BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of the Dayton Power and Light Company to Increase its Rates for Electric Distribution	))))))	Case No. 20-1651-EL-AIR
In the Matter of the Application of the Dayton Power and Light Company for Accounting Authority	)))))	Case No. 20-1652-EL-AAM
In the Matter of the Application of Dayton Power and Light Company for Approval of Revised Tariffs.	)))))	Case No. 20-1653-EL-ATA

Direct Testimony and Exhibits of

Christopher C. Walters

On behalf of

Office of the Ohio Consumers' Counsel

August 25, 2021

BAI

BRUBAKER & ASSOCIATES, INC.

Project 11107

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PUCO Case No. 20-1651-EL-AIR, et al.

1 **I.   INTRODUCTION**

2

3 *Q1.   PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.*

4 *A1.*   Christopher C. Walters. My business address is 16690 Swingley Ridge Road,

5   Suite 140, Chesterfield, MO 63017.

6

7 *Q2.   WHAT IS YOUR OCCUPATION?*

8 *A2.*   I am an Associate with the firm of Brubaker & Associates, Inc. ("BAI"), energy,

9   economic and regulatory consultants in the field of public utility regulation.

10

11 *Q3.   PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND*

12   *PROFESSIONAL EXPERIENCE.*

13 *A3.*   I received a Bachelor of Science Degree in Business Economics and Finance from

14   Southern Illinois University Edwardsville. I have also received a Master of Business

15   Administration Degree from Lindenwood University.

16

17   As an Associate at BAI, I perform detailed technical analyses and research to support

18   regulatory projects including expert testimony covering various regulatory issues.

19   Since my career at BAI began in 2011, I have held the positions of Analyst, Associate

20   Consultant, Consultant, Senior Consultant, and Associate. Throughout my tenure, I

21   have been involved with several regulated projects for electric, natural gas and water

22   and wastewater utilities, as well as competitive procurement of electric power and gas

23   supply. My regulatory project work includes estimating the cost of equity capital,

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1   capital structure evaluations, assessing financial integrity, merger and acquisition

2   related issues, risk management related issues, depreciation rate studies, and other

3   revenue requirement issues.

4

5   **Q4.**   ***HAVE YOU EVER TESTIFIED BEFORE A REGULATORY BODY?***

6   **A4.**   Yes. I have sponsored testimony before state regulatory commissions including:

7   Arizona, Arkansas, Delaware, Florida, Illinois, Iowa, Kansas, Kentucky, Louisiana,

8   Maryland, Michigan, Minnesota, Missouri, Nevada, New Mexico, Ohio, Oklahoma,

9   Utah, and Wyoming. In Ohio, I testified in Dayton Power and Light Company's

10   ("DP&L" or the "Utility") third electric security plan case, Case No. 16-395-EL-SSO.

11   In addition, I have also sponsored testimony before the City Council of New Orleans

12   and the FERC.

13

14   **Q5.**   ***PLEASE DESCRIBE ANY PROFESSIONAL REGISTRATIONS OR***

15   ***ORGANIZATIONS TO WHICH YOU BELONG.***

16   **A5.**   I earned the Chartered Financial Analyst ("CFA") designation from the CFA Institute.

17   The CFA charter was awarded after successfully completing three examinations which

18   covered the subject areas of financial accounting and reporting analysis, corporate

19   finance, economics, fixed income and equity valuation, derivatives, alternative

20   investments, risk management, and professional and ethical conduct. I am a member

21   of the CFA Institute and the CFA Society of St. Louis.

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1   ***Q6.***   ***ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?***

2   ***A6.***   My testimony is presented on behalf of Office of the Ohio Consumers' Counsel

3   ("OCC").

4

5   ***Q7.***   ***WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?***

6   ***A7.***   My testimony will address the current market cost of equity and resulting overall rate

7   of return for DP&L. I will explain and support the Objections 15, 16, 17, 18, 19, 20,

8   and 21 of OCC regarding the return on equity ("ROE") and overall rate of return

9   recommendations put forward in the report filed by the Public Utilities Commission of

10   Ohio PUCO ("PUCO") Staff on July 26, 2021 (the "Staff Report"). In addition, I will

11   respond to the DP&L's witness Mr. Adrien M. McKenzie's recommended ROE of

12   10.5%.[1]

13

14   My silence with regard to any position taken by any witness in this proceeding does

15   not indicate my endorsement of that position.

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[1] Citation.

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1   **II.   SUMMARY**

2

3   *Q8.   PLEASE SUMMARIZE THE BALANCE OF YOUR TESTIMONY AND YOUR*

4   *RECOMMENDATIONS.*

5   *A8.*   In Section III of my testimony, I review and analyze the regulated utility industry's

6   access to capital, credit rating trends and outlooks, as well as the overall trend in the

7   authorized ROE for utilities throughout the country. I conclude that the trend in

8   authorized ROEs for electric utilities has steadily declined for more than a decade and

9   has remained below 10.0% for the past several years. I also review the impact that the

10   Federal Reserve's monetary policy actions have had on the cost of capital.

11

12   In Section IV of my testimony, I outline how a fair ROE should be established,

13   provide an overview of the market's perception of the DP&L's investment risk,

14   comment on DP&L's proposed capital structure, and present the analyses I relied on to

15   estimate an appropriate ROE for DP&L.

16

17   Based on the results of several cost of equity estimation methods performed on

18   publicly traded electric utility companies with comparable risk to DP&L, I estimate

19   the current fair market ROE for DP&L to fall within the range of 8.9% to 9.70%, with

20   a midpoint of 9.30%. As shown on my Exhibit CCW-1, my recommended ROE of

21   9.30% at my proposed capital structure produces an overall rate of return of 7.01%.

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1   In Section V of my testimony, I respond to the PUCO Staff's recommended ROE and

2   capital structure for the DP&L. Specifically, I explain, and support Objections 15-21

3   filed by OCC on August 25, 2021. In the Staff Report, it recommends an ROE in the

4   range of 9.28% to 10.29% and DP&L's requested capital structure be adopted.

5

6   In Section VI of my testimony, I respond to the DP&L's witness Mr. McKenzie's

7   estimate of the current market cost of equity for DP&L. Mr. McKenzie recommends

8   an ROE within the range of 9.5% to 10.8%, with a point estimate of 10.5%. I will

9   show that his estimates are overstated and do not represent an accurate estimate of the

10   current market cost of equity for DP&L.

11

12   **III.   ACCESS TO CAPITAL AND ECONOMIC ENVIRONMENT**

13

14   **A.   Electric Industry Authorized ROEs, Access to Capital, and Credit**

15   **Strength**

16

17   *Q9.* *PLEASE DESCRIBE THE OBSERVABLE EVIDENCE ON TRENDS IN*

18   *AUTHORIZED ROEs FOR ELECTRIC UTILITIES, UTILITIES' CREDIT*

19   *STANDING, AND UTILITIES' ACCESS TO CAPITAL TO FUND CAPITAL*

20   *EXPENDITURES.*

21   *A9.* Authorized ROEs for both electric and gas utilities have declined over the last ten

22   years, as illustrated in Figure CCW-1, and have been stable well below 10.0% for

23   about the last eight years.

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FIGURE CCW-1

Authorized Returns on Equity*
(Exclude Limited Issue Riders)
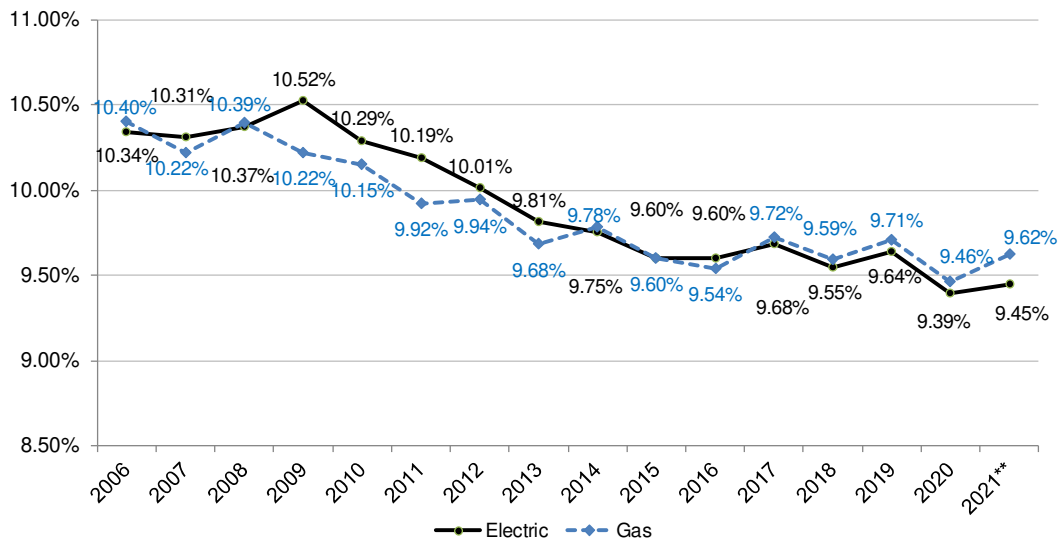
Source and Notes:
[1] *S&P Global Market Intelligence*, RRA Regulatory Focus, Major Rate Case Decisions -- January - June 2021,
    July 27, 2021 at page 1.
* Electric Returns exclude Limited Issue Riders.
* RRA excludes the 2017 Alaska ENSTAR decision from its calculations.
**Data represents January - June.

1 **Q10. PLEASE DESCRIBE THE DISTRIBUTION OF AUTHORIZED ROEs FOR THE**

2 **LAST FEW YEARS.**

3 **A10.** The distribution of authorized returns, annually, since 2016 is summarized in Table

4 CCW-1.

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TABLE CCW-1

Distribution of Authorized ROEs
(All Electric Utilities)*

Line	Year	Average (1)	Median (2)	Share of Decisions ≤ 9.5% (3)	Share of Decisions ≤ 9.7% (4)
1	2016	9.60%	9.60%	41%	53%
2	2017[1]	9.67%	9.60%	42%	67%
3	2018[2]	9.54%	9.57%	47%	63%
4	2019	9.64%	9.65%	39%	58%
5	2020[3]	9.38%	9.48%	64%	79%
6	2021	9.45%	9.47%	60%	90%

Source and Notes:

S&P Global Market Intelligence, data through 2021 Q2.

[1] Includes authorized base ROE of 9.4% for Nevada Power Company, which excludes incentives associated with the Lenzie facility.

[2] Includes authorized base ROE of 9.6% for Interstate Power & Light Co., which excludes allowed ROE for generating facilities subject to special ratemaking principles.

[3] Includes authorized base ROE of 9.8% for Interstate Power & Light Co., which excludes allowed ROE for generating facilities subject to special ratemaking principles.

*Excludes Limited Issue Rider Cases.

1   The distribution shows that the majority of authorized ROEs since 2016 have been

2   below 9.7%, with many of those being below 9.5%.

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1 *Q11.* ***HOW HAS THE AUTHORIZED COMMON EQUITY RATIO FLUCTUATED***

2 ***OVER THE SAME TIME PERIOD FOR ELECTRIC UTILITIES?***

3 *A11.* In general, the electric utility industry's common equity ratio has remained around

4 50.0%. As shown in Table CCW-2, I have provided the authorized common equity

5 ratios for electric utilities around the country, excluding the reported common equity

6 ratios for Arkansas, Florida, Michigan, and Indiana. I have excluded the reported

7 common equity ratios for these states because these jurisdictions include sources of

8 capital outside of investor-supplied capital, such as accumulated deferred income

9 taxes. As such, the reported common equity ratios in these states would bias down the

10 reported permanent common equity ratios authorized for ratemaking purposes.

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TABLE CCW-2

Trends in State Authorized Common Equity Ratios
(Industry)

		Electric[1]	
Line	Year	Average	Median
	(1)	(2)	(3)
1	2016	49.70%	49.99%
2	2017	50.02%	49.85%
3	2018	50.60%	50.23%
4	2019	51.55%	51.37%
5	2020	50.94%	51.17%
6	2021	51.14%	52.07%
7	Average	50.66%	50.78%
8	Min	49.70%	49.85%
9	Max	51.55%	52.07%

Source and Note:

[1] S&P Global Market Intelligence; data through 2021 Q2.

[2] Excludes Arkansas, Florida, Indiana, and Michigan, because they include non-investor capital.

---

1   *Q12.*   ***HAVE REGULATED UTILITY COMPANIES BEEN ABLE TO MAINTAIN***

2   ***STRONG CREDIT RATINGS DURING PERIODS OF DECLINING***

3   ***AUTHORIZED RETURNS ON EQUITY?***

4   *A12.*   Yes. The credit rating changes for the electric utility industry over the last several

5   years are the result of marked improvement in overall financial health and credit

6   quality in the industry. As shown below in Table CCW-3, the credit rating of the

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1   industry has improved over the last ten years. More recently, a significant majority

2   (71%) of the electric utility companies have bond ratings in the range of BBB+ to A-.

TABLE CCW-3

S&P Ratings by Category
Electric Utility Subsidiaries
(Year End)

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
A or higher	12%	12%	12%	11%	13%	13%	13%	10%	10%	8%	14%	14%	14%
A-	18%	20%	19%	22%	26%	26%	34%	43%	52%	54%	54%	53%	42%
BBB+	23%	24%	28%	28%	25%	28%	24%	32%	21%	22%	18%	19%	29%
BBB	36%	26%	24%	22%	26%	23%	18%	4%	7%	13%	12%	3%	4%
BBB-	9%	16%	15%	17%	11%	11%	11%	11%	11%	2%	1%	1%	0%
Below BBB-	2%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: S&P CAPITAL IQ, downloaded 06/17/21.
Notes: Value Line Electric Subsidiary ratings used.
    2020 increase in below investment grade ratings is due to FirstEnergy's bribery scandal and does not reflect risk to the industry as a whole.

3   ***Q13.   HAVE ELECTRIC UTILITIES BEEN ABLE TO ACCESS EXTERNAL CAPITAL***

4   ***TO SUPPORT CAPITAL EXPENDITURE PROGRAMS?***

5   ***A13.***   Yes. In its April 8, 2021 Utility Capital Expenditures Update report, *RRA Financial*

6   *Focus*, a division of S&P Global Market Intelligence, made several relevant comments

7   about utility investments generally:

8

9   •   Projected 2020 capital expenditures for the 47 energy utilities in the

10   Regulatory Research Associates, a group within S&P Global Market

11   Intelligence, universe currently stands at roughly $141.3 billion, well

12   above 2019's $120.7 billion in capital investment.

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1   •   2020 energy utility capital expenditures marked a record high and were

2   more than 7.75% above the $120.7 billion that the energy utility industry

3   invested in 2019, despite that the coronavirus pandemic interrupted

4   certain supply chains for a period of months in some instances.

5

6   •   2021 appears on track to be another record year for energy

7   infrastructure investments. Assuming current projections hold,

8   investment across the RRA covered energy utility industry may rise by

9   9% or more this year.

10   * * *

11   The nation's electric and gas utilities are investing in infrastructure to

12   upgrade aging transmission and distribution systems, build new natural

13   gas, solar and wind generation, and implement new technologies,

14   including smart meter deployment, smart grid systems, cybersecurity

15   measures and battery storage. We expect considerable levels of

16   spending to serve as the basis for solid profit expansion in the sector for

17   the foreseeable future.

18

19   * * *

20   From a natural gas perspective, the momentum in replacement of

21   mature gas distribution infrastructure continues and is likely to maintain

22   at material levels for many years, considering state and federal

23   mandates to address safety. In addition, despite headwinds in many

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1   regions of the country regarding the future of gas, it is expected to

2   remain a critical energy source for some time. In addition, natural gas

3   midstream pipelines and downstream distribution networks are likely to

4   be central to aims by many midstream and utility enterprises to extend

5   the life of their infrastructure through transportation of renewable

6   natural gas and hydrogen blends.[2]

7

8   As shown in Figure CCW-2 below, capital expenditures (new capital investments) for

9   electric and natural gas utilities have increased considerably over the period 2020 into

10   2021, and the forecasted capital expenditures remain elevated through 2023, albeit

11   falling below current levels in 2023.

---

[2] *S&P Global Market Intelligence, RRA Financial Focus*: "Utility Capital Expenditures Update," April 8, 2021, at 1-2.

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FIGURE CCW-2
Utility Capital Expenditures
(Dollars in Millions)

*Other category consists of utilities that do not report capital expenditures by category: Avangrid, Hawaiian Electric, PG&E and Portland General Electric.
Source: *S&P Global Market Intelligence, RRA Financial Focus*, Utility Capital Expenditures Update, April 8, 2021, Tables 1 and 3.
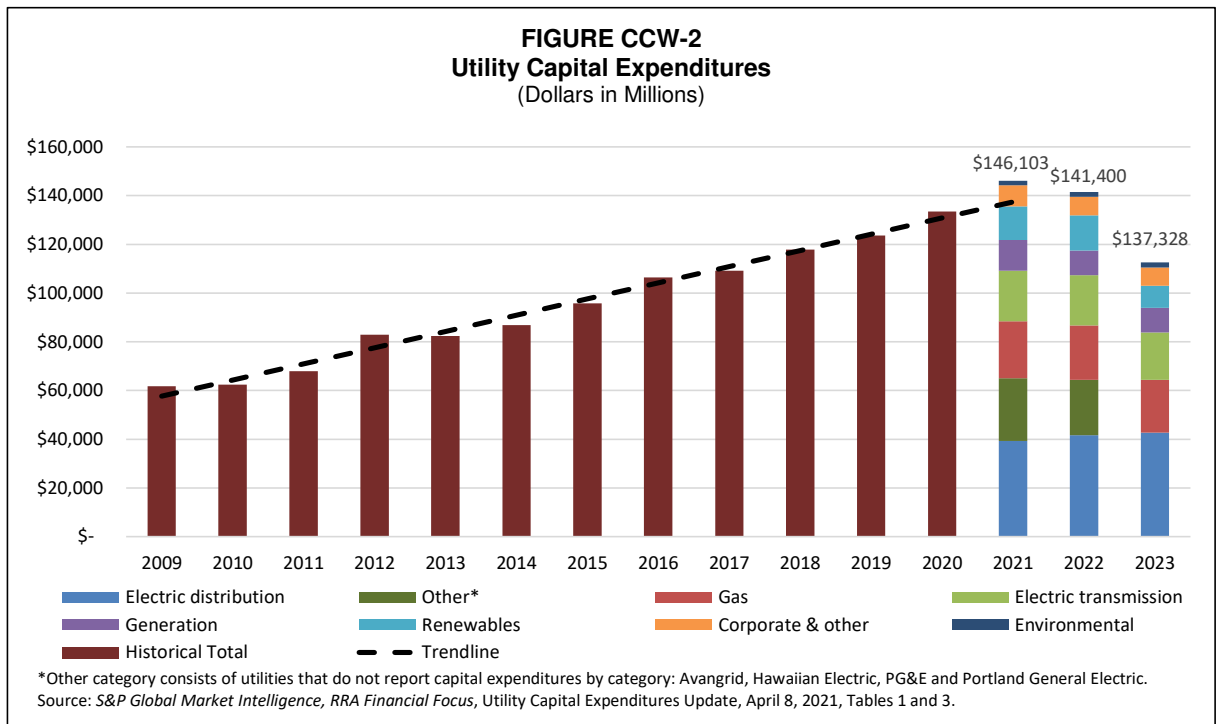
1   As outlined in Figure CCW-2 above, and in the comments made by *RRA S&P Global*

2   *Market Intelligence*, capital investments for the utility industry continue to stay at

3   elevated levels and will drive utilities' profit expansion into the foreseeable future.

