135%	133%	116%
Empire District Electric	132%	133%	144%	148%	149%	150%	122%	100%	127%	128%	124%	131%	150%	144%	140%	129%
Entergy Corp	114%	136%	156%	194%	211%	264%	229%	167%	164%	134%	133%	126%	139%	141%	186%	143%
Eversource Energy	99%	95%	106%	108%	131%	163%	128%	114%	136%	150%	143%	141%	158%	158%	119%	143%
MGE Energy	214%	223%	207%	207%	191%	178%	159%	154%	171%	182%	203%	214%	227%	217%	197%	195%
NorthWestern Corp					160%	147%	109%	105%	122%	138%	146%	159%	174%	167%		144%
PG&E Corp	149%	203%	196%	179%	201%	203%	144%	149%	148%	146%	145%	143%	147%	161%	182%	148%
Public Service Enterprise	178%	186%	191%	245%	267%	304%	250%	177%	176%	161%	154%	151%	160%	163%	232%	163%
SCANA Corp	137%	158%	171%	179%	167%	158%	141%	121%	134%	135%	152%	154%	160%	158%	159%	145%
Sempra Energy	155%	172%	178%	186%	190%	194%	151%	135%	136%	128%	153%	187%	223%	220%	175%	169%
Vectren Corp	174%	170%	175%	185%	179%	175%	157%	133%	142%	153%	160%	180%	216%	218%	174%	172%
Wisconsin Energy (WEC Energy)	129%	147%	156%	168%	182%	179%	153%	147%	171%	186%	213%	223%	249%	219%	159%	201%
Xcel Energy	113%	113%	132%	139%	150%	154%	127%	121%	135%	143%	156%	157%	165%	171%	133%	150%
Average	141%	139%	151%	175%	177%	184%	149%	125%	138%	148%	158%	169%	187%	184%	<b>160%</b>	<b>158%</b>
Median	143%	142%	156%	168%	162%	169%	130%	119%	136%	144%	151%	156%	168%	165%	<b>153%</b>	<b>148%</b>

Source: Calculations made from data contained in Value Line Investment Survey.

**STANDARD & POOR'S 500 COMPOSITE  
RETURNS AND MARKET-TO-BOOK RATIOS  
2002 - 2014**

<b>YEAR</b>	<b>RETURN ON AVERAGE EQUITY</b>	<b>MARKET-TO BOOK RATIO</b>
2002	8.4%	295%
2003	14.2%	278%
2004	15.0%	291%
2005	16.1%	278%
2006	17.0%	277%
2007	12.8%	284%
2008	3.0%	224%
2009	10.6%	187%
2010	14.2%	208%
2011	14.6%	207%
2012	13.5%	214%
2013	14.5%	237%
2014	14.2%	268%
Averages:		
2002-2008	12.4%	275%
2009-2014	13.6%	220%

Source: Standard & Poor's Analyst's Handbook, 2015 edition.

## RISK INDICATORS

COMPANY	VALUE LINE SAFETY	VALUE LINE BETA	VALUE LINE FINANCIAL STRENGTH		S & P STOCK RANKING	
<b>Parcell Proxy Group</b>						
Avista Corp	2	0.75	A	4.00	A-	3.67
Black Hills Corp	2	0.90	A	4.00	B	3.00
El Paso Electric	2	0.70	B++	3.67	B	3.00
OGE Energy	2	0.90	A	4.00	A-	3.67
Otter Tail Corp	2	0.85	B++	3.67	B	3.00
Pinnacle West Capital	1	0.70	A+	4.33	B+	3.33
	1.8	0.80	B++	3.95	B+/A-	3.28
<b>Morin Proxy Group</b>						
Alliant Energy	2	0.75	A	4.00	B+	3.33
Ameren Corp	2	0.70	A	4.00	B	3.00
Avista Corp	2	0.75	A	4.00	A-	3.67
Black Hills Corp	2	0.90	A	4.00	B	3.00
CenterPoint Energy	3	0.80	B+	3.33	B	3.00
CMS Energy	2	0.65	B++	3.67	B	3.00
Consolidated Edison	1	0.55	A+	4.33	B+	3.33
Dominion Resources	2	0.70	B++	3.67	B	3.00
DTE Energy	2	0.70	B++	3.67	A-	3.67
Duke Energy	2	0.60	A	4.00	B	3.00
Empire District Electric	2	0.75	B++	3.67	B+	3.33
Entergy Corp	3	0.65	B++	3.67	A-	3.67
Eversource Energy	1	0.70	A	4.00	A-	3.67
MGE Energy	1	0.70	A	4.00	A-	3.67
NorthWestern Corp	3	0.70	B+	3.33	A+	4.33
PG&E Corp	3	0.65	B+	3.33	B	3.00
Public Service Enterprise	1	0.70	A++	4.67	B+	3.33
SCANA Corp	2	0.70	B++	3.67	A	4.00
Sempra Energy	3	0.80	A	4.00	B+	3.33
Vectren Corp	2	0.75	A	4.00	B+	3.33
Wisconsin Energy (WEC Energy)	1	0.65	A+	4.33	A	4.00
Xcel Energy	1	0.65	A+	4.33	A-	3.67
Average	2.0	0.70	B++	3.89	B+	3.42

## RISK INDICATORS

GROUP	VALUE LINE SAFETY	VALUE LINE BETA	VALUE LINE FIN STR	S & P STK RANK
S & P's 500 Composite	2.7	1.05	B++	B
Parcell Proxy Group	1.8	0.80	B++	B+/A-
Morin Proxy Group	2.0	0.70	B++	B+

Sources: Value Line Investment Survey, Standard & Poor's Stock Guide.

### Definitions:

Safety rankings are in a range of 1 to 5, with 1 representing the highest safety or lowest risk.

Beta reflects the variability of a particular stock, relative to the market as a whole. A stock with a beta of 1.0 moves in concert with the market, a stock with a beta below 1.0 is less variable than the market, and a stock with a beta above 1.0 is more variable than the market.

Financial strengths range from C to A++, with the latter representing the highest level.

Common stock rankings range from D to A+, with the later representing the highest level.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**11/21/2016 4:34:17 PM**

**in**

**Case No(s). 16-0395-EL-SSO, 16-0396-EL-ATA, 16-0397-EL-AAM**

Summary: Testimony Direct Testimony of David C. Parcell on Behalf of The Office of the Ohio Consumers' Counsel electronically filed by Ms. Jamie Williams on behalf of Michael, William Mr.