4   This is clear evidence that the capital investments are enhancing shareholder value and

5   are attracting both equity and debt capital to the utility industry in a manner that

6   allows for these accelerated capital investment levels. While capital markets embrace

7   these profit-driven capital investments, regulatory commissions also must be careful to

8   maintain reasonable prices, and tariff terms and conditions to protect customers' need

9   for reliable service at reasonable rates.

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1   **Q14.**   ***IS THERE EVIDENCE OF STRONG VALUATIONS OF REGULATED***

2   ***ELECTRIC UTILITY EQUITY SECURITIES?***

3   **A14.**   Yes. Strong valuations are an indication that utilities can sell securities at high prices,

4   which is a strong indication that they can access equity capital under reasonable terms

5   and conditions, and at relatively low cost. As shown on Exhibit CCW-2, the historical

6   valuation of electric utilities followed by *The Value Line Investment Survey* ("*Value*

7   *Line*") based on a price-to-earnings ("P/E") ratio, price-to-cash flow ("P/CF") ratio,

8   and market price-to-book value ("M/B") ratio, indicates electric utility security

9   valuations today are very strong and robust relative to the last several years. These

10   strong valuations of electric utility stocks indicate that electric utilities have access to

11   equity capital under reasonable terms and at lower costs.

12

13   **Q15.**   ***HOW SHOULD THE COMMISSION USE THIS MARKET INFORMATION IN***

14   ***ASSESSING A FAIR RETURN FOR DP&L?***

15   **A15.**   Observable market evidence is quite clear that capital market costs are near

16   historically low levels. While authorized ROEs have fallen to the mid-9.0% range,

17   electric utilities continue to have access to large amounts of external capital even as

18   they are funding large capital programs. Furthermore, electric utilities' investment-

19   grade credit ratings are mostly stable and have improved due, in part, to supportive

20   regulatory treatment. The Commission should carefully weigh all this important

21   observable market evidence in assessing a fair ROE for DP&L.

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1   **B.**   **Regulated Electric Utility Industry Outlook**

2

3   *Q16.*   *PLEASE DESCRIBE THE CREDIT RATING OUTLOOK FOR REGULATED*

4   *ELECTRIC UTILITIES.*

5   *A16.*   The global economy has faced the extraordinary challenges of the novel Coronavirus,

6   which led to nearly a complete shutdown of the global economy for a brief period in

7   2020. This unprecedented event has impacted all sectors and capital markets. With

8   regard to regulated utilities, S&P made the following statement:

9

10   **Key Takeaways**

11   - Credit quality for the North American regulated utility industry

12   weakened in 2020. At the beginning of the year about 18% of the

13   industry had a negative outlook or ratings on CreditWatch with

14   negative implications. By the end of the year that percentage had

15   doubled, to about 36%.

16

17   - For the first time in a decade downgrades outpaced upgrades for the

18   predominately investment-grade industry.

19

20   - The industry generally performed well throughout the pandemic and

21   we expect it will continue to mostly manage through the remaining

22   COVID-19-related risks.

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1   - <u>The main causes of weakening credit quality reflected environment,</u>

2   <u>social, and governance (ESG) risks, regulatory issues, and companies'</u>

3   <u>practice of strategically managing financial measures close to their</u>

4   <u>downgrade threshold with little or no cushion.</u>

5

6   - <u>Despite our negative 2021 industry outlook, we expect a modest</u>

7   <u>improvement to credit quality over the next 12 months. We believe</u>

8   <u>Congress is more likely to raise the corporate tax rate, which would</u>

9   <u>improve the industry's financial measures, offset in part by a continued</u>

10   <u>focus on ESG risks.</u>

11   * * *

12   **COVID-19 Was Not The Culprit For Weaker Credit Quality**

13

14   In March 2020, we identified five COVID-19-related risks that could

15   lead to a weakening of the industry's credit quality.

16   * * *

17   Encouragingly, the <u>industry has generally performed well throughout</u>

18   <u>the pandemic.</u> Lower electric and gas deliveries to C&I customers were

19   mostly offset by higher residential deliveries, the industry generally

20   worked well with regulators to defer COVID-19-related costs for future

21   recovery, market returns improved, and <u>the industry generally had</u>

22   <u>consistent access to the capital markets.</u> The one area that we saw some

23   weakness was with regard to rate cases. Many rate case filings were

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1   delayed, rate case orders often took longer than expected, and many of

2   the orders were below expectations. This trend generally reflected the

3   weak economy caused by COVID-19 and the difficulties of passing on

4   higher costs to customers during the pandemic. We expect that as

5   vaccines take hold and the pandemic dissipates, the economy will

6   gradually recover, as will the industry's rate case performance.[3]

7

8   Moody's opines that there may be delays in rate case decisions due to COVID-19 but

9   views the regulated utilities resilient to withstand the current economic situation.

10   Specifically, Moody's states:

11

12   We are maintaining a <u>stable outlook</u> for the US regulated utilities

13   industry, reflecting our expectation for <u>continued strong regulatory</u>

14   <u>support</u>, <u>robust residential demand,</u> and a <u>recovering economy in 2021</u>.

15   As a critical infrastructure sector with a regulated business model that

16   provides good cost recovery, <u>regulated utilities have remained</u>

17   <u>relatively resilient in the face of the uncertain economic environment</u>

18   <u>caused by the coronavirus pandemic.</u>

19

20   » **Following a decline in 2020 from last year's level, FFO-to-debt**

21   **will increase slightly on improving economic conditions.** We project

---

[3] *S&P Global Ratings*: "North American Regulated Utilities' Negative Outlook Could See Modest Improvement," January 20, 2021, at 1 and 3 (emphasis added).

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1   an aggregate industry funds from operations to debt ratio of around

2   15% over the next 12 to 18 months, a slight improvement from an

3   expected decline to between 14% and 15% in 2020 from 15.8% in

4   2019. Our expectation considers Moody's global macro outlook

5   forecast of a 4.5% growth in US GDP in 2021, although this will be

6   closely tied to the containment of the coronavirus. We expect continued

7   strength in residential demand, improving commercial and industrial

8   load and disciplined O&M cost management to maintain financial

9   stability. However, greater than usual use of debt financing will

10   constrain FFO-to-debt.

11

12   » **Regulatory support to remain strong, although ROEs will be**

13   **under pressure.** We expect continued supportive regulatory

14   frameworks to underpin the sector's ability to recover costs in a timely

15   manner and earn a fair return even as allowed returns on equity (ROEs)

16   remain under pressure amid low interest rates. We expect most

17   regulators to be supportive of the recovery of coronavirus-related costs

18   and investments, as well as costs associated with the increasing

19   frequency and severity of climate hazards.[4]

---

[4] *Moody's Investors Service Sector Comment*: "2021 Outlook Stable On Strong Regulatory Support and Robust Residential Demand," October 29, 2020 (emphasis added).

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1   ***Q17.   HOW IS OBSERVABLE MARKET DATA USED IN FORMING YOUR***

2   ***RECOMMENDED RETURN ON EQUITY AND OVERALL RATE OF RETURN?***

3   *A17.*   Generally, authorized returns on equity, credit standing, and access to capital have

4   been quite robust for electric utilities over the last several years, even throughout the

5   duration of the global pandemic. It is critical that the PUCO ensure that rates are no

6   more than necessary to provide fair compensation and maintain financial integrity.

7   But, at the same time, the PUCO should be especially concerned about rate impacts on

8   the service area economies that are severely constrained due to the current economic

9   conditions caused by the prolonged impact of the Coronavirus.

10

11   **C.   Federal Reserve Monetary Policy**

12

13   ***Q18.   DO YOU BELIEVE THAT THE FEDERAL RESERVE'S ACTIONS ARE FULLY***

14   ***KNOWN BY MARKET PARTICIPANTS AND FULLY REFLECTED IN THE***

15   ***VALUATION OF MARKET SECURITIES, BOTH DEBT AND EQUITY?***

16   *A18.*   Yes, I do. The Federal Reserve has implemented monetary policy actions in response to

17   the global pandemic. An assessment of the market's reaction to the Federal Reserve's

18   impact on the Federal Funds Rate or short-term markets is shown below in Figure CCW-

19   3.

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FIGURE CCW-3

Timeline of Federal Funds Rate Changes Since 2015

Fed FFR Actions:

1	December 2015	0.25	→	0.50	8	September 2018	2.00	→	2.25
2	December 2016	0.50	→	0.75	9	December 2018	2.25	→	2.50
3	March 2017	0.75	→	1.00	10	August 2019	2.00	→	2.25
4	June 2017	1.00	→	1.25	11	September 2019	1.75	→	2.00
5	December 2017	1.25	→	1.50	12	October 2019	1.50	→	1.75
6	March 2018	1.50	→	1.75	13	March 2020	1.00	→	1.25
7	June 2018	1.75	→	2.00	14	March 2020	0.00	→	0.25

Sources:
Federal Reserve Bank of New York, https://apps.newyorkfed.org/markets/autorates/fed-funds-search-page
Board of Governors of the Federal Reserve System, https://www.federalreserve.gov/datadownload/
Moody's Credit Trends, https://credittrends.moodys.com/

1   As shown in Figure CCW-3 above, the Federal Reserve has reduced short-term

2   interest rates, as it did back in the period prior to 2015. The Federal Reserve's

3   intervention in short-term securities was designed to support the economy in order to

4   promote its goals of stable inflation and full employment. While it is certainly possible

5   that the Federal Reserve will begin raising the Federal Funds rate in the coming years,

6   it does not necessarily indicate that there will be a corresponding increase in long-term

7   rates or the cost of utility equity. As shown in Figure CCW-3 above, from the period

8   December 2015 through December 2018, the Federal Reserve raised the Federal

9   Funds rate nine times. As can be seen on this graph, even though there were nine step

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1   increases over that three-year period, long-term Treasury and utility bond yields did

2   not have corresponding changes. Rather, long-term Treasury and utility bond yields

3   appear to have been range-bound. Consistent with this observation, the authorized

4   ROE during that time period did not increase in parallel with the increases in the

5   Federal Funds rate.

6

7   *Q19.*   ***WHAT DO INDEPENDENT ECONOMISTS' OUTLOOKS FOR FUTURE***

8   ***INTEREST RATES INDICATE?***

9   *A19.*   Independent economists expect the current low capital costs to prevail over at least the

10   intermediate term. This is illustrated in projections for both short- and long-term

11   changes in interest rates. For example, short-term projections suggest that the market

12   expects capital market costs to remain relatively low. Table CCW-4 below shows

13   capital cost projections over the next two years and demonstrates that projected

14   Treasury bond yields are expected to be relatively low over that time.

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TABLE CCW-4

Blue Chip Financial Forecasts
Projected Federal Funds Rate, 30-Year Treasury Bond Yields, and GDP Price Index

Publication Date	4Q 2020	1Q 2021	2Q 2021	3Q 2021	4Q 2021	1Q 2022	2Q 2022	3Q 2022
Federal Funds Rate								
Jan-21	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Feb-21	**0.1**	0.1	0.1	0.1	0.1	0.1	0.1	
Mar-21	**0.1**	0.1	0.1	0.1	0.1	0.1	0.1	
Apr-21		0.1	0.1	0.1	0.1	0.1	0.1	0.1
May-21		**0.1**	0.1	0.1	0.1	0.1	0.1	0.1
Jun-21		**0.1**	0.1	0.1	0.1	0.1	0.1	0.1
Jul-21			0.1	0.1	0.1	0.1	0.1	0.1
T-Bond, 30 yr.								
Jan-21	1.6	1.7	1.8	1.9	2.0	2.1	2.1	
Feb-21	**1.6**	1.8	1.9	2.0	2.1	2.1	2.2	
Mar-21	**1.6**	2.0	2.1	2.2	2.3	2.4	2.4	
Apr-21		2.1	2.4	2.5	2.5	2.6	2.7	2.7
May-21		**2.1**	2.4	2.5	2.6	2.7	2.7	2.8
Jun-21		**2.1**	2.4	2.5	2.6	2.6	2.7	2.8
Jul-21			2.3	2.4	2.5	2.6	2.6	2.7
GDP Price Index								
Jan-21	1.6	1.8	1.8	1.8	1.8	1.9	1.9	
Feb-21	**2.0**	1.8	1.7	1.9	1.9	1.9	2.0	
Mar-21	**2.1**	2.2	1.8	1.9	1.9	1.9	2.0	
Apr-21		2.2	2.1	2.1	2.0	1.9	2.1	2.2
May-21		**4.1**	2.4	2.2	2.1	2.2	2.2	2.2
Jun-21		**4.3**	3.3	2.5	2.1	2.2	2.2	2.3
Jul-21			4.6	3.0	2.3	2.3	2.3	2.3

Source and Note:
  Blue Chip Financial Forecasts, January 2021 through July 2021.
  Actual Yields in Bold

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1 **D.   COVID-19 Pandemic**

2

3 ***Q20.   HAVE REGULATORY COMMISSIONS TAKEN SPECIFIC MEASURES TO***

4 ***HELP PROTECT UTILITIES' ABILITY TO FULLY RECOVER THEIR COST***

5 ***OF SERVICE DURING THE ECONOMIC DISTRESS CAUSED BY THE***

6 ***COVID-19 PANDEMIC?***

7 *A20.*   Yes. Many regulatory commissions have implemented measures that prohibit utilities

8 from disconnecting service for customers that are not paying their bill during the

9 pandemic. While this is an extraordinary measure, and exposes utilities to increases in

10 uncollectible accounts expense, and waiver of certain utility fees, regulatory

11 commissions have approved regulatory mechanisms that allow utilities to defer

12 uncollectible accounts, and certain fees, and recover these from customers

13 prospectively.

14

15 These regulatory mechanisms, while protecting customers by allowing them to

16 continue receiving essential utility services, were done in concert with the

17 implementation of regulatory mechanisms that preserved the utility's ability to fully

18 recover its cost of service. While the economic turmoil caused by the current

19 worldwide pandemic has caused some distress for regulated utilities and their

20 customers, regulatory commissions have mitigated the utilities' risk considerably with

21 the implementation of these regulatory mechanisms.

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1   *Q21.* ***DID THE PUCO RESPOND TO THE COVID PANDEMIC IN A WAY THAT***

2   ***PROTECTED THE FINANCIAL INTEGRITY OF UTILITIES?***

3   *A21.* Yes. The PUCO asked regulated utilities to consider what measures they could take to

4   relieve the economic impacts of the Covid pandemic on their consumers, but the

5   PUCO made it clear that these emergency measures would not relieve consumers'

6   obligation to pay for utility service. The PUCO required utilities to offer extended

7   payment plans and to offer these programs to non-residential consumers. Counsel has

8   advised me that DP&L filed its plan to implement emergency Covid measures in Case

9   No. 20-650-EL-AAM, and on July 15, 2020, DP&L filed its plan to resume normal

10 pre-Covid activities in the same case. It is my understanding that the PUCO issued a

11 supplemental finding and order in this case on August 12, 2020 approving DP&L's re-

12 start plan.

13

14 **IV.   RETURN ON EQUITY**

15

16 *Q22.* ***PLEASE DESCRIBE THE FRAMEWORK FOR DETERMINING A***

17 ***REGULATED UTILITY'S COST OF COMMON EQUITY.***

18 *A22.* In general, determining a fair cost of common equity for a regulated utility has been

19 framed by two hallmark decisions of the U.S. Supreme Court: Bluefield Water Works

20 & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679 (1923) and Fed.

21 Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944). In these decisions, the

22 Supreme Court found that just compensation depends on many circumstances and

23 must be determined by fair and enlightened judgments based on relevant facts. The

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1   Court found that a utility is entitled to such rates as were permitted to earn a return on

2   a property devoted to the convenience of the public that is generally consistent with

3   the same returns available in other investments of corresponding risk. The Court

4   continued that the utility has "no constitutional rights to profits" such as those realized

5   or anticipated in highly profitable enterprises or speculative ventures, and defined the

6   ratepayer/investor balance as follows:

7

8   The return should be reasonably sufficient to assure confidence in the

9   <u>financial soundness</u> of the utility and should be adequate, under

10   <u>efficient and economical management</u>, to maintain and <u>support its</u>

11   <u>credit</u> and <u>enable it to raise the money</u> necessary for the proper

12   discharge of its public duties.[5]

13

14   As such, a fair rate of return is based on the expectation that the utility costs reflect

15   efficient and economical management, and the return will support its credit standing

16   and access to capital, but the return will not be in excess of this level. From these

17   standards, rates to customers will be just and reasonable, and compensation to the

18   utility will be fair and support financial integrity and credit standing, under economic

19   management of the utility, and just and reasonable rates.

---

[5] *Bluefield,* 262 U.S. 679, 693 (1923) (emphasis added).

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1   *Q23.*   *PLEASE DESCRIBE THE METHODS YOU HAVE USED TO ESTIMATE*

2   *DP&L'S COST OF COMMON EQUITY.*

3   *A23.*   I have used several models based on financial theory to estimate DP&L's cost of

4   common equity. These models are: (1) a constant growth Discounted Cash Flow

5   ("DCF") model using consensus analysts' growth rate projections; (2) a constant

6   growth DCF using sustainable growth rate estimates; (3) a multi-stage growth DCF

7   model; (4) a Risk Premium model; and (5) a Capital Asset Pricing Model ("CAPM"). I

8   have applied these models to a group of publicly traded utilities with investment risk

9   similar to DP&L.

10

11   **A.   DP&L's Investment Risk**

12

13   *Q24.*   *PLEASE DESCRIBE THE MARKET'S ASSESSMENT OF DP&L'S*

14   *INVESTMENT RISK.*

15   *A24.*   The market's assessment of DP&L's investment risk is described by credit rating

16   analysts' reports. DP&L witness Mr. McKenzie testified that DP&L's current credit

17   ratings from S&P and Moody's are BB, and Baa2, respectively. DP&L was downgraded

18   by S&P in November 2019 after the PUCO invalidated DP&L's distribution

19   modernization rider. At that time the rating outlook from both credit agencies for DP&L

20   was Negative.[6] A year later in November 2020, DP&L was upgraded to BB+ triggered

---

[6] *Standard & Poor's RatingsDirect*®: "DPL Inc. And Subsidiary Downgraded To 'BB'; Outlooks Remain Negative," November 26, 2019. *Moody's Investors Service:* Moody's confirms DPL and Dayton Power and Light's ratings; negative outlook," December 20, 2019.

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1   by the credit rating upgrade of its ultimate parent, AES Corp. More recently, both credit

2   rating agencies changed DP&L's credit outlook to Stable.[7] DP&L   has   a   "Strong"

3   business risk ranking and an "Intermediate" financial risk ranking from S&P.[8]

4

5   * * *

6   **Q25.   PLEASE COMMENT ON DP&L'S FINANCIAL POSITION AND CREDIT**

7   **RATING FROM S&P.**

8   *A25.*   Much of DP&L's financial woes and credit-related issues are directly related to AES's

9   acquisition of DP&L, and its immediate parent, DPL Inc. ("DPL"), ten years ago. DPL's

10   balance sheet doubled in size after the transaction because of acquisition-related debt

11   and a goodwill asset resulting from the acquisition price. DPL subsequently wrote down

12   the goodwill asset causing a negative retained earnings deficit. Over the last few years,

13   DP&L and its parent have improved its financial position by working towards

14   eliminating the negative retained earnings balance and achieving a healthy mix of debt

15   and equity.

16

17   DP&L's published credit rating from S&P is BB+, which is consistent with DPL's

18   ratings under S&P's group rating methodology. However, S&P indicates that DP&L's

19   stand-alone credit profile ("SACP") rating, would be BBB. This rating assesses DP&L's

---

[7] *Standard & Poor's RatingsDirect®:* "DPL Inc., Subsidiary Outlooks Revised To Stable From Developing On Regulatory Order; Ratings Affirmed," June 24, 2021. *Moody's Investors Service:* Moody's changes the outlooks of DPL and Dayton Power & Light to stable," June 21, 2021.

[8] S&P Capital IQ.

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1   credit quality as though it were a stand-alone company and is important to consider for

2   risk comparability purposes.

3

4   **B.**   **Capital Structure**

5

6   ***Q26.***   ***WHAT IS DP&L'S PROPOSED CAPITAL STRUCTURE?***

7   ***A26.***   DP&L's proposed capital structure is sponsored by DP&L witness Mr. Dustin J. Illyes

8   and is shown in Table CCW-5 below:

TABLE CCW-5

DP&L Capital Structure

Description	Weight
Long-Term Debt	46.13%
Common Equity	53.87%
Total	100.00%

Source: Schedule D-1.

9   DP&L's proposed capital structure is based on balances as of the June 30, 2020 date

10   certain.[9]

---

[9] Direct testimony of Mr. Dustin J. Illyes at p. 3.

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1   *Q27.   IS DP&L'S PROPOSED RATEMAKING CAPITAL STRUCTURE IN THIS*

2   *PROCEEDING REASONABLE?*

3   *A27.*   No. DP&L'S proposed ratemaking capital structure is unreasonable for the following

4   reasons:

5   1.   It contains too much common equity to reflect a reasonable cost of capital

6   for setting rates.

7   2.   Its proposed common equity ratio is not in line with the common equity

8   ratio authorized in other regulatory jurisdictions.

9   3.   Its proposed common equity ratio is significantly higher than the common

10   equity ratio of the proxy group companies used to estimate a fair return on

11   equity for DP&L.

12

13   *Q28.   PLEASE EXPLAIN WHY A CAPITAL STRUCTURE WITH TOO MUCH*

14   *COMMON EQUITY OVERSTATES A UTILITY'S REVENUE REQUIREMENTS.*

15   *A28.*   Common equity is the most expensive form of capital and is subject to income tax

16   expense.[10] Therefore, the revenue requirement cost to customers to support a 9.5%

17   return on equity and a 21% tax rate would be approximately 12.0%.[11] In contrast, the

18   marginal cost of debt right now for an A-rated utility is around 3.5%. As such, utility

19   common equity capital is more than three times (12.0% vs. 3.5%) the revenue

20   requirement cost of debt.

---

[10] Every dollar of return on equity (profit) must be grossed up for income taxes.

[11] 9.5% x (1/(1 - 21%)).

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1   A utility must finance its operations with a mixture of debt and equity in order to

2   produce a capital structure that minimizes its cost of capital while preserving its

3   financial integrity and access to capital at reasonable terms. A capital structure too

4   heavily financed with debt would reflect excessive financial risk and would erode the

5   utility's credit standing and likely impair its access to capital or make it more costly to

6   obtain capital under certain market conditions. Conversely, a capital structure too

7   heavily weighted with common equity would be too conservative and will increase the

8   utility's overall rate of return with little to no benefit to retail customers. Therefore, a

9   capital structure should reflect a reasonable balance of debt and equity in order to

10   minimize the utility's cost of capital, preserve its access to capital markets under

11   reasonable terms and prices, and support its financial integrity.

12

13   *Q29.*   ***HOW DOES DP&L'S REQUESTED CAPITAL STRUCTURE COMPARE TO***

14   ***WHAT HAS BEEN AUTHORIZED FOR OTHER ELECTRIC UTILITIES***

15   ***RECENTLY?***

16   *A29.*   DP&L's requested common equity ratio of approximately 53.87% is significantly

17   higher than the typical common equity ratio of approximately 51.0% being awarded to

18   regulated electric utilities since 2016 as identified in my Table CCW-2 above.

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1   ***Q30.   DOES DP&L'S PROPOSED RATEMAKING CAPITAL STRUCTURE WITH A***

2   ***53.87% COMMON EQUITY REASONABLY COMPARABLE TO THE PROXY***

3   ***GROUP USED TO ESTIMATE A FAIR RATE OF RETURN ON COMMON***

4   ***EQUITY FOR DP&L?***

5   *A30.*   No. The proxy group, which met DP&L witness Mr. McKenzie's proxy group

6   selection criteria, includes an average common equity ratio of long-term capital of

7   around 45%, and a median for the proxy group of around 46%. DP&L's proposed

8   common equity ratio of 53.87% is substantially higher than the more balanced capital

9   structure mix incorporated by the proxy group.

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1   *Q31.   WHAT CAPITAL STRUCTURE DO YOU RECOMMEND BE USED TO SET*

2   *DP&L'S OVERALL RATE OF RETURN AND REVENUE REQUIREMENT IN*

3   *THIS PROCEEDING?*

4   *A31.*   My proposed capital structure is shown in the Table CCW-6 below:

TABLE CCW-6

DP&L Capital Structure

Description	Weight
Long-Term Debt	47.11%
Common Equity	<u>52.89%</u>
Total	100.00%

Source:
Exhibit CCW-1.

5   My proposed capital structure is based on the most recent four-quarter average long-

6   term debt and common equity balances as reported by DP&L on its FERC Form -3Q

7   for the period ending March 31, 2021. I also excluded $18 million loan supporting

8   DP&L's purchase of the Wright Patterson Air Force Base distribution equipment

9   consistent with Mr. Illyes' direct testimony.

10

11   My proposed capital structure is consistent with its current capitalization mix. Should

12   more financial data be published throughout the remainder of this proceeding, I

13   reserve the right to update this analysis.

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1   **C.   Embedded Cost of Debt**

2

3   ***Q32.   WHAT EMBEDDED COST OF DEBT IS DP&L PROPOSING IN THIS***

4   ***PROCEEDING?***

5   *A32.*   Mr. Illyes proposes an embedded cost of debt of 4.44% as developed on his Schedule

6   D-3.

7

8   **D.   Development of Proxy Group**

9

10   ***Q33.   PLEASE DESCRIBE HOW YOU IDENTIFIED A PROXY UTILITY GROUP***

11   ***THAT COULD BE USED TO ESTIMATE DP&L'S CURRENT MARKET COST***

12   ***OF EQUITY.***

13   *A33.*   I relied on the same proxy group developed by DP&L witness Mr. McKenzie with a

14   few exceptions. I excluded PNM Resources ("PNMR") and Avangrid, Inc. because on

15   October 21, 2020, PNMR announced that it is in the process of being acquired by

16   Avangrid, Inc.[12] PNMR and Avangrid no longer meet Mr. McKenzie's proxy group

17   selection criteria. In addition, I removed Algonquin Power & Utilities and Emera Inc.

18   from Mr. McKenzie's proxy group because these companies are headquartered in

19   Canada.

---

[12] Avangrid, Inc. is 81.5% owned by Iberdrola, S. A., a Spanish worldwide energy company.

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1 ***Q34.*** ***WHY IS IT APPROPRIATE TO EXCLUDE COMPANIES THAT ARE***

2   ***INVOLVED IN MERGER AND ACQUISITION ("M&A") ACTIVITY FROM***

3   ***THE PROXY GROUP?***

4 ***A34.*** M&A activity can distort the market factors used in DCF and risk premium studies.

5   M&A activity can have impacts on stock prices, growth outlooks, and relative

6   volatility in historical stock prices if the market was anticipating the M&A activity

7   prior to it actually being announced. This distortion in the market data thus impacts the

8   reliability of the DCF and risk premium estimates for a company involved in M&A

9   activity.

10

11   Moreover, companies generally enter into M&A in order to produce greater

12   shareholder value by combining companies. The enhanced shareholder value normally

13   could not be realized had the two companies not combined.

14

15   When companies announce a merger or acquisition, the public assesses the proposed

16   transaction and develops outlooks on the value of the two companies after the

17   combination based on expected synergies created by the transaction.

18

19   As a result, the stock value before the merger is completed may not reflect the

20   forward-looking earnings and dividend payments for DP&L absent the merger or on a

21   stand-alone basis. Therefore, an accurate DCF return estimate on companies involved

22   in M&A activities cannot be produced because their stock prices do not reflect the

23   stand-alone investment characteristics of the companies. Rather, the stock price more

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1   likely reflects the shareholder enhancement produced by the proposed transaction. For

2   these reasons, it is appropriate to remove companies involved in M&A activities from

3   a proxy group used to estimate a fair return on equity for a utility.

4

5   ***Q35.   WHY IS IT APPROPRIATE TO EXCLUDE COMPANIES THAT ARE***

6   ***HEADQUARTERED IN CANADA?***

7   ***A35.***   Companies headquartered in other countries such as Canada have inherent risks that

8   are not applicable to DP&L, namely foreign country business and economic risk and

9   foreign currency risks. For example, in its 2021 SBBI Yearbook, Duff & Phelps shows

10   the summary statistics of annual returns for several global indexes.[13] Duff & Phelps

11   shows that over the period of 1970-2020, the Canada index returns had a standard

12   deviation of 21.3% compared to 17.4% standard deviation for the World index and

13   16.9% standard deviation for the U.S. index.[14] Furthermore, Duff & Phelps concludes

14   that the "Canadian index was the riskiest in the 2000s …."[15] Also, as shown on the

15   Duff & Phelps Exhibit 12.12: Annualized Monthly Standard Deviation by Decade

16   (%), in every time period shown, the Canada index had higher volatility than the U.S.

17   index and the World index.[16]

---

[13] Duff & Phelps, *2021 SBBI Yearbook* at 12-8 through 12-13. Duff & Phelps notes that the international stock series, excluding Canada and the U.S, is represented by the MSCI EAFE index. The World Index is represented by the MSCI World Index. The U.S series is represented by the S&P 500. The representative index for the Canada series does not appear to be identified.

[14] *Id.*

[15] *Id.*

[16] *Id.* at 12-14.

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1   *Q36.*   ***HOW DOES YOUR PROXY GROUP'S INVESTMENT RISK COMPARE TO***

2   ***THAT OF DP&L?***

3   *A36.*   My proxy group shown in Exhibit CCW-3, has an average credit rating from S&P of

4   BBB, which is two notches higher than DP&L's credit rating from S&P BB+, but

5   identical to its SACP as described above. The proxy group has an average credit rating

6   from Moody's of Baa2, which is identical to DP&L's credit rating from Moody's.

7

8   My proxy group has an average and median common equity ratio as reported by S&P

9   of 41.7% and 43.2%, respectively. Similarly, as reported by *Value Line*, the proxy

10   group has an average and median common equity ratio (excluding short-term debt) of

11   45.0% and 46.0%, respectively. DP&L's proposed common equity ratio of 53.87% is

12   higher than the proxy group average and median common equity ratios, which shows

13   the greater financial risk of my proxy group relative to DP&L. Similarly, my

14   recommended common equity ratio of 52.89% is higher than the proxy group average

15   and median common equity ratios of the proxy group.

16

17   **E.**   **DCF Model**

18

19   *Q37.*   ***PLEASE DESCRIBE YOUR APPROACH TO USING THE DCF MODEL.***

20   *A37.*   Because each model requires assumptions, and no one model is perfect at estimating

21   the cost of equity at any particular time, I believe it best to perform multiple

22   techniques to determine the reasonableness of the underlying assumptions and,

23   ultimately, the results. As such, I apply three separate applications of the DCF model:

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1   a constant growth DCF based on analysts' published growth estimates, a constant

2   growth DCF based on the sustainable growth rate, and a multi-stage DCF that assumes

3   three different periods of growth. Each of these models are described in the Technical

4   Appendix attached to this testimony. The development and application of each DCF

5   analysis can be found in my Exhibits CCW-4 through CCW-10.

6

7   *Q38.*   *PLEASE SUMMARIZE THE RESULTS FROM YOUR DCF ANALYSES.*

8   *A38.*   The DCF results are summarized in Table CCW-7 below. It is my opinion a

9   reasonable ROE based on the DCF results is 8.9%.

TABLE CCW-7

Summary of DCF Results

Description	Proxy Group Average	Median
Constant Growth DCF Model (Analysts' Growth)	8.74%	8.81%
Constant Growth DCF Model (Sustainable Growth)	8.98%	8.64%
Multi-Stage DCF Model	8.16%	8.20%

10   **F.   Risk Premium Model**

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1   *Q39.*   *PLEASE DESCRIBE YOUR APPROACH TO THE BOND YIELD PLUS RISK*

2   *PREMIUM MODEL.*

3   *A39.*   In short, I measured the equity risk premium as the difference between the annual

4   average ROE awarded to electric utilities and the contemporaneous bond yields during

5   each year. In one version, I use the 30-year Treasury bond yields. While in the other

6   application of the model, I use utility bond yields. The approach is more fully

7   described in the Technical Appendix attached to this testimony. The development of

8   my Risk Premium model is shown on my Exhibits CCW-11 through CCW-15.

9

10   *Q40.*   *WHAT IS YOUR RECOMMENDED RETURN FOR DP&L BASED ON YOUR*

11   *RISK PREMIUM STUDY?*

12   *A40.*   Because of today's low interest rates and uncertainty revolving around forecasted

13   interest rates, I am recommending more weight be given to the high-end risk premium

14   estimates than the low-end, in order to be conservative. As such, I am recommending

15   that the most recent five-year average risk premium be used in determining a fair ROE

16   for DP&L. As shown on my Exhibit CCW-12, the most recent five-year average risk

17   premium over long-term Treasury yields is 7.09%. A risk premium of 7.09% exceeds

18   the 36-year average of 5.69% by 1.40%. Adding the 7.09% risk premium to the

19   projected 30-yearTreasury yield of 2.70% produces a ROE of 9.8%.

20

21   Similarly, as shown on my Exhibit CCW-13, the most recent five-year allowed risk

22   premium over utility bond yields is 5.89%. This risk premium is well above the

23   36-year historical average risk premium of 4.34%. The A-rated utility bond yield has

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1   averaged 3.13% over the 13-week and 3.22% over the 26-week periods ending July

2   30, 2021. Adding the 5.89% risk premium to the 13-week and 26-week A-rated utility

3   bond yields of 3.13% and 3.22%, respectively, produces an estimated cost of equity of

4   9.02% and 9.11%, respectively. Similarly, the Baa-rated utility bond yield has

5   averaged 3.38% and 3.48% over the same 13-week and 26-week periods, respectively.

6   Adding the 5.89% risk premium to the average 13-week and 26-week Baa-rated utility

7   bond yields produces an estimated cost of equity of approximately 9.27% and 9.37%,

8   respectively. The estimated cost of equity using the risk premium over utility bond

9   yields is in the range of 9.0% to 9.4%. The results of my risk premium analyses are

10   summarized in Table CCW-8. Based on these results, I conclude that a reasonable

11   ROE based on my risk premium analyses is 9.5%.

TABLE CCW-8

Summary of Risk Premium Results

Description	ROE Estimate
Projected Treasury Yield	9.8%
13-Week Average Yields	
A-Rated Utility Bond	9.0%
Baa-Rated Utility Bond	9.3%
26-Week Average Yields	
A-Rated Utility Bond	9.1%
Baa-Rated Utility Bond	9.4%

12

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1   **G.**   **Capital Asset Pricing Model ("CAPM")**

2   *Q41.*   *PLEASE DESCRIBE YOUR APPROACH TO THE CAPM.*

3   *A41.*   Similar to my approach of the previously described models (i.e., DCF and risk

4   premium), I employed several applications of the CAPM the relied on multiple

5   estimates for each of the inputs required by the CAPM. The CAPM and my analytical

6   approach to it are more fully described in the Technical Appendix attached to this

7   testimony**.** The development and application of my CAPM analysis are shown in my

8   Exhibits CCW-16 and CCW-17.

9

10   *Q42.*   *WHAT ARE THE RESULTS OF YOUR CAPM ANALYSIS?*

11   *A42.*   My CAPM results are summarized below in Table CCW-9. Based on the results

12   summarized below, I recommend a CAPM return estimate of 9.7%.

TABLE CCW-9

CAPM Results Summary

Description	Current VL Beta	Historical VL Beta	Current MI Beta
D&P Normalized Method	7.50%	6.54%	6.38%
Risk Premium Method	10.69%	9.17%	8.91%
FERC DCF (Div. Payers)	12.60%	10.71%	10.40%
FERC DCF (All Co's)	12.60%	10.71%	10.40%

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1   **H.   Return on Equity Summary**

2   *Q43.   BASED ON THE RESULTS OF YOUR RETURN ON COMMON EQUITY*

3   *ANALYSES DESCRIBED ABOVE, WHAT RETURN ON COMMON EQUITY DO*

4   *YOU RECOMMEND FOR DP&L?*

5   *A43.*   The results of my analyses are summarized in Table CCW-10.

TABLE CCW-10

Return on Common Equity Summary

Description	Results
DCF	8.9%
Risk Premium	9.4%
CAPM	9.7%

6   Based on my analyses described above, I estimate DP&L's current market cost of equity

7   to be in the reasonable range of 8.9% to 9.7% with a midpoint estimate of 9.30%. I am

8   recommending the PUCO set DP&L's authorized ROE at my midpoint estimate of

9   9.30%.

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1   **V.   OBJECTIONS TO STAFF REPORT**

2

3   **A.   Summary of Staff Recommendations**

4

5   ***Q44.   PLEASE SUMMARIZE THE RATE OF RETURN COMPONENTS OF THE***

6   ***STAFF REPORT.***

7   ***A44.*** Staff is recommending an ROE in the range of 9.28% to 10.29%, an embedded cost of

8   debt of 4.44%, and a capital structure consisting of 46.13% debt and 53.87% equity.

9   Collectively, the components produce an overall rate of return in the range of 7.05% to

10   7.59%.

11

12   Staff's recommended range for the ROE includes an adjustment factor of 1.01321 or

13   approximately 13 basis points for issuance and other costs. Staff's market-based

14   models produce an average return on equity for DP&L of 9.658%. Then Staff applied

15   +/- 50 basis points to account for uncertainty to develop his ROE range of 9.158% to

16   10.158% prior to its issuance and other costs adjustment.[17]

17

18   ***Q45.   HOW DID STAFF DEVELOP ITS ROE RANGE?***

19   ***A45.*** Staff developed its ROE recommendation based on the results of a non-constant multi-

20   stage DCF study and a traditional CAPM analysis to a proxy group of five electric

21   utility companies followed by *Value Line*.

---

[17] Staff Report at 21-22.

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1   As shown below in Table 11, I provide the results of Staff's analyses to produce a

2   return on equity in the range of 9.158% to 10.158% without the issuance costs

3   adjustment. However, as explained in detail below, reasonable adjustments to Staff's

4   analyses reduce the ROE estimate for DP&L to no higher than my recommended ROE

5   of 9.30%.

TABLE 11

Staff's ROE Analyses

Model	Average (1)	Corrected (2)
CAPM		
Staff's CAPM	9.42%	9.42%
Alternative CAPM		7.95%
DCF		
Non-Constant DCF	9.896%	8.66%
Constant DCF	8.93%	8.93%
Average	9.658%	8.74%
Range	9.158% - 10.158%	
Flotation Cost Adj.	1.01321	Reject
Recommended Range	**9.28% - 10.29%**	**8.9% - 9.7%**

_____
Source:
Staff Report at 21-22.

---

6   **B.   OCC Objection 15 to the PUCO Staff Report**

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1   ***Q46.***   ***WHAT CAPITAL STRUCTURE IS STAFF RECOMMENDING?***

2   ***A46.***   Staff accepts DP&L's proposed capital structure consisting of common equity of

3   53.87% and long-term debt of 46.13%.[18] Therefore, my response to DP&L's proposed

4   capital structure above is also applicable to Staff. As discussed above, the proposed

5   common equity ratio of 53.87% is excessive because it is not consistent with the

6   common equity ratio approved by other regulatory jurisdictions and will place

7   additional burden on ratepayers. I recommend the PUCO reject DP&L's and Staff's

8   proposed common equity ratio of 53.87% and approve a capital structure with a

9   common equity ratio of 52.89%, which is more consistent with the common equity

10   ratio of the peer group companies and which will balance the interests of all

11   stakeholders, while allowing DP&L to maintain its financial integrity and access to

12   capital at reasonable terms.

13

14   **C.**   **OCC Objection 16 to the PUCO Staff Report**

15

16   ***Q47.***   ***PLEASE DESCRIBE STAFF'S CAPM ANALYSES.***

17   ***A47.***   Staff develops a traditional CAPM analysis based on the composite average of the 10-

18   and 30-year Treasury bond yields of 3.05% for the period January 2006 to January

19   2021. Staff relies on the Value Line proxy group average beta of 0.97 and a market

20   risk premium of 6.57%.

---

[18] Staff Report at 21.

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1 *Q48.* *IS STAFF'S CAPM ANALYSIS REASONABLE?*

2 *A48.* No. I have several concerns with Staff's CAPM analysis. Specifically, Staff fails to

3 consider other sources to check the reasonableness of its *Value Line* beta estimates.

4 Further, Staff relies on an arbitrary risk-free rate of 3.05% that is not based on

5 investors' expectations.

6

7 *Q49.* *WHY DO YOU FIND STAFF'S SOLE RELIANCE ON VALUE LINE BETAS IN*

8 *HIS CAPM ANALYSIS TO BE INAPPROPRIATE?*

9 *A49.* As I explain in the Technical Appendix regarding my CAPM analysis, the current beta

10 estimates from *Value Line* are significantly higher relative to their historical levels

11 near 0.70 and are currently at levels not seen since the Great Recession caused by the

12 financial crisis in 2008. The current increase in beta estimates was solely triggered by

13 the COVID-19 pandemic and is not representative of investors' expectations.

14 Therefore, it is important to consider other beta estimates as I have done using the

15 S&P Global Market Intelligence's Beta Generator model. Using the Beta Generator

16 model produces a beta estimate of 0.80 for Staff's proxy group as shown on my

17 Exhibit CCW-18.

18

19 **D.   OCC Objection 17 to the PUCO Staff Report**

20

21 *Q50.* *WHY DO YOU BELIEVE STAFF'S RISK-FREE RATE IS UNRELIABLE?*

22 *A50.* Staff's risk-free rate is based on historical estimates over a 15-year period, ending

23 January 1, 2021. In order to reflect investors' expectation, it is more appropriate to

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1   rely on the current or the near-term projected risk-free rate consistent with the period

2   rates determined in this proceeding will be in effect. Therefore, applying the near-term

3   risk-free rate of 2.7%[19] will more accurately capture investors' expectations.

4

5   ***Q51.*** ***CAN STAFF'S CAPM ANALYSIS BE ADJUSTED TO PRODUCE AN***

6   ***ALTERNATIVE CAPM RETURN FOR DP&L?***

7   ***A51.*** Yes. Applying the average beta of 0.80 produced by the Beta Generator model and the

8   near-term projected risk-free rate of 2.7% will produce a CAPM return of 7.95%.[20]

9

10   **E.   OCC Objections 18 and 19 to the PUCO Staff Report**

11

12   ***Q52.*** ***PLEASE DESCRIBE STAFF'S DCF ANALYSIS.***

13   ***A52.*** Staff relied on a non-constant or multi-stage DCF model applied to its utility proxy

14   group. The DCF model was based on the last four quarterly dividends and the daily

15   closing price for the one-year period, ending January 27, 2021. Staff relied on the

16   analysts' growth rate projections from Zacks and *Value Line* for the first five years of

17   its model. The average analysts' growth rate for the proxy group is 4.82%.[21] For its

18   terminal stage, beginning in year 26 to perpetuity, Staff relied on the historical GNP

19   growth rate of 6.32% for the period 1929 to 2019 obtained from the U.S. Department

---

[19] *Blue Chip Financial Forecasts*, July 1, 2021 at 2.

[20] 2.7% + 0.80 x 6.57% = 7.95%.

[21] Staff Report at 131.

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1   of Commerce. The average result produced by Staff's non-constant DCF model for its

2   proxy group is 9.896%.[22]

3

4   ***Q53.   DO YOU HAVE ANY ISSUES WITH STAFFS NON-CONSTANT DCF***

5   ***ANALYSIS?***

6   *A53.*   Yes. Staff's proposal to rely on a historical GNP growth rate of 6.32% significantly

7   exceeds the consensus analysts' market growth projections for the U.S. economy of

8   4.35% as I discuss in regard to my own multi-stage DCF model. Further, Staff has not

9   shown that its terminal growth rate of 6.32% based on the period 1929 – 2019 reflects

10   the current market expectations. As described in my Technical Appendix, the

11   consensus GDP growth rate from the *Blue Chip Financial Forecasts* is consistent with

12   various credible sources. This projection reflects current outlooks for GDP growth and

13   is likely to be influential on investors' expectations of future growth outlooks.

14   Therefore, Staff's DCF return produces an unreliable and excessive ROE and should

15   be rejected.

16

17   ***Q54.   CAN STAFF'S NON-CONSTANT DCF ANALYSIS BE ADJUSTED TO***

18   ***PRODUCE A REASONABLE RETURN ON EQUITY FOR DP&L?***

19   *A54.*   Yes. Revising Staff's terminal growth rate to reflect the consensus analysts' growth

20   projections of 4.35% as discussed above produces an average DCF return for the

21   proxy group of 8.66% as shown on Exhibit CCW-19.

---

[22] *Id.*

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1   *Q55.   DO YOU HAVE ANY FURTHER COMMENTS IN REGARD TO STAFF'S DCF*

2   *ANALYSIS?*

3   *A55.*   Yes. Staff also develops a constant growth DCF model that was completely

4   disregarded in its consideration of a reasonable ROE for DP&L. As shown on Staff

5   Schedule 1.4 through 1.8, the average DCF return produced by Staff's constant growth

6   model is 8.93%. I have summarized Staff's constant growth DCF return estimates in

7   Table CCW-12.

	TABLE CCW-12
	Staff's Constant DCF Return
DP&L	**Result**
CenterPoint Energy	7.90%
Edison International	10.26%
Exelon Corp.	7.38%
FirstEnergy Corp.	10.00%
PNM Resources	9.10%
Average	**8.93%**
Source: Staff Schedule D-1.4 to D-1.8.	

8   Therefore, my correction to Staff's non-constant DCF analysis and constant DCF

9   analysis produces a DCF return on equity for DP&L no higher than 9.0%, which is

10   consistent with my DCF return.

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1   **F.   OCC Objection 20 to the PUCO Staff Report**

2

3   *Q56.   DID STAFF INCLUDE AN ISSUANCE OR OTHER COST ADJUSTMENT IN*

4   *ITS RECOMMENDED RETURN FOR DP&L?*

5   *A56.*   Yes. Staff included an upward adjustment of approximately 13 basis points to

6   compensate for issuance and other costs to its ROE recommendation.[23]

7

8   *Q57.   IS STAFF'S ISSUANCE COST ROE ADDER REASONABLE?*

9   *A57.*   No. Staff's issuance cost ROE adder is not reasonable or justified because it is not

10   based on the recovery of prudent and verifiable actual issuance costs incurred by

11   DP&L. As shown on Staff Schedule D-1.1 Staff uses a generic issuance cost of 3.5%

12   applied to the ratio of retained earnings to common equity. Importantly, Staff does not

13   show that this adjustment is based on DP&L's actual and verifiable issuance expenses.

14   Therefore, there is no means of verifying whether Staff's proposal is reasonable or

15   appropriate. Stated differently, Staff's issuance cost ROE adder is not based on known

16   and measurable costs. Therefore, the PUCO should reject it.

17

18   **G.   OCC Objection 21 to the PUCO Staff Report**

---

[23] Staff Report at 22.

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1   ***Q58.*** ***DO YOU BELIEVE THE RECOMMENDED RATE OF RETURN RABGE OF***

2   ***7.05% TO 7.59% IS TOO HIGH AND WOULD RESULT IN UNJUSTABLE AND***

3   ***UNREASONABLE RATE FOR CONSUMERS?***

4   ***A58.*** Yes. As discussed above, a reasonable rate of return for DP&L in this proceeding

5   would be 7.01%.

6

7   **VI.   RESPONSE TO DP&L'S WITNESS, MR. ADRIEN M. MCKENZIE**

8

9   **A.   Summary of Rebuttal**

10

11 ***Q59.*** ***WHAT ROE IS DP&L REQUESTING?***

12 ***A59.*** Mr. McKenzie recommends flotation-cost adjusted return on equity range of 9.5% to

13 10.8% with a point estimate of 10.5%. He included a 0.10% upward adjustment to

14 account for flotation costs. His recommended return on equity is 35 basis points above

15 the midpoint (10.15%) of his range after accounting for flotation costs. [24] Mr.

16 McKenzie's recommended return on equity request is unreasonable and should be

17 rejected.

18

19 **B.   Return on Equity**

---

[24] McKenzie Corrected Direct Testimony at 17-19.

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1   ***Q60.   HOW DID MR. MCKENZIE DEVELOP HIS ROE RANGE?***

2   ***A60.***   Mr. McKenzie developed his ROE recommendation based on the results of his DCF,

3   traditional CAPM, Empirical CAPM ("ECAPM"), and a Risk Premium model. He

4   relies on the results of an Expected Earnings analysis and a non-utility DCF analysis

5   as an attempt to corroborate his results.

6

7   As shown below in Table 13, I provide the average results of Mr. McKenzie's

8   analyses which he relies on to conclude that a ROE in the range of 9.5% to 10.8%,

9   with a midpoint of 10.5%, is reasonable for DP&L. However, reasonable adjustments

10   to Mr. McKenzie's analyses reduce his ROE estimate for DP&L to no higher than my

11   recommended ROE of 9.30%.

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TABLE 13

Mr. McKenzie's ROE Analysis

Model	Average (1)	Corrected (2)
DCF	8.7% - 9.6%	9.0%
CAPM	10.8% - 10.9%	9.2%
ECAPM	11.1% - 11.2%	Reject
Risk Premium		
Current Yield	9.4%	9.4%
Projected Yield	10.3%	Reject%
Expected Earnings	10.3% - 10.8%	Reject
Range	9.4% - 10.7%	
Flotation Cost Adj.	0.10%	Reject
Adjusted Range	9.5% - 10.8%	
Recommended ROE	**10.5%**	**9.30%**

_____
Source:
Exhibit AMM-2 (Corrected).

1   **C.   DCF**

2

3   *Q61.   DO YOU HAVE ANY ISSUES WITH MR. MCKENZIE'S DCF ANALYSIS?*

4   *A61.*   Yes. In developing his recommended DCF range, Mr. McKenzie excluded what he

5   found to be outlier results. Mr. McKenzie removed 14 low-end outliers and zero

6   high-end outliers from his DCF results for his proxy group.[25] Mr. McKenzie's

_____
[25] Exhibit AMM-4 (Corrected), page 3.

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1   proposal to selectively remove what he believes to be low-end outliers from the proxy

2   group has the effect of manipulating the results of the proxy group study. Mr.

3   McKenzie simply narrows the range of the proxy group results to produce a result

4   which he finds to be reasonable. This is not a reasonable assessment of what the

5   current market cost of equity is for DP&L.

6

7   Further, relying on the midpoint as Mr. McKenzie has done is not a well-accepted

8   method of measuring the central tendency. The midpoint methodology employed by

9   Mr. McKenzie ignores all but two results, the highest and the lowest.

10

11   A better methodology would be to rely on all the results of the proxy group, by

12   assessing the central tendency of the proxy group results. In the presence of outliers, a

13   more accurate method of measuring the central tendency of the proxy group's results

14   would be to measure the median of all the DCF return estimates.

15

16   The median DCF results for his proxy group is no higher than 9.0% as shown on my

17   Exhibit CCW-20. Mr. McKenzie's lopsided outlier test unreasonably biases the results

18   of his analyses upwards and should be rejected. This bias is exacerbated with the use

19   of his midpoint methodology. As such, they should be both be rejected, and the

20   median results should be relied on.

21

22   **D.   Traditional CAPM**

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1   *Q62.   IS MR. MCKENZIE'S CAPM ANALYSIS REASONABLE?*

2   *A62.*   No. I have several concerns with Mr. McKenzie's CAPM analysis. Mr. McKenzie's

3   CAPM analysis is overstated for at least three reasons: (1) his expected return on the

4   market of 11.4% is based on an unsustainable growth rate of 8.9%, causing a bias and

5   does not include any consideration of the long-run average return on the market;

6   (2) his sole reliance on Value Line betas is at odds with his use of the S&P 500 as the

7   benchmark for the overall market; and (3) his size adjustment is not reasonable. Mr.

8   McKenzie also relied on a projected risk-free rate of 2.2% for the period 2021-2025.

9   While I disagree with the use of long-term projected yields five years into the future,

10   to limit the issues in this regulatory proceeding I will not take issue with Mr.

11   McKenzie's projected risk-free rate of 2.2%.

12

13   *Q63.   WHY DO YOU BELIEVE MR. MCKENZIE'S EXPECTED RETURN ON THE*

14   *MARKET IS UNREASONABLE?*

15   *A63.*   Mr. McKenzie's expected return on the market of 11.4% is based on a dividend yield

16   of 2.5% and an expected growth rate of 8.9%. The expected growth rate of 8.9%

17   incorporated in his expected market return is more than twice the expected growth rate

18   of the economy of 4.35%.

19

20   Mr. McKenzie obtained growth rates for the dividend paying S&P 500 companies

21   from three sources including Zacks, Value Line, and IBES. He uses these growth rates

22   to perform three DCF analyses on the market. The growth rates Mr. McKenzie relies

23   on include numbers that do not make logical sense from an economic perspective. For

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1   example, Mr. McKenzie's expected growth of the market of 8.8% included companies

2   with expected growth rates more than 4.0x higher than that of the overall economy. As

3   I explained in greater detail above, growth rates of this magnitude cannot be

4   reasonably expected to continue into perpetuity, which is the time period for which the

5   DCF is based on. Because of the abnormally high growth rates assumed in his DCF

6   for the return on the market, Mr. McKenzie should have implemented alternative

7   measures of the expected market return and market risk premium. As such, Mr.

8   McKenzie should have incorporated other measures of the expected return on the

9   market. As Dr. Morin notes in his book, *New Regulatory Finance,*

10

11   Although realized returns for a particular time period can deviate

12   substantially from what was expected, it is reasonable to believe that

13   long-run average realized returns provide an unbiased estimate of what

14   were expected returns. This is the fundamental rationale behind the

15   historical risk premium approach. Analysts and regulators often assume

16   that the average historical risk premium over long periods is the best

17   proxy for the future risk premium.[26]

18

19   Dr. Morin concludes that "[t]here are two broad approaches to estimating the risk

20   premium: retrospective and prospective. Each has its own strengths and weaknesses,

---

[26] Morin, Dr. Roger A, "New Regulatory Finance," at p. 156.

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1   hence the need to utilize both methods."[27] As such, Mr. McKenzie should have

2   considered the results of multiple estimates of the expected market return from

3   multiple methods.

4

5 **Q64.** **WHY DO YOU FIND MR. MCKENZIE'S SOLE RELIANCE ON VALUE LINE**

6   **BETAS IN HIS CAPM ANALYSIS TO BE INAPPROPRIATE?**

7 **A64.** Yes. As I explain above, my CAPM analysis relies on beta estimates from Value Line

8   and S&P Global Market Intelligence's Beta Generator model. There are two distinct

9   differences between the MI Beta I relied on and the Value Line Beta: (1) the

10   benchmark index used as the proxy for the market in the MI Beta estimates is the S&P

11   500 whereas Value Line relies on the New York Stock Exchange ("NYSE"); and (2)

12   the MI Betas I used are adjusted using the Vasicek method whereas the Value Line

13   Betas are adjusted using a modified form of the Blume adjustment.

14

15   Because Mr. McKenzie is not presenting a CAPM analysis that relies on the NYSE as

16   a proxy for the market, or the expected market return, which the market risk premium

17   is calculated from, this alone makes the Value Line Betas less preferable. Betas

18   employed in a CAPM should be calculated using the benchmark index that is also

19   used as a proxy for the overall market. Mr. McKenzie and I both relied on the S&P

20   500 as the proxy for the overall market in estimating our market risk premium. While

21   Value Line Betas are commonly used in CAPM analyses presented in regulatory

---

[27] *Id.* at p. 162.

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1   proceedings such as this one, it is theoretically incorrect to do so unless the NYSE is

2   used as the proxy for the overall market used to calculate the market risk premium.

3

4 **Q65.   WHY DO YOU FIND MR. MCKENZIE'S SIZE ADJUSTMENT**

5   **INAPPROPRIATE?**

6 *A65.* Mr. McKenzie's size adjustment ROE adder is based on estimates made by Duff &

7   Phelps's Cost of Capital Navigator. Duff & Phelps estimates various size adjustments

8   based on differentials in beta estimates tied to the size of a company. The main

9   concern with these size adjustments as applied by Mr. McKenzie, is that they are not

10   based on risk comparable companies relative to the electric utility industry or DP&L.

11

12 **Q66.   WHY IS MR. MCKENZIE'S SIZE ADJUSTMENT TO HIS CAPM RETURN NOT**

13   **RISK COMPARABLE TO DP&L?**

14 *A66.* His size adjustment is based on companies that have significantly more systematic

15   risks that are not reflective of the electric utility industry, his proxy group, or DP&L.

16   The size adjustments relied on by Mr. McKenzie reflects companies that have

17   unadjusted beta estimates well in excess of 1.00.[28] I have provided the beta estimates,

18   as calculated by Duff & Phelps for each decile below in Table CCW-14.

---

[28] *Duff & Phelps Cost of Capital Navigator 2021, CRSP Deciles Size Study.*

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TABLE CCW-14

Duff & Phelps Size Adjustments and Corresponding Betas

CRSP	Market Cap ($ Bill)		Size	Beta		
Decile	Smallest	Largest	Premium	D&P OLS	VL Proxy	OLS Proxy*
1	$29,025.803	$1,966,078.882	-0.19%	0.92	0.88	0.79
2	$13,178.743	$ 28,808.073	0.48%	1.04	0.88	0.79
3	$ 6,743.361	$ 13,177.828	0.69%	1.11	0.88	0.79
4	$ 3,861.858	$ 6,710.676	0.75%	1.13	0.88	0.79
5	$ 2,445.693	$ 3,836.536	1.09%	1.17	0.88	0.79
6	$ 1,591.865	$ 2,444.745	1.38%	1.18	0.88	0.79
7	$ 911.586	$ 1,591.765	1.56%	1.25	0.88	0.79
8	$ 451.955	$ 911.103	1.43%	1.31	0.88	0.79
9	$ 190.019	$ 451.800	2.29%	1.34	0.88	0.79
10	$ 2.194	$ 189.831	4.98%	1.40	0.88	0.79

Source:
Duff & Phelps Cost of Capital Navigator, 2021 Cost of Capital:
Annual U.S. Guidance and Examples, (Chapter 7, pp. 10, and
CRSP Deciles Size Study).
* Raw Beta = (VL Beta - 0.35) / 0.67.

1   These unadjusted beta estimates are substantially higher than the average <u>adjusted</u> beta

2   of 0.88 for the utility group used by Mr. McKenzie as comparable risk proxy of

3   DP&L's investment risk. To put this into a more of an apple-to-apples comparison, I

4   have also provided the average unadjusted Ordinary Least Squares ("OLS") regression

5   beta for Mr. McKenzie's proxy group (0.79). As shown above, every decile measured

6   by Duff & Phelps has a much higher OLS beta than Mr. McKenzie's utility group. The

7   typical company in each decile is much riskier than the typical utility Mr. McKenzie

8   relied on as a proxy of comparable risk to DP&L. Because of this significant disparity

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1   in risk, as measured by beta, Mr. McKenzie's size adjustment produces a CAPM

2   return estimate that does not produce a risk appropriate return for DP&L and

3   therefore, is not a reasonable and fair return for DP&L.

4

5   *Q67.   CAN YOU EXPLAIN HOW BETA CORRESPONDS WITH THE LEVEL OF*

6   *INVESTMENT RISK FOR DP&L AND THEREFORE PRODUCES AN*

7   *APPROPRIATE RISK-ADJUSTED RETURN FOR DP&L?*

8   *A67.*   Yes. Beta represents a measure of systematic or non-diversifiable, market-related risk.

9   All of his proxy company betas are measured relative to that of the overall market

10   (proxied by the NYSE) and adjusted upward by *Value Line*. The market beta is

11   considered to be 1.0. For companies that have betas greater than 1, they are regarded

12   as having more risk than the overall market. For companies that have betas less than 1,

13   they are regarded to have risk less than the overall market.

14

15   *Q68.   CAN MR. MCKENZIE'S CAPM ANALYSIS BE ADJUSTED TO PRODUCE*

16   *MORE REASONABLE RESULTS?*

17   *A68.*   Yes. Multiple corrections are required. Such corrections are (1) include an expected

18   return on the market that is based in part on the long-run average realized return;

19   (2) eliminating his size adjustments; (3) incorporating beta estimates that are

20   calculated relative to the S&P 500 such as those presented in my CAPM analysis; and

21   (4) removing Algonquin Power from the proxy group. Correcting Mr. McKenzie's

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1   CAPM for the material flaws in his analysis would produce a reasonable return on

2   equity no higher than 9.2%.[29]

3

4   **E.   Empirical CAPM**

5

6   *Q69.*   ***ARE MR. MCKENZIE'S CURRENT AND PROJECTED ECAPM ANALYSES***

7   ***REASONABLE?***

8   *A69.*   No. Mr. McKenzie's ECAPM analyses share all of the same flaws as his traditional

9   CAPM analyses. More importantly, Mr. McKenzie's proposal to apply an ECAPM

10   while using adjusted betas published by Value Line, as well as the long-term risk-free

11   rate further inflates his results. Mr. McKenzie's analysis and results should be

12   disregarded.

13

14   *Q70.*   ***PLEASE EXPLAIN THE ISSUES YOU HAVE WITH MR. MCKENZIE'S***

15   ***CURRENT AND PROJECTED ECAPM ANALYSES.***

16   *A70.*   Mr. McKenzie's ECAPM analysis is flawed because his model was developed using

17   adjusted utility betas. An ECAPM analysis flattens the security market line, and is

18   designed for raw beta estimates, not adjusted betas such as the ones published by

19   *Value Line*. Beta adjustments, on their own, accomplish virtually the same thing as an

20   ECAPM analysis. They flatten the security market line and increase the intercept at

21   the risk-free rate. ECAPM analysis is not designed to be used with adjusted betas, but

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[29] 1.5% + 0.88 x 8.80% = 9.2%.

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1   rather is designed to be used with unadjusted betas. Mr. McKenzie's proposal to use

2   adjusted betas within an ECAPM analysis is unreasonable and double counts the

3   attempt to flatten the security market line and increase CAPM return estimates for

4   companies with betas below 1 and decrease CAPM return estimates for companies

5   with betas greater than 1.

6

7   *Q71.* *DO YOU HAVE ANY ADDITIONAL COMMENTS REGARDING THE ECAPM*

8   *AND ADJUSTED BETAS?*

9   *A71.* Yes. The notion that an adjustment to beta is only a horizontal axis adjustment is not

10   true. The *Value Line* beta adjustment alters the CAPM return at both the vertical axis

11   (the intercept point) and the horizontal axis, the slope of the CAPM return line (along

12   the horizontal axis). This is depicted in Figure 4 below.

13

14   As shown in Figure 4, I have modeled the expected returns at various levels of raw

15   beta using both the traditional CAPM and ECAPM methodologies assuming a

16   risk-free rate of 3.50%, and a market risk premium of 7.50%. I also show the expected

17   CAPM and ECAPM returns using the associated adjusted (*Value Line*) beta estimates

18   for each raw beta estimate. As shown in Figure 4 below, the impact on the traditional

19   CAPM return using a raw beta and a traditional CAPM using an adjusted beta has the

20   effect of increasing the intercept point at a zero raw beta (y axis) from: (1) risk-free

21   rate to (2) the combination of the risk-free rate plus 35% of the market risk premium.

22   Further, as the unadjusted beta is increased above zero, the adjusted beta increases the

23   CAPM return when the raw beta is less than one and decreases the CAPM return when

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1   the raw beta is greater than one. In other words, the beta adjustment raises the CAPM

2   return at the vertical axis point and flattens the security market across the horizontal

3   axis as the raw beta increases above zero.

4

5   The ECAPM using raw betas has the same impact on the traditional CAPM using an

6   adjusted beta: the ECAPM increases the CAPM return at a zero raw beta from: (1) the

7   risk-free rate, to (2) the risk-free rate plus 25% of the market risk premium. Further,

8   the ECAPM using raw betas flattens the traditional CAPM return line across the

9   horizontal axis as the raw betas increase above zero.

FIGURE 4
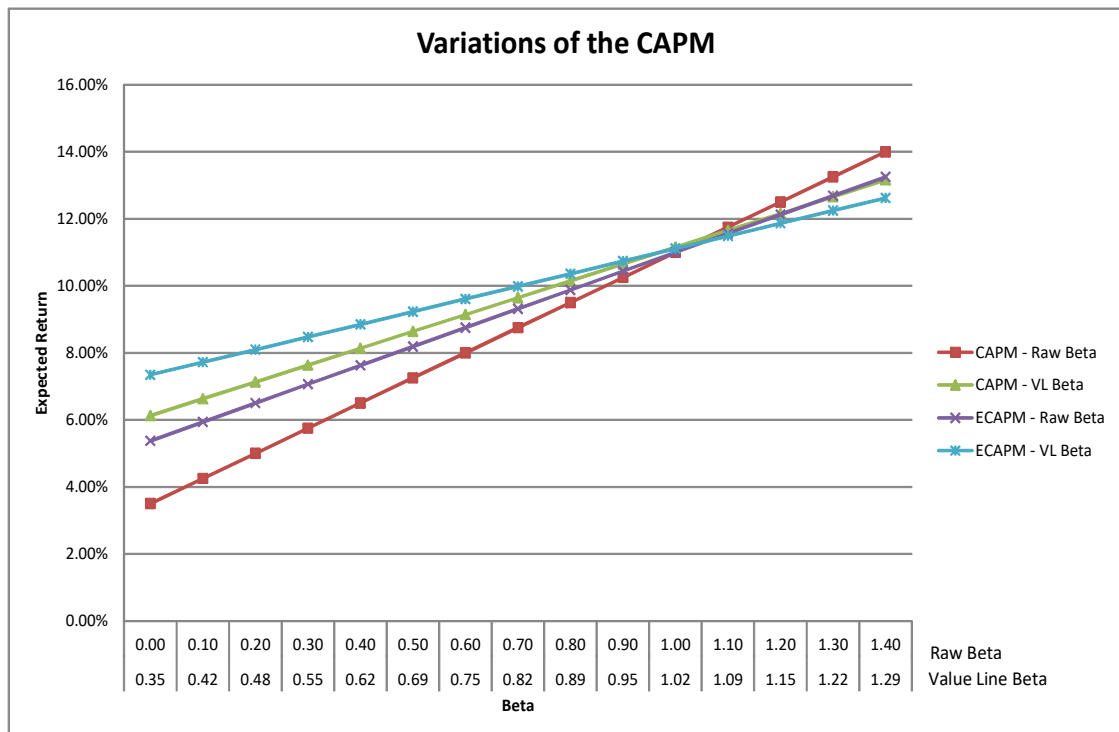
Assumptions:
Market Risk Premium is 7.50%
Risk-Free Rate is 3.50%

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1   As shown in the graph above, compared to the traditional CAPM using a raw beta, the

2   traditional CAPM using an adjusted beta raises the intercept point (a y axis impact)

3   and flattens the slope of the security market line (an x axis impact). Similarly, using a

4   raw beta estimate, the ECAPM raises the intercept point at the y axis and flattens the

5   CAPM return for all raw beta estimates.

6

7   Significantly, if an adjusted beta is used in an ECAPM return model, the CAPM return

8   at the y axis increases from: (1) the risk-free rate, up to (2) the risk-free rate plus

9   approximately 51% of the market risk premium. Further, the CAPM return for betas

10   less than one starts at an inflated y axis intercept point and increases as the raw beta

11   increases above zero.

12

13   Mathematically, *Value Line*'s beta adjustments produce nearly the same effect on the

14   estimated CAPM return as does an ECAPM using a raw beta. Using an adjusted beta

15   in an ECAPM model, as Mr. McKenzie has proposed, produces a flawed and inflated

16   CAPM return estimate.

17

18   **F.   Utility Risk Premium**

19

20   *Q72.   **DO YOU HAVE ANY CONCERNS WITH MR. MCKENZIE'S UTILITY EQUITY***

21   ***RISK PREMIUM?***

22   *A72.* Yes. My main concern with his utility equity risk premium analysis is his projected

23   utility bond yield.

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1   ***Q73.   PLEASE COMMENT ON MR. MCKENZIE'S PROJECTED UTILITY BOND***

2   ***YIELD OF 4.84%.***

3   *A73.*   Mr. McKenzie uses a projected Aa-rated utility bond yield for the period 2021 through

4   2025 of 4.12%. He then measures the current yield spread of Baa-utility bond yields

5   over Aa utility bond yields of 0.72%, which he adds to the projected AA-utility bond

6   yield of 4.12% to produce his projected yield of 4.84%.[30] This projected yield is based

7   on irrational data in today's market. Mr. McKenzie's current Baa-rated utility bond

8   yield is 3.63% as shown on page 1 of his Exhibit AMM-8. Mr. McKenzie's projected

9   increase of 121 basis points[31] in Baa-rated utility bond yields is not reflective of

10   current market conditions or near-term expectations. A near-term forecasted spread of

11   that magnitude is unreasonable and should not be relied upon.

12

13   ***Q74.   CAN MR. MCKENZIE'S RISK PREMIUM ANALYSES BE CORRECTED TO***

14   ***PRODUCE MORE REASONABLE RESULTS?***

15   *A74.*   Yes. While I generally disagree with Mr. McKenzie's use of a simple linear regression

16   analysis to estimate the risk premium, his analysis, when coupled with his current

17   yields, produces a risk premium result of 9.44%, which is consistent with my

18   recommendations. When using his Baa-rated yield of 3.63%, which is comparable to

19   the recent Baa-utility yields and his 2019 risk premium of 5.78% would produce a

20   similar ROE of 9.41%. For the reasons described above, the PUCO should reject Mr.

---

[30] McKenzie Corrected Direct Testimony at 50.

[31] 4.84% - 3.63% = 1.21% or 121 basis points.

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1   McKenzie's long-term projected Baa-rated utility bond yield of 4.84% and the risk

2   premium results derived from it.

3

4   **G.   Expected Earnings**

5

6   *Q75.   IS THE EXPECTED EARNINGS ANALYSIS A REASONABLE METHOD FOR*

7   *ESTIMATING A FAIR ROE FOR DP&L?*

8   *A75.*   No. An Expected Earnings analysis does not measure the return an investor requires in

9   order to make an investment. In other words, the accounting measure of the earned

10   ROE does not measure the opportunity cost of capital. Rather, it measures the earned

11   return on book equity that companies have experienced in the past or are projected to

12   achieve in the future. The returns investors require in order to assume the risk of an

13   investment are measured from prevailing stock market prices.

14

15   In addition, the FERC has recently found that the Expected Earnings model does not

16   satisfy the requirements of *Hope*. In part, the FERC states as follows:

17

18   As a result, the expected return on a utility's book value does not

19   reflect "returns on investments in other enterprises" because book

20   value does not reflect the value of any investment that is available to

21   an investor in the market, outside of the unlikely situation in which

22   market value and book value are exactly equal. Accordingly, we find

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1   that relying on the Expected Earnings model would not satisfy the

2   requirements of *Hope*.

3

4   The return on book value is also not indicative of what return an

5   investor requires to invest in the utility's equity or what return an

6   investor receives on the equity investment, because those returns are

7   determined with respect to the current market price that an investor

8   must pay in order to invest in the equity.[32]

9

10   Later in the same Opinion, FERC observes that Expected Earnings model does not

11   identify investments of comparable risk. It states as follows:

12

13   Moreover, we find that the record demonstrates that the Expected

14   Earnings model does not identify investments of comparable risk and

15   which alternatives will have a higher expected return as MISO TOs'

16   witness Mr. McKenzie indicates.[footnote omitted] In particular, because the

17   Expected Earnings model measures returns on book value, without

18   consideration of what market price an investor would have to pay to

19   invest in the relevant company, it does not accurately measure the

20   investor's expected returns on its investment.[33]

---

[32] Opinion No. 569, 169 FERC ¶ 61,129 at P. 201-202.

[33] *Id*. at P. 205.

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1   Additionally, the historical and projected earned ROE for these holding companies can

2   be significantly influenced by the financial performance of nonregulated operations.

3   For these reasons, Mr. McKenzie's Expected Earnings analysis should be disregarded.

4

5   **H.   Non-Utility DCF**

6

7   *Q76.* ***DO YOU HAVE ANY ADDITIONAL COMMENTS ON MR. MCKENZIE'S***

8   ***RETURN ESTIMATES?***

9   *A76.* Yes. Mr. McKenzie also performed a DCF model on a non-utility proxy group, which

10   he found to be a reasonable risk proxy for DP&L. The average adjusted DCF results

11   fall within the range of 9.3% to 10.4% as summarized on Table AMM-8 of his

12   corrected direct testimony. While Mr. McKenzie did not rely on the results of his non-

13   utility DCF analysis in arriving at his recommended range of reasonableness,[34] he did

14   opine that the analysis is relevant in evaluating a fair ROE for DP&L.[35] I disagree with

15   his assessment. However, because Mr. McKenzie did not rely on these results in

16   developing his inflated recommendation, I will not comment on his non-utility

17   analysis any further.

18

19   **I.   Flotation Cost Adjustment**

---

[34] McKenzie Corrected Direct Testimony at 72.

[35] *Id.*

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1 *Q77. DID MR. MCKENZIE INCLUDE A FLOTATION COST ADJUSTMENT IN HIS*

2 *RECOMMENDED RETURN FOR DP&L?*

3 *A77.* Yes. Mr. McKenzie included an upward adjustment of 10 basis points to compensate

4 for flotation costs to his return on equity recommendation.[36] He acknowledges there is

5 no standard method for reflecting flotation costs in return on equity methodology.[37]

6

7 Mr. McKenzie states that "[t]he most common method used to account for flotation

8 costs in regulatory proceedings is to apply an average flotation-cost percentage to a

9 utility's dividend yield.[38] As shown on his Exhibit No. 10, he calculates the average

10 flotation cost percentage of the most recent share issuances by the electric and gas

11 utility industries as categorized by *Value Line*. He calculates the average flotation cost

12 percentages for the electric and gas utility industry as 2.9%. He then applies the

13 average flotation cost adjustment of 2.9% to his proxy group's average dividend yield

14 of 3.9%. This method produces a flotation cost adjustment of 10 basis points for his

15 proxy group.

16

17 *Q78. IS MR. MCKENZIE'S FLOTATION COST RETURN ON EQUITY ADDER*

18 *REASONABLE?*

19 *A78.* No. Mr. McKenzie's flotation cost return on equity adder is not reasonable or justified

20 for several reasons. First, the adder is not based on the recovery of prudent and

---

[36] *Id*. at 17 and 70.

[37] *Id*. at 69-70.

[38] *Id.* at 70.

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1   verifiable actual flotation costs incurred by DP&L. As discussed at page 70 of Mr.

2   McKenzie's corrected direct testimony, he derives a flotation cost adder based on cost

3   information of other publicly traded utility holding companies. Because he does not

4   show that his adjustment is based on DP&L's actual and verifiable flotation expenses,

5   there are no means of verifying whether Mr. McKenzie's proposal is reasonable or

6   appropriate. Stated differently, Mr. McKenzie's flotation cost return on equity adder is

7   not based on known and measurable costs. Therefore, the PUCO should reject a

8   flotation cost return on equity adder for DP&L.

9

10   **J.   Additional Comments**

11

12   *Q79.   MR. MCKENZIE RELIED, IN PART, ON THE SIGNIFICANT RISE IN THE*

13   *CHICAGO BOARD OPTIONS EXCHANGE VOLATILITY INDEX ("VIX")*

14   *DURING THE PERIOD OF FEBRUARY AND MARCH 2020 AS SUPPORT FOR*

15   *HIS ASSERTION THAT INVESTORS HAVE DRAMATICALLY REVISED*

16   *THEIR RISK PERCEPTIONS. PLEASE RESPOND.*

17   *A79.*   Mr. McKenzie observes that between February 19 and March 23, 2020, the VIX rose

18   to levels not seen since the 2008-2009 financial crisis.[39] As he stated, the VIX is a

19   measure of "near-term volatility" expectations. The VIX is calculated based on prices

20   of out-of-the-money call and put options for the S&P 500 and is an estimate of the

21   expected volatility in the overall market for approximately the next 30 days at any

---

[39] *Id.* at 23.

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1   given time. Mr. McKenzie's reliance on the VIX to support his assertion with regard

2   to investors' risk should be disregarded when assessing a fair ROE for DP&L for at

3   least two reasons.

4

5   First, as discussed above, the VIX is a measure of expected volatility in the S&P 500

6   for approximately the next 30 days at any point in time. Establishing a rate of return

7   that can be expected to last several months, if not years, based on the levels of

8   something that represents such a short-term outlook does not make sense and should

9   not be implemented now. If Mr. McKenzie believes that the sharp increase in the VIX

10   levels experienced in early 2020 are somehow relevant to today's cost of equity, then

11   he cannot ignore the subsequent and immediate falls in expected volatility. In other

12   words, spikes in expected short-term volatility are short-lived and should not be relied

13   on in assessing the long-term cost of capital.

14

15   Second, the paradigm appears to be shifting as the world transitions toward normalcy

16   given the massive vaccine rollouts are implemented. It is reasonable to expect a

17   recovery in many sectors throughout our economy, especially those that were most

18   harshly hit during the pandemic. Such a recovery would likely quell investor fears as it

19   relates to COVID-19 and its going-forward impact on the market.

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1   **VII.   CONCLUSION**

2   ***Q80.   WHAT IS YOUR CONCLUSION REGARDING THE APPROPRIATE ROE AND***

3   ***RATE OF RETURN FOR THE DP&L BASED ON YOUR ANALYSIS?***

4   ***A80.*** My analysis supports a reasonable range of DP&L's current cost of equity to be from

5   8.9% to 9.7%, with an unbiased midpoint estimate of 9.30%. The overall rate of return

6   should be no higher than 7.01%. Further, the PUCO should reject Mr. McKenzie's

7   recommended cost of common equity for the reasons outlined above. Finally, the

8   PUCO should reject Staff's proposed ROE and capital structure (which is similar to

9   what proposed by DP&L).

10

11   ***Q81.   DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?***

12   ***A81.*** Yes, it does. I reserve the right to update my testimony on the stand as more data

13   becomes available.

1   <u>**DCF MODEL**</u>

2   I apply three separate applications of the DCF model: a constant growth DCF

3   based on analysts' published growth estimates, a constant growth DCF based on the

4   sustainable growth rate, and a multi-stage DCF that assumes three different periods of

5   growth. Each of these models is described below.

6   The DCF model posits that a stock price equals the sum of the present value of

7   expected future cash flows discounted at the investor's required rate of return or cost of

8   capital. This model is expressed mathematically as follows:

9
10      $$P_0 = \frac{D_1}{(1+K)^1} + \frac{D_2}{(1+K)^2} \;.\;.\;.\;.\; \frac{D_\infty}{(1+K)^\infty} \qquad \text{(Equation 1)}$$

11   P_0 = Current stock price
12   D = Dividends in periods 1 - ∞
13   K = Investor's required return

14   This model can be rearranged in order to estimate the discount rate or

15   investor-required return, known as "K." If it is reasonable to assume that earnings and

16   dividends will grow at a constant rate, then Equation 1 can be rearranged as follows:

17      $K = D_1/P_0 + G$ (Equation 2)

18   K = Investor's required return
19   D_1 = Dividend in first year
20   P_0 = Current stock price
21   G = Expected constant dividend growth rate

22   Equation 2 is referred to as the annual "constant growth" DCF model.

23   As shown in Equation 2 above, the DCF model requires a current stock price,

24   expected dividend, and expected growth rate in dividends.

25

1   *A.   Constant Growth DCF Model (Analysts' projected growth rates)*

2   I relied on the average of the weekly high and low stock prices of the utilities in

3   the proxy group over a 13-week period ending on July 30, 2021. An average stock price

4   is less susceptible to market price variations than a price at a single point in time.

5   Therefore, an average stock price is less susceptible to aberrant market price movements,

6   which may not reflect the stock's long-term value.

7   I used the most recently paid quarterly dividend as reported in *Value Line*.[1] This

8   dividend was annualized (multiplied by 4) and adjusted for next year's growth to produce

9   the D_1 factor for use in Equation 2 above. In other words, I calculate D_1 by multiplying

10   the annualized dividend (D_0) by (1+G).

11   For the growth rate component, there are several methods that can be used to

12   estimate the expected growth in dividends. However, regardless of the method, for

13   purposes of determining the market-required return on common equity, one must attempt

14   to estimate investors' expectations about what the dividend, or earnings growth rate will

15   be and not what an individual investor or analyst may use to make individual investment

16   decisions.

17   As predictors of future returns, securities analysts' growth estimates have been

18   shown to be more accurate than growth rates derived from historical data.[2] That is,

19   assuming the market generally makes rational investment decisions, analysts' growth

---

[1] *The Value Line Investment Survey*, May 28, June 11, and July 23, 2021.

[2] *See, e.g.,* David Gordon, Myron Gordon, and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," *The Journal of Portfolio Management*, Spring 1989.

1   projections are more likely to influence investors' decisions, which are captured in

2   observable stock prices, than growth rates derived only from historical data.

3   For my constant growth DCF analysis, I have relied on a consensus, or mean, of

4   professional securities analysts' earnings growth estimates as a proxy for investors'

5   dividend growth rate expectations. I used the average of analysts' growth rate estimates

6   from three sources: Zacks, MI, and Yahoo! Finance. All such projections were available

7   on July 30, 2021, and all were reported online.

8   Each growth rate projection is based on a survey of independent securities

9   analysts. There is no clear evidence whether a particular analyst is most influential on

10   general market investors. Therefore, a single analyst's projection does not as reliably

11   predict investor outlooks as does a consensus of market analysts' projections. The

12   consensus of estimates is a simple arithmetic average, or mean, of surveyed analysts'

13   earnings growth forecasts. A simple average of the growth forecasts gives equal weight to

14   all surveyed analysts' projections. Therefore, a simple average, or arithmetic mean, of

15   analysts' forecasts is a good proxy for investor expectations.

16   The growth rates I used in my DCF analysis are shown in Exhibit CCW-4. The

17   average growth rate for my proxy group is 5.06%.

18   *B.*   *Constant Growth DCF Model (Sustainable growth rates)*

19   In my constant growth DCF model, I rely on the same equation described in

20   Equation 2 above. The only difference is the assumed growth rate. Instead of using

21   published analysts' growth rates, I have developed a sustainable growth rate. A

22   sustainable growth rate, also known as the internal growth rate, is based on the

1   percentage of the utility's earnings that is retained and reinvested in utility plant and

2   equipment. These reinvested earnings increase the earnings base (rate base). Earnings

3   grow when plant funded by reinvested earnings is put into service, and the utility is

4   allowed to earn its authorized return on such additional rate base investment.

5   The internal growth methodology is tied to the percentage of earnings retained in

6   the company and not paid out as dividends. The earnings retention ratio is 1 minus the

7   dividend payout ratio. As the payout ratio declines, the earnings retention ratio increases.

8   An increased earnings retention ratio will fuel stronger growth because the business funds

9   more investments with retained earnings.

10   The payout ratios of the proxy group are shown in my Exhibit CCW-6. These

11   dividend payout ratios and earnings retention ratios then can be used to develop a

12   sustainable long-term earnings retention growth rate. A sustainable long-term earnings

13   retention ratio will help gauge whether analysts' current three- to five-year growth rate

14   projections can be sustained over an indefinite period of time.

15   The data used to estimate the long-term sustainable growth rate is based on the

16   company's current market-to-book ratio and on *Value Line*'s three- to five-year projections

17   of earnings, dividends, earned returns on book equity, and stock issuances.

18   As shown in Exhibit CCW-7, based on my 13-week average stock price, the

19   average and median sustainable growth rate for the proxy group using this internal growth

20   rate model are 5.29 % and 4.94%, respectively.

1 *C.*   *Multi-Stage DCF Model*

2   As previously indicated, the DCF is designed to reflect a present value of an

3   infinite string of future cash flow. That said, however, my first constant growth DCF is

4   based on the analyst growth rate projections, so it is a reasonable reflection of rational

5   investment expectations over the next three- to five- years. The limitation on this constant

6   growth DCF model is that it cannot reflect a rational expectation that a period of high or

7   low short-term growth can be followed by a change in growth to a rate that is more

8   reflective of long-term sustainable growth. In order to account for the outlook of

9   changing growth expectations, I performed a multi-stage DCF analysis.

10   Although there may be short-term peaks, the long-term sustainable growth rate for

11   a utility stock cannot exceed the growth rate of the economy in which it sells its goods

12   and services. The long-term maximum sustainable growth rate for a utility investment is,

13   accordingly, best proxied by the projected long-term Gross Domestic Product ("GDP")

14   growth rate as that reflects the projected long-term growth rate of the economy as a

15   whole.

16   Analyst-projected growth rates over the next three to five years will change as

17   utility earnings growth outlooks change. Utility companies go through cycles in making

18   investments in their systems. When utility companies are making large investments, their

19   rate base grows rapidly, which in turn accelerates earnings growth. Once a major

20   construction cycle is completed or levels off, growth in the utility rate base slows and its

21   earnings growth slows from an abnormally high three- to five-year rate to a lower

22   sustainable growth rate.

1   As major construction cycles extend over longer periods of time, even with an

2   accelerated construction program, the growth rate of the utility will slow simply because

3   rate base growth will slow and the utility has limited human and capital resources

4   available to expand its construction program. Therefore, the three- to five-year growth

5   rate projection should be used as a long-term sustainable growth rate, but not without

6   making a reasonable informed judgment to determine whether it considers the current

7   market environment, the industry, and whether the three- to five-year growth outlook is

8   sustainable.

9   Utilities cannot indefinitely sustain a growth rate that exceeds the growth rate of

10   the economy in which they sell services. Utilities' earnings/dividend growth is created by

11   increased utility investment or rate base. Such investment, in turn, is driven by service

12   area economic growth and demand for utility service. In other words, utilities invest in

13   plant to meet sales demand growth. Sales growth, in turn, is tied to economic growth in

14   their service areas.

15   The U.S. Department of Energy, Energy Information Administration ("EIA") has

16   observed that utility sales growth tracks U.S. GDP growth, albeit at a lower level, as

17   shown in Exhibit CCW-9. Utility sales growth has lagged behind GDP growth for more

18   than a decade. As a result, nominal GDP growth is a reasonable upper limit for utility

19   sales growth, rate base growth, and earnings growth in the long run. Therefore, the U.S.

20   GDP nominal growth rate is a conservative proxy for the highest sustainable long-term

21   growth rate of a utility.

1   This concept is supported in published analyst literature and academic work.

2   Specifically, in a textbook titled "Fundamentals of Financial Management," published by

3   Eugene Brigham and Joel F. Houston, the authors state as follows:

4   The constant growth model is most appropriate for mature companies with
5   a stable history of growth and stable future expectations. Expected growth
6   rates vary somewhat among companies, but <u>dividends for mature firms are</u>
7   <u>often expected to grow in the future at about the same rate as nominal</u>
8   <u>gross domestic product (real GDP plus inflation).</u>[3]

9   The use of the economic growth rate is also supported by investment practitioners as

10   outlined as follows:

11   **Estimating Growth Rates**

12   One of the advantages of a three-stage discounted cash flow model is that
13   it fits with life cycle theories in regards to company growth. In these
14   theories, companies are assumed to have a life cycle with varying growth
15   characteristics. Typically, the potential for extraordinary growth in the
16   near term eases over time and eventually growth slows to a more stable
17   level.

18   *   *   *

19   Another approach to estimating long-term growth rates is to focus on
20   estimating the overall economic growth rate. Again, this is the approach
21   used in the *Ibbotson Cost of Capital Yearbook*. To obtain the economic
22   growth rate, a forecast is made of the growth rate's component parts.
23   Expected growth can be broken into two main parts: expected inflation
24   and expected real growth. By analyzing these components separately, it is
25   easier to see the factors that drive growth.[4]

26   I relied on the consensus of long-term GDP growth projections as projected by

27   independent economists. *Blue Chip Financial Forecasts* publishes the consensus for GDP

28   growth projections twice a year. These projections reflect current outlooks for GDP and

---

[3] *"Fundamentals of Financial Management*," Eugene F. Brigham and Joel F. Houston, Eleventh Edition 2007, Thomson South-Western, a Division of Thomson Corporation at 298 (emphasis added).

[4] *Morningstar, Inc., Ibbotson SBBI 2013 Valuation Yearbook* at 51 and 52.

1   are likely to be influential on investors' expectations of future growth outlooks. The

2   consensus of projected GDP growth is about 4.35% over the next ten years.[5]

3   To assess the reasonableness of the projected GDP growth rate published in the

4   Blue Chips report, I also reviewed the long-term GDP growth projections from several

5   other sources. These alternative sources corroborate the consensus analysts' projections I

6   relied on.

7   The EIA in its Annual *Energy Outlook* projects real GDP out until 2050. In its

8   2020 Annual Report, the EIA projects real GDP through 2050 to be 1.8% and a long-term

9   GDP price inflation projection of 2.2%. The EIA data supports a long-term nominal GDP

10   growth outlook of 4.1%.[6]

11   Also, the Congressional Budget Office ("CBO") makes long-term economic

12   projections. The CBO is projecting real GDP growth to be 1.8% during the next

13   nine years, with a GDP price inflation outlook of 2.0%. The CBO's nine-year outlook for

14   nominal GDP based on this projection is 3.8%.[7]

15   Moody's Analytics also makes long-term economic projections. In its recent over

16   25-year outlook to 2048, Moody's Analytics is projecting real GDP growth of 2.2% with

17   GDP inflation of 1.8%.[8] Based on these projections, Moody's Analytics is projecting

18   nominal GDP growth of 4.1% over the next 25 years.

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[5] *Blue Chip Financial Forecasts*, June 1, 2021, at 14.

[6] DOE/EIA Annual Energy Outlook 2020 With Projections to 2050, March 2020, Table Macroeconomic Indicators.

[7] *CBO: An Update to the Economic Outlook: 2020 to 2030*, July 2020.

[8] www.economy.com, *Moody's Analytics Forecast*, May 11, 2020.

1   The Social Security Administration ("SSA") makes long-term economic

2   projections out to 2095. The SSA's nominal GDP projection, under its "intermediate

3   cost" scenario of approximately 50 years, is 4.1%.[9]

4   The Economist Intelligence Unit, a division of The Economist and a third-party

5   data provider to MI, makes a long-term economic projection out to 2050. The Economist

6   Intelligence Unit is projecting real GDP growth of 1.8% with an inflation rate of 2.0%

7   out to 2050. The real GDP growth projection is in line with the consensus. The long-term

8   nominal GDP projection based on these outlooks is approximately 3.9%.[10]

9   The real GDP and nominal GDP growth projections made by these independent

10   sources support my use of 4.35% as a reasonable estimate of market participants'

11   expectations for long-term GDP growth.

12   **RISK PREMIUM MODEL**

13   This model is based on the principle that investors require a higher return to

14   assume greater risk. Common equity investments have greater risk than bonds because

15   bonds have more security of payment in bankruptcy proceedings than common equity

16   and the coupon payments on bonds represent contractual obligations. In contrast,

17   companies are not required to pay dividends or guarantee returns on common equity

18   investments. Therefore, common equity securities are considered to be riskier than bond

19   securities.

---

[9] www.ssa.gov, "2020 OASDI Trustees Report," Table VI.G4, April 22, 2020.

[10] *S&P Global Market Intelligence, Economist Intelligence Unit*, downloaded on January 28, 2021.

1   My risk premium model is based on two estimates of an equity risk premium.

2   First, I quantify the difference between regulatory commission-authorized returns on

3   common equity and contemporary long-term U.S. Treasury bonds. The difference

4   between the authorized return on common equity and the Treasury bond yield is the risk

5   premium. I estimated the risk premium on an annual basis for each year since January

6   1986. The authorized ROEs were based on regulatory commission-authorized returns for

7   electric utility companies. Authorized returns are typically based on expert witnesses'

8   estimates of the investor-required return at the time of the proceeding.

9   The second equity risk premium estimate is based on the difference between

10   regulatory commission-authorized returns on common equity and contemporary

11   "A" rated utility bond yields by Moody's. I selected the period 1986 through 2021

12   because public utility stocks consistently traded at a premium to book value during that

13   period. This is illustrated in Exhibit CCW-11, which shows the market-to-book ratio

14   since 1986 for the electric utility industry was consistently above a multiple of 1.0x. Over

15   this period, an analyst can infer that authorized ROEs were sufficient to support market

16   prices that at least exceeded book value. This is an indication that commission-authorized

17   returns on common equity supported a utility's ability to issue additional common stock

18   without diluting existing shares. It further demonstrates that utilities were able to access

19   equity markets without a detrimental impact on current shareholders.

20   Based on this analysis, as shown in Exhibit CCW-12, the average indicated equity

21   risk premium over long-term U.S. Treasury bond yields has been 5.69%. Since the risk

22   premium can vary depending upon market conditions and changing investor risk

23   perceptions, I believe using an estimated range of risk premiums provides the best

1   method to measure the current return on common equity for a risk premium

2   methodology.

3   A relatively long period of time where stock valuations reflect premiums to book

4   value indicates that the authorized ROEs and the corresponding equity risk premiums

5   were supportive of investors' return expectations and provided utilities access to the

6   equity markets under reasonable terms and conditions. Further, this time period is long

7   enough to smooth abnormal market movement that might distort equity risk premiums.

8   While market conditions and risk premiums do vary over time, this historical time period

9   is a reasonable period to estimate contemporary risk premiums.

10   Some studies pertaining to a risk premium analysis have recommended that use of

11   "actual achieved investment return data" in a risk premium model should be based on

12   long historical time periods. The studies find that achieved returns over short time periods

13   may not reflect investors' expected returns due to unexpected and abnormal stock price

14   performance. Short-term, abnormal actual returns would be smoothed over time and the

15   achieved actual investment returns over long time periods would approximate investors'

16   expected returns. Therefore, it is reasonable to assume that averages of annual achieved

17   returns over long time periods will generally converge on the investors' expected returns.

18   My risk premium study is based on data that inherently relied on investor expectations,

19   not actual investment returns, and, thus, need not encompass a very long historical time

20   period.

21   I incorporated 5-year and 10-year rolling average risk premiums over the study

22   period to gauge the variability over time of risk premiums. These rolling average risk

23   premiums mitigate the impact of anomalous market conditions and skewed risk

1   premiums over an entire business cycle. As shown on my Exhibit CCW-12, the five-year

2   rolling average risk premium over Treasury bonds ranged from 4.25% to 7.09%, while

3   the 10-year rolling average risk premium ranged from 4.38% to 6.90%.

4   As shown on my Exhibit CCW-13, the average indicated equity risk premium

5   over contemporary "A" rated Moody's utility bond yields was 4.34%. The five-year and

6   10-year rolling average risk premiums ranged from 2.88% to 5.89% and 3.20% to 5.73%,

7   respectively.

8   The equity risk premium should reflect the market's perception of risk in the

9   utility industry today. I have gauged investor perceptions in utility risk today in Exhibit

10   CCW-14, where I show the yield spread between utility bonds and Treasury bonds over

11   the last 42 years. As shown in this schedule, the average utility bond yield spreads over

12   Treasury bonds for "A" and "Baa" rated utility bonds for this historical period are 1.48%

13   and 1.91%, respectively. Yield spreads of "A" and "Baa" rated utility bonds over

14   Treasury bonds during 2020 were 1.49% and 1.87%, respectively, which are in-line with

15   the 42-year averages. More recently in the first half of 2021, the "A" and "Baa" utility

16   spreads are 1.04% and 1.30%, respectively. Both the current average "A" rated and

17   "Baa" rated utility bond yield spreads over Treasury bond yields are lower or comparable

18   to the respective 42-year average spreads.

19   A current 13-week average "A" rated utility bond yield of 3.13% when compared

20   to the current Treasury bond yield of 2.12%, as shown in Exhibit CCW-15, page 1,

21   implies a yield spread of 1.01%. This current utility bond yield spread is lower than the

22   42-year average spread for "A" rated utility bonds of 1.48%. The current spread for the

1   "Baa" rated utility bond yield of 1.26% is also lower than the 42-year average of 1.91%.

2   Similarly, the 26-week yield spreads are also lower than the 42-year averages.

3   The low 13-week and 26-week average spreads indicate that the market has had

4   higher demand for utility bonds recently relative to longer periods of time. This is

5   evidence that utilities currently have ample access to capital at reasonable prices.

6   **CAPITAL ASSET PRICING MODEL ("CAPM")**

7   The CAPM method of analysis is based upon the theory that the market-required

8   rate of return for a security is equal to the risk-free rate, plus a risk premium associated

9   with the specific security. This relationship between risk and return can be expressed

10   mathematically as follows:

11           $R_i = R_f + B_i \times (R_m - R_f)$ where:

12   R_i = Required return for stock i
13   R_f = Risk-free rate
14   R_m = Expected return for the market portfolio
15   B_i = Beta - Measure of the market risk for stock

16   The stock-specific risk term in the above equation is beta. Beta represents the

17   investment risk that cannot be diversified away when the security is held in a diversified

18   portfolio. When stocks are held in a diversified portfolio, stock-specific risks can be

19   eliminated by balancing the portfolio with securities that react in the opposite direction to

20   firm-specific risk factors (e.g., business cycle, competition, product mix, and production

21   limitations).

22   The risks that cannot be eliminated when held in a diversified portfolio are

23   non-diversifiable risks. Non-diversifiable risks are related to the market in general and

24   referred to as systematic risks. Risks that can be eliminated by diversification are

1   non-systematic risks. In a broad sense, systematic risks are market risks and

2   non-systematic risks are business risks. The CAPM theory suggests the market will not

3   compensate investors for assuming risks that can be diversified away. Therefore, the only

4   risk investors will be compensated for are systematic, or non-diversifiable, risks. The beta

5   is a measure of the systematic, or non-diversifiable risks.

6   *A.   Risk-free Rate*

7   Treasury securities are backed by the full faith and credit of the United States

8   government, so long-term Treasury bonds are considered to have negligible credit risk.

9   Also, long-term Treasury bonds have an investment horizon similar to that of common

10   stock. As a result, investor-anticipated long-run inflation expectations are reflected in

11   both common stock required returns and long-term bond yields. Therefore, the nominal

12   risk-free rate (or expected inflation rate and real risk-free rate) included in a long-term

13   bond yield is a reasonable estimate of the nominal risk-free rate included in common

14   stock returns.

15   Treasury bond yields, however, do include risk premiums related to future

16   inflation and liquidity. In this regard, a long-term Treasury bond yield is not entirely risk-

17   free. Risk premiums related to unanticipated inflation and interest rates reflect systematic

18   market risks. Consequently, for a company with a beta less than 1.0, using the Treasury

19   bond yield as a proxy for the risk-free rate in the CAPM analysis can produce an

20   overstated estimate of the CAPM return.

1 *B.*   *Beta*

2   Beta is an estimate of a stock's non-diversifiable market risk. As shown in Exhibit

3 CCW-16, the current proxy group average and median *Value Line* beta estimates are 0.91

4 and 0.93, respectively. In my experience, these beta estimates are abnormally high and

5 are unlikely to be sustained over the long-term. As such, I have also reviewed the

6 historical average of the proxy group's *Value Line* betas. The historical average *Value*

7 *Line* beta since 2014 is 0.73 and has ranged from 0.59 to 0.90, with the high end observed

8 since 2020. Prior to the recent pandemic, the high end of this range was 0.78.

9   In addition to *Value Line*, I have also included adjusted beta estimates as provided

10 by S&P Global Market Intelligence's[11] Beta Generator model. The model relied on a

11 five-year period on a weekly basis ending July 30, 2021. The average and median Market

12 Intelligence beta is 0.71. Market Intelligence betas as calculated using its beta generator

13 model are adjusted using the Vasicek method and calculated using the S&P 500 as the

14 proxy for the investable market. This is in stark contrast with the *Value Line* beta

15 estimates that are adjusted using a constant weighting of 67%/35% to the raw beta/market

16 beta and use the New York Stock Exchange as the proxy for the investable market.

17 Because I rely on the S&P 500 to estimate the expected return on the investable market, it

18 makes sense to rely on beta estimates that are calculated using the S&P 500 as the

19 benchmark for the market. Further, as S&P explains:

20   The Vasicek Method is a superior alternative to the Bloomberg Beta
21   adjustment. The Bloomberg adjustment is not appropriate for a vast
22   number of situations, as it assigns constant weighting regardless of the
23   standard error in the raw beta estimation (Bloomberg Beta = 1/3*market
24   beta + 2/3*Raw Beta). Given the statistical fact that a larger sample size

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[11] S&P Global Market Intelligence was formerly known as SNL Financial prior to being acquired by S&P.

1 yields a smaller error, the Vasicek method more appropriately adjusts the
2 raw beta via weights determined by the variance of the individual security
3 versus the variance of a larger sample of comparable companies. The
4 weights are designed to bring the raw beta closer to whichever beta
5 estimation has the smallest error. This is a feature the Bloomberg beta
6 cannot replicate.[12]

7 *C.*   *Market Risk Premium ("MRP")*

8 I derived three estimates of the MRP: a forward-looking estimate using a risk

9 premium methodology and two forward-looking estimates based on the DCF

10 methodology. In addition to the above, I also used the *normalized* MRP published by

11 Duff & Phelps.

12 The forward-looking risk premium-based estimate of the MRP was derived by

13 estimating the expected return on the market (as represented by the S&P 500) and

14 subtracting the risk-free rate from this estimate. I estimated the expected return on the

15 S&P 500 by adding an expected inflation rate to the long-term historical arithmetic

16 average real return on the market. The real return on the market represents the achieved

17 return above the rate of inflation.

18 Duff & Phelps' *2021 SBBI Yearbook* estimates the historical arithmetic average

19 real market return over the period 1926 to 2020 to be 9.1%.[13] A current consensus for

20 projected inflation, as measured by the Consumer Price Index ("CPI"), is 2.2%.[14] Using

---

[12] S&P Market Intelligence, Beta Generator Model. Notable, while S&P makes reference to the Bloomberg method of applying 2/3 and 1/3 weights to the raw beta and market beta, respectively, the comparison still applies to *Value Line's* methodology of applying 67% and 35% weights. Both methods are forms of the Blume adjustment. While the weights are slightly different between the Bloomberg and *Value Line* methods, they are similar and apply a constant weight without any regard to accuracy. As such, the criticisms of the betas offered by S&P apply to both Bloomberg betas and *Value Line* betas.

[13] *Duff & Phelps, 2021 SBBI Yearbook at 6-18.*

[14] *Blue Chip Financial Forecasts*, July 1, 2021 at 2.

1   these estimates, the expected market return is 11.5%.[15] The MRP then is the difference

2   between the 11.5% expected market return and the projected risk-free rate of 2.7%, or

3   8.80%.

4   I employed two versions of the constant growth DCF model to develop estimates

5   of the MRP. I first employed the FERC's method of estimating the expected return on the

6   market that was established in Opinion No. 569-A. The FERC's method for estimating

7   the expected return on the market is to perform a constant growth DCF analysis on each

8   of the dividend paying companies of the S&P 500 index. The growth rate component is

9   based on the average of the growth projections excluding companies with growth rates

10   that were negative or greater than 20%.[16] The weighted average growth rate for the

11   remaining companies is 11.60%. After reflecting the FERC prescribed method of

12   adjusting the dividend yield by (1+.5g), the weighted average expected dividend yield is

13   2.01%. Thus, the DCF-derived expected return on the market is the sum of those two

14   components, or 13.11%. The MRP then is the expected market return of 13.61% less the

15   projected risk-free rate of 2.70%, or 10.90%.

16   My second DCF-based MRP estimate was derived by performing the same DCF

17   analysis described above, except I used all companies in the S&P 500 index rather than

18   just the dividend paying companies. The weighted average growth rate for these

19   companies is 11.80%. After reflecting the FERC prescribed method of adjusting the

20   dividend yield by (1+.5g), the weighted average expected dividend yield is 1.80%. Thus,

21   the DCF-derived expected return on the market is the sum of those two components, or

---

[15] $\{ \ [\ (1 + 0.091) * (1 + 0.022) \ ] - 1 \ \} * 100.$

[16] Opinion No. 569-A at P 210.

1   13.60%. The MRP then is the expected market return of 13.60% less the projected risk-

2   free rate of 2.70%, or 10.90%.

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CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing *Direct Testimony of Christopher*

C. Walters on Behalf of the Office of the Ohio Consumers' Counsel was served via

electronic transmission to the persons listed below on this 25th day of August 2021.

/s/ Christopher Healey
Christopher Healey
Assistant Consumers' Counsel

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Dayton Power & Light Company

<u>Rate of Return</u>

Line	Description	Amount ($ 000) (1)	Weight* (2)	Cost (3)	Weighted Cost (4)
1	Long-Term Debt	$ 561,724	47.11%	4.44%	2.09%
2	Common Equity	$ 630,691	52.89%	**9.30%**	4.92%
3	**Total**	**$1,192,415**	**100.00%**		**7.01%**

Source:
Schedule D-1.

Dayton Power & Light Company

<u>Historical Capital Structure</u>

<u>Line</u>	<u>Description</u>	<u>Jun 30, 2020</u>	<u>Sep 31, 2020</u>	<u>Dec 31, 2020</u>	<u>Mar 31, 2021</u>	<u>4Q AVG</u>
1	Long-Term Debt*	$ 561,794	$ 561,776	$ 561,758	$ 561,568	$ 561,724
2	Common Equity	$ 640,066	$ 630,261	$ 616,569	$ 635,869	$ 630,691
3	**Total**	**$ 1,201,860**	**$ 1,192,037**	**$ 1,178,327**	**$ 1,197,437**	**$1,192,415**
4	Long-Term Debt*	46.74%	47.13%	47.67%	46.90%	47.11%
5	Common Equity	53.26%	52.87%	52.33%	53.10%	52.89%
6	**Total**	100.00%	100.00%	100.00%	100.00%	100.00%

Source:
S&P Global Market Intelligence, downloaded June 1, 2021: FERC Form 3Q, 2020-2021.
* Removed $18 million debt related to the Wright Patterson Air Force Base loan.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

Price to Earnings (P/E) Ratio [1]

Line	Company	20-Year Average (1)	2021 [2] (2)	2020 (3)	2019 (4)	2018 (5)	2017 (6)	2016 (7)	2015 (8)	2014 (9)	2013 (10)	2012 (11)	2011 (12)	2010 (13)	2009 (14)	2008 (15)	2007 (16)	2006 (17)	2005 (18)	2004 (19)	2003 (20)	2002 (21)
1	ALLETE	18.37	21.90	18.28	24.75	22.17	23.05	18.63	15.06	17.23	18.59	15.88	14.66	15.98	16.08	13.95	14.78	16.55	17.91	25.21	N/A	N/A
2	Alliant Energy	16.81	22.00	21.23	21.16	19.14	20.60	22.30	18.07	16.60	15.28	14.50	14.45	12.47	13.86	13.43	15.08	16.82	12.59	14.00	12.69	19.93
3	Ameren Corp.	16.60	22.20	22.23	22.09	18.29	20.60	18.29	17.55	16.71	16.52	13.35	11.93	9.66	9.26	14.21	17.45	19.39	16.72	16.28	13.51	15.78
4	American Electric Power	14.94	18.30	19.57	21.41	18.04	19.33	15.16	15.77	15.88	14.49	13.77	11.92	13.42	10.03	13.06	16.27	12.91	13.70	12.42	10.66	12.68
5	Avangrid, Inc.	26.28	21.70	25.34	22.15	26.05	27.27	20.49	40.94	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Avista Corp.	18.40	19.80	21.18	14.98	24.54	23.37	18.80	17.60	17.28	14.64	19.30	14.08	12.74	11.42	14.97	30.88	15.39	19.45	24.43	13.84	19.27
7	Black Hills	17.75	17.10	17.00	21.18	16.82	19.48	22.29	16.14	19.03	18.24	17.13	31.13	18.10	9.93	N/A	15.02	15.77	17.27	17.13	15.95	12.52
8	CenterPoint Energy	16.17	17.40	15.92	19.45	36.99	17.91	21.91	18.10	16.96	18.75	14.85	14.58	13.78	11.81	11.27	15.00	10.27	19.06	17.84	6.05	5.59
9	CMS Energy Corp.	17.98	22.00	23.32	24.28	20.31	21.32	20.94	18.29	17.30	16.32	15.07	13.62	12.46	13.56	10.87	26.84	22.18	12.60	12.39	N/A	N/A
10	Consol. Edison	15.98	17.70	20.08	21.10	17.10	19.77	18.80	15.59	15.90	14.72	15.39	15.08	13.30	12.55	12.29	13.78	15.49	15.13	18.21	14.30	13.28
11	Dominion Resources	20.50	20.30	43.94	35.21	21.80	22.17	21.33	22.14	22.97	19.25	18.91	17.27	14.35	12.74	13.78	20.63	15.98	24.89	15.07	15.24	12.05
12	DTE Energy	15.90	19.60	16.30	19.88	17.41	18.59	18.97	18.11	14.91	17.92	14.89	13.51	12.27	10.41	14.81	18.27	17.43	13.80	16.04	13.69	11.28
13	Duke Energy	17.63	19.60	22.40	17.71	19.41	19.93	21.25	18.22	17.91	17.45	17.46	13.76	12.69	13.32	17.28	16.13	N/A	N/A	N/A	N/A	N/A
14	Edison Int'l	15.17	13.90	34.93	16.66	N/A	17.23	17.92	14.77	13.05	12.70	9.71	11.81	10.32	9.72	12.36	16.03	12.99	11.74	37.59	6.97	7.78
15	El Paso Electric	17.68	N/A	N/A	N/A	26.85	21.78	18.66	18.33	16.38	15.88	14.47	12.60	10.72	10.79	11.89	15.26	16.92	26.72	22.03	18.26	22.99
16	Entergy Corp.	13.92	17.70	15.26	16.50	13.81	15.01	10.92	12.53	12.89	13.21	11.22	9.06	11.57	11.98	16.56	19.30	14.28	16.28	15.09	13.77	11.53
17	Eversource Energy	18.44	22.40	24.33	22.11	18.73	19.47	18.69	18.11	17.92	16.94	19.86	15.35	13.42	11.96	13.66	18.75	27.07	19.76	20.77	13.35	16.07
18	Evergy, Inc.	20.85	17.20	21.71	21.76	22.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Exelon Corp.	14.99	18.30	15.39	15.75	20.09	13.41	18.68	12.58	16.02	13.43	19.08	11.30	10.97	11.49	17.97	18.22	16.53	15.37	12.99	11.77	10.46
20	FirstEnergy Corp.	18.12	15.30	20.24	23.78	26.47	11.41	15.91	17.02	39.79	13.06	21.10	22.39	11.75	13.02	15.64	15.59	14.23	16.07	14.13	22.47	12.95
21	Fortis Inc.	19.21	20.00	20.63	19.22	17.08	16.81	21.60	18.00	24.29	19.97	20.12	18.79	18.22	16.36	17.48	21.14	17.68	N/A	N/A	N/A	N/A
22	Great Plains Energy	15.52	N/A	N/A	N/A	N/A	NMF	17.98	19.37	16.47	14.19	15.53	16.11	12.10	16.03	20.55	16.35	18.30	13.96	12.59	12.23	11.09
23	Hawaiian Elec.	18.54	21.30	21.48	21.27	18.95	20.69	13.56	20.40	15.88	16.21	15.81	17.09	18.59	19.79	23.16	21.57	20.33	18.27	19.18	13.76	13.47
24	IDACORP, Inc.	16.91	20.70	19.88	22.31	20.50	20.60	19.06	16.22	14.67	13.45	12.41	11.54	11.83	10.20	13.93	18.19	15.07	16.70	15.49	26.51	18.88
25	MGE Energy	19.90	27.30	26.41	28.36	25.11	29.36	24.90	20.28	17.19	17.01	17.23	15.82	14.98	15.14	14.22	15.01	15.88	22.40	17.98	17.55	15.96
26	NextEra Energy, Inc.	18.28	28.90	31.75	26.79	24.80	21.65	20.71	16.89	17.25	16.57	14.43	11.54	10.83	13.42	14.48	18.90	13.65	17.88	13.65	17.88	13.60
27	NorthWestern Corp	17.13	17.10	19.49	19.89	16.77	17.85	17.19	18.36	16.24	16.86	15.72	12.62	12.90	11.54	13.87	21.74	25.95	17.09	N/A	N/A	N/A
28	OGE Energy	15.28	15.70	16.25	19.00	16.53	18.32	17.68	17.69	18.27	17.69	15.16	14.37	13.31	10.83	12.41	13.75	13.68	14.95	14.13	11.84	14.12
29	Otter Tail Corp.	23.57	18.50	18.31	23.51	22.25	22.06	20.19	18.84	18.20	18.41	21.75	47.48	55.10	31.16	30.06	19.02	17.35	15.40	17.34	17.77	16.01
30	PG&E Corp.	16.79	N/A	N/A	N/A	N/A	18.28	21.13	26.40	15.00	23.67	20.70	15.46	15.80	13.01	12.08	16.85	14.84	15.37	13.81	9.50	N/A
31	Pinnacle West Capital	15.94	16.40	16.71	19.37	17.82	19.28	18.74	16.04	15.89	15.27	14.35	14.60	12.57	13.74	16.07	14.93	13.69	19.24	15.80	13.96	14.43
32	PNM Resources	18.62	21.60	20.79	21.08	23.39	20.43	19.83	16.85	18.68	16.13	14.97	14.53	14.05	18.09	N/A	35.65	15.57	17.38	15.02	14.73	15.08
33	Portland General	17.38	17.50	26.57	22.31	18.42	20.03	19.06	17.71	15.32	16.88	13.98	12.37	12.00	14.40	16.30	11.94	23.35	N/A	N/A	N/A	N/A
34	PPL Corp.	13.95	11.90	13.94	13.29	11.33	17.65	12.83	13.92	14.08	12.84	10.88	10.52	11.93	25.69	17.64	17.26	14.10	15.12	12.51	10.59	11.06
35	Public Serv. Enterprise	14.02	18.40	14.91	15.10	18.71	16.31	15.35	12.41	12.61	13.50	12.79	10.40	10.37	10.04	13.65	16.54	17.81	16.74	14.26	10.58	10.00
36	SCANA Corp.	13.96	N/A	N/A	N/A	N/A	N/A	14.46	16.80	14.67	13.68	14.43	14.80	13.67	12.93	11.63	12.67	14.96	15.42	14.44	13.57	12.17
37	Sempra Energy	15.66	16.40	19.62	22.50	20.40	24.33	24.37	19.73	21.87	19.68	14.89	11.77	12.60	10.09	11.80	14.01	11.50	11.79	8.65	8.96	8.19
38	Southern Co.	16.04	19.40	17.91	17.58	15.06	15.48	17.76	15.85	16.04	16.19	16.97	15.85	14.90	13.52	16.13	15.95	16.19	15.92	14.68	14.83	14.63
39	Vectren Corp.	17.05	N/A	N/A	N/A	N/A	N/A	23.54	19.18	17.92	19.98	20.66	15.02	15.83	15.10	12.89	16.79	15.33	18.92	15.11	17.57	14.80
40	WEC Energy Group	17.30	23.20	24.89	23.49	19.57	20.01	19.95	21.33	17.71	16.50	15.76	14.25	14.01	13.35	14.77	16.47	15.97	14.46	17.51	12.43	10.46
41	Westar Energy	15.58	N/A	N/A	N/A	N/A	N/A	23.40	21.59	18.45	15.36	14.04	13.43	14.78	12.96	14.95	16.96	14.10	12.18	14.79	10.78	14.02
42	Xcel Energy Inc.	17.81	23.00	23.88	22.34	18.93	20.20	18.48	16.54	15.44	15.04	14.82	14.24	14.13	12.66	13.69	14.80	16.65	14.80	13.65	11.62	40.80
43	Average	17.11	19.49	21.45	21.09	20.34	19.81	18.97	18.00	17.39	16.38	15.69	15.30	14.28	13.56	15.18	17.74	16.47	16.52	16.57	13.70	14.31
44	Median	16.48	19.50	20.43	21.22	19.28	19.97	18.80	17.71	16.54	16.27	15.04	14.31	12.91	12.82	14.21	16.41	15.88	15.92	15.29	13.60	13.47

Sources:
[1] The Value Line Investment Survey Investment Analyzer Software, downloaded on June 18, 2021.
[2] The Value Line Investment Survey, May 14, June 11, and July 23, 2021.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

Market Price to Cash Flow (MP/CF) Ratio [1]

Line	Company	20-Year Average (1)	2021 2/a (2)	2020 (3)	2019 (4)	2018 (5)	2017 (6)	2016 (7)	2015 (8)	2014 (9)	2013 (10)	2012 (11)	2011 (12)	2010 (13)	2009 (14)	2008 (15)	2007 (16)	2006 (17)	2005 (18)	2004 (19)	2003 (20)	2002 (21)
1	ALLETE	9.41	8.77	8.14	11.38	10.16	10.95	8.26	7.49	8.80	9.15	8.18	7.91	8.04	8.51	9.29	10.30	11.06	11.54	11.46	N/A	N/A
2	Alliant Energy	8.08	10.25	10.66	10.74	9.71	13.21	10.67	8.86	8.40	7.52	7.50	7.21	6.59	6.23	7.49	7.92	8.00	5.09	5.52	4.76	5.20
3	Ameren Corp.	7.30	9.63	9.63	9.45	7.95	8.38	7.44	6.87	6.95	6.61	5.48	5.02	4.23	4.25	6.35	7.69	8.57	8.57	8.24	6.74	7.96
4	American Electric Power	6.58	7.69	8.41	9.34	8.03	8.81	7.57	7.09	7.00	6.57	5.93	5.46	5.54	4.71	5.71	6.84	5.54	6.07	5.50	4.69	5.19
5	Avangrid, Inc.	9.53	7.93	9.39	9.11	10.24	10.14	8.56	11.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Avista Corp.	6.85	7.94	7.80	7.34	10.14	9.35	7.63	6.76	7.30	6.21	6.88	6.40	5.80	4.06	5.12	7.58	5.30	6.58	7.58	5.36	5.90
7	Black Hills	7.85	8.46	8.56	10.65	8.83	9.20	9.33	8.06	8.81	8.03	6.04	7.85	6.16	4.25	11.26	7.62	6.92	7.57	6.69	6.89	5.92
8	CenterPoint Energy	5.25	6.28	5.94	7.03	8.45	6.97	5.96	5.75	6.25	6.56	5.15	5.39	4.70	4.05	4.29	5.17	3.94	4.70	4.26	2.08	2.16
9	CMS Energy Corp.	6.25	9.02	9.87	9.85	8.40	8.75	8.50	7.53	7.13	6.68	6.03	5.41	4.48	3.64	3.45	5.57	4.40	4.04	3.20	2.88	NMF
10	Consol. Edison	8.24	7.82	8.35	9.46	8.73	9.64	9.39	7.96	7.89	7.77	8.31	8.15	7.39	6.72	6.89	8.31	8.65	8.59	9.31	7.90	7.64
11	Dominion Resources	9.89	9.85	14.59	13.47	10.94	11.35	11.59	11.84	12.27	10.88	9.92	9.45	8.12	6.98	8.27	8.65	7.81	10.09	7.68	7.51	6.53
12	DTE Energy	6.58	8.59	7.85	9.67	8.54	9.05	8.64	8.52	6.42	6.65	5.91	5.18	4.69	3.59	4.90	5.73	5.21	5.54	6.00	5.62	5.20
13	Duke Energy	7.55	6.58	8.06	7.40	8.63	8.40	8.57	7.95	8.12	8.11	9.53	6.56	6.01	5.96	7.13	7.16	N/A	N/A	N/A	N/A	N/A
14	Edison Int'l	5.91	5.49	7.57	7.25	13.46	7.05	6.77	5.92	5.68	5.46	4.59	4.22	4.11	3.95	5.63	7.01	5.87	5.61	6.84	2.82	2.96
15	El Paso Electric	5.93	N/A	N/A	N/A	9.43	8.54	7.46	6.47	6.33	6.19	5.78	5.16	4.31	3.98	4.95	6.44	6.25	6.67	4.65	3.90	4.39
16	Entergy Corp.	5.72	5.60	5.78	6.05	4.92	4.66	4.01	4.11	4.21	4.03	4.23	3.90	4.66	5.68	7.96	9.21	7.16	8.76	7.12	6.84	5.57
17	Eversource Energy	7.39	10.60	12.53	11.47	9.16	10.36	10.14	10.12	10.14	8.08	9.30	6.99	4.97	4.61	4.12	6.18	6.02	3.55	3.78	2.85	2.75
18	Evergy, Inc.	7.37	7.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Exelon Corp.	5.91	4.16	4.44	5.29	5.05	4.45	4.80	4.70	5.09	4.61	5.54	5.86	5.10	5.98	9.65	9.89	8.62	7.97	6.29	5.71	4.97
20	FirstEnergy Corp.	6.86	8.80	9.23	11.09	8.84	4.76	5.12	5.38	7.43	6.15	7.42	7.33	4.49	4.91	7.58	7.89	7.53	6.04	5.15	6.90	5.10
21	Fortis Inc.	8.38	8.67	9.50	9.46	7.97	8.23	10.46	7.29	9.25	7.93	8.09	8.38	7.40	6.76	7.58	9.18	7.89	N/A	N/A	N/A	N/A
22	Great Plains Energy	6.89	N/A	N/A	N/A	N/A	14.62	8.63	6.66	6.45	5.73	6.09	5.74	4.49	5.06	7.71	7.13	7.68	6.70	6.52	5.92	5.14
23	Hawaiian Elec.	8.07	8.32	8.69	9.30	8.34	9.21	7.44	9.25	7.64	8.15	8.05	7.73	7.81	6.95	9.10	7.95	8.47	8.29	8.44	6.12	6.20
24	IDACORP, Inc.	8.67	11.33	11.38	12.75	11.72	11.56	10.95	9.37	8.59	7.78	7.05	6.64	6.52	5.31	7.10	8.23	7.73	7.55	7.15	7.27	7.53
25	MGE Energy	11.69	14.34	14.90	15.58	15.04	17.33	15.66	12.53	11.42	11.20	10.77	9.48	9.05	8.40	8.42	9.23	9.30	11.73	11.04	10.20	8.09
26	NextEra Energy, Inc.	10.11	46.27	15.48	12.33	10.77	11.61	9.24	7.93	7.98	7.60	7.58	5.98	5.33	6.09	7.34	9.02	6.51	6.71	6.71	5.97	5.77
27	NorthWestern Corp	7.83	8.49	8.88	9.93	8.19	8.82	8.65	8.99	9.01	7.61	6.85	5.89	5.79	5.05	5.57	8.45	9.39	7.31	8.13	N/A	N/A
28	OGE Energy	7.92	7.54	8.38	10.58	9.36	10.52	9.03	9.25	10.65	9.93	7.35	7.48	6.61	5.37	6.43	7.58	7.50	7.04	6.73	5.62	5.39
29	Otter Tail Corp.	9.46	9.55	9.99	12.42	11.18	11.09	9.38	9.04	9.45	9.58	8.43	9.04	8.07	8.01	11.65	9.53	8.66	8.18	9.01	8.13	8.33
30	PG&E Corp.	5.55	N/A	N/A	N/A	- 5.65	7.09	7.26	7.24	5.65	6.84	5.86	5.32	5.42	4.71	4.61	5.84	5.28	5.07	5.13	4.05	14.69
31	Pinnacle West Capital	6.28	6.89	7.49	8.30	7.09	8.73	7.89	6.91	7.03	6.85	6.34	5.80	5.65	3.84	4.19	4.76	4.48	7.48	5.88	4.80	5.21
32	PNM Resources	6.90	7.94	7.87	7.92	7.57	7.40	7.64	6.95	7.48	6.47	5.80	4.94	4.58	4.53	7.10	10.67	7.50	7.62	6.84	5.55	5.72
33	Portland General	5.92	6.29	6.72	7.65	6.56	7.45	7.12	6.73	5.49	6.06	5.08	4.86	4.13	4.63	4.81	5.34	5.74	N/A	N/A	N/A	N/A
34	PPL Corp.	7.42	6.31	7.46	7.99	7.02	10.11	8.37	8.73	7.32	6.59	5.87	5.98	7.46	8.82	9.17	8.90	7.58	7.57	6.49	5.41	5.30
35	Public Serv. Enterprise	7.54	7.40	8.22	8.72	9.48	8.67	8.56	6.66	6.48	6.40	6.40	6.03	6.04	6.20	8.46	9.83	8.41	8.59	7.17	6.79	6.24
36	SCANA Corp.	7.09	N/A	N/A	N/A	N/A	8.26	9.59	8.33	7.50	7.49	7.40	6.75	6.52	5.88	6.38	7.15	7.03	5.40	6.86	6.59	6.36
37	Sempra Energy	8.18	9.58	10.40	12.05	10.10	10.65	10.88	9.99	10.77	9.37	7.26	6.13	6.53	6.07	7.07	8.61	7.22	6.96	5.16	4.85	4.00
38	Southern Co.	8.16	7.91	8.34	8.80	7.05	7.49	8.83	8.23	8.42	8.30	8.75	8.22	7.79	7.08	8.18	8.62	8.47	8.41	8.28	8.28	7.83
39	Vectren Corp.	7.08	N/A	N/A	N/A	N/A	10.32	8.60	7.82	7.57	6.82	5.79	5.81	5.58	5.24	6.90	6.53	7.37	7.06	7.63	7.27	6.92
40	WEC Energy Group	9.07	12.11	13.67	12.88	10.82	11.04	10.95	12.90	10.27	9.58	9.24	8.43	8.15	6.87	7.57	7.84	7.27	6.40	6.27	4.91	4.27
41	Westar Energy	6.91	N/A	N/A	N/A	N/A	10.87	10.86	9.05	7.93	7.23	6.71	6.67	5.51	5.32	7.09	6.88	5.81	7.00	6.54	4.24	2.94
42	Xcel Energy Inc.	6.93	9.16	10.07	9.44	7.90	8.50	8.10	7.62	7.31	7.00	6.85	6.47	6.28	5.43	5.71	6.51	5.54	5.62	5.31	4.27	5.46
43	Average	7.54	9.41	9.26	9.78	8.64	9.36	8.65	8.05	7.85	7.39	6.98	6.53	6.00	5.59	6.95	7.72	7.12	7.13	6.77	5.70	5.85
44	Median	7.34	8.39	8.56	9.46	8.73	9.05	8.57	7.93	7.54	7.12	6.85	6.27	5.80	5.35	7.09	7.76	7.37	7.04	6.71	5.62	5.52

Sources:
[1] The Value Line Investment Survey Investment Analyzer Software, downloaded on June 18, 2021.
[2] The Value Line Investment Survey, May 14, June 11, and July 23, 2021.

Note:
[a] Based on the average of the high and low price and the projected Cash Flow per share.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

Market Price to Book Value (MP/BV) Ratio [1]

Line	Company	17-Year Average (1)	2021 2/b (2)	2020 (3)	2019 (4)	2018 (5)	2017 (6)	2016 (7)	2015 (8)	2014 (9)	2013 (10)	2012 (11)	2011 (12)	2010 (13)	2009 (14)	2008 (15)	2007 (16)	2006 (17)	2005 (18)
1	ALLETE	1.59	1.47	1.39	1.91	1.79	1.78	1.53	1.37	1.42	1.51	1.34	1.35	1.28	1.15	1.55	1.89	2.09	2.22
2	Alliant Energy	1.77	2.15	2.30	2.32	2.16	2.38	2.17	1.86	1.86	1.70	1.57	1.46	1.31	1.04	1.33	1.67	1.52	1.33
3	Ameren Corp.	1.55	2.22	2.21	2.26	1.95	1.93	1.67	1.46	1.45	1.29	1.18	0.90	0.83	0.78	1.25	1.60	1.62	1.68
4	American Electric Power	1.62	1.89	2.09	2.20	1.82	1.88	1.81	1.55	1.54	1.40	1.31	1.23	1.23	1.08	1.48	1.85	1.56	1.57
5	Avangrid, Inc.	0.92	0.93	0.97	1.02	1.02	0.93	0.83	0.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Avista Corp.	1.34	1.43	1.37	1.54	1.88	1.73	1.57	1.36	1.33	1.25	1.21	1.19	1.07	0.94	1.11	1.29	1.30	1.13
7	Black Hills	1.52	1.51	1.55	1.95	1.61	2.06	1.94	1.59	1.79	1.62	1.21	1.14	1.07	0.83	1.22	1.57	1.47	1.63
8	CenterPoint Energy	2.32	1.85	1.90	2.21	2.18	2.59	2.73	2.43	2.27	2.30	1.99	1.87	1.96	1.77	2.49	3.13	2.75	3.06
9	CMS Energy Corp.	2.15	2.87	3.24	3.28	2.81	2.93	2.72	2.43	2.26	2.09	1.91	1.66	1.48	1.10	1.23	1.82	1.42	1.32
10	Consol. Edison	1.41	1.38	1.44	1.59	1.49	1.63	1.58	1.42	1.34	1.38	1.47	1.38	1.22	1.08	1.17	1.47	1.47	1.52
11	Dominion Resources	2.61	2.39	2.72	2.18	2.40	2.94	3.15	3.34	3.55	2.97	2.84	2.37	2.01	1.80	2.42	2.69	2.07	2.50
12	DTE Energy	1.53	1.96	1.80	2.07	1.91	2.01	1.82	1.65	1.62	1.51	1.35	1.20	1.16	0.89	1.10	1.35	1.29	1.39
13	Duke Energy	1.23	1.36	1.47	1.47	1.33	1.41	1.35	1.29	1.28	1.19	1.12	1.11	1.00	0.91	1.06	1.15	N/A	N/A
14	Edison Int'l	1.66	1.51	1.62	1.80	1.97	2.17	1.92	1.76	1.68	1.57	1.53	1.24	1.07	1.04	1.56	2.05	1.80	1.93
15	El Paso Electric	1.56	N/A	N/A	N/A	1.94	1.87	1.68	1.48	1.52	1.49	1.59	1.64	1.17	0.98	1.33	1.69	1.71	1.76
16	Entergy Corp.	1.75	1.69	1.93	2.03	1.74	1.76	1.67	1.40	1.33	1.21	1.31	1.35	1.62	1.66	2.44	2.65	1.89	2.01
17	Eversource Energy	1.52	1.88	2.11	1.99	1.68	1.73	1.64	1.53	1.47	1.38	1.28	1.50	1.31	1.12	1.31	1.60	1.22	1.05
18	Evergy, Inc.	1.47	1.47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Exelon Corp.	2.11	1.16	1.20	1.43	1.31	1.20	1.20	1.14	1.28	1.17	1.46	1.95	2.07	2.57	4.39	4.79	3.89	3.60
20	FirstEnergy Corp.	2.08	2.94	2.81	3.39	2.67	3.53	2.37	1.16	1.15	1.28	1.44	1.33	1.36	1.54	2.52	2.23	1.92	1.64
21	Fortis Inc.	1.46	1.38	1.47	1.41	1.24	1.41	1.24	1.33	1.35	1.45	1.59	1.59	1.56	1.33	1.48	1.63	1.96	N/A
22	Great Plains Energy	1.21	N/A	N/A	N/A	N/A	1.33	1.17	1.12	1.11	1.02	0.96	0.93	0.87	0.80	1.11	1.66	1.77	1.86
23	Hawaiian Elec.	1.66	1.79	1.82	2.02	1.76	1.76	1.63	1.71	1.49	1.54	1.62	1.54	1.44	1.16	1.61	1.57	2.01	1.78
24	IDACORP, Inc.	1.48	1.81	1.84	2.10	1.96	1.94	1.76	1.54	1.45	1.33	1.19	1.17	1.13	0.92	1.09	1.26	1.37	1.22
25	MGE Energy	2.14	2.46	2.54	2.88	2.59	2.88	2.60	2.10	2.10	2.06	1.92	1.75	1.65	1.54	1.62	1.75	1.83	2.09
26	NextEra Energy, Inc.	2.69	11.57	3.58	2.75	2.32	2.35	2.30	2.09	2.15	1.93	1.74	1.55	1.49	1.70	2.06	2.34	1.80	1.93
27	NorthWestern Corp	1.46	1.46	1.45	1.74	1.48	1.64	1.68	1.60	1.54	1.56	1.42	1.35	1.22	1.07	1.15	1.48	1.65	1.42
28	OGE Energy	1.84	1.72	1.86	2.06	1.75	1.82	1.73	1.79	2.22	2.24	1.94	1.90	1.70	1.37	1.52	1.98	1.91	1.80
29	Otter Tail Corp.	1.85	2.02	2.04	2.62	2.49	2.33	1.90	1.78	1.90	1.96	1.58	1.35	1.19	1.18	1.71	1.93	1.76	1.74
30	PG&E Corp.	1.60	N/A	N/A	N/A	1.70	1.71	1.69	1.57	1.39	1.38	1.41	1.46	1.56	1.41	1.50	1.94	1.83	1.84
31	Pinnacle West Capital	1.43	1.54	1.63	1.91	1.74	1.91	1.72	1.52	1.44	1.47	1.39	1.25	1.14	0.95	1.00	1.26	1.26	1.25
32	PNM Resources	1.33	1.95	1.87	2.28	1.83	1.84	1.56	1.33	1.21	1.09	0.98	0.80	0.69	0.56	0.66	1.23	1.21	1.45
33	Portland General	1.35	1.53	1.57	1.84	1.56	1.69	1.56	1.42	1.37	1.28	1.14	1.09	0.94	0.92	1.05	1.32	1.36	N/A
34	PPL Corp.	2.06	1.51	1.63	1.86	1.81	2.40	2.46	2.24	1.64	1.55	1.58	1.47	1.61	2.10	3.19	3.05	2.43	2.50
35	Public Serv. Enterprise	1.87	1.46	1.70	1.97	1.81	1.68	1.67	1.58	1.57	1.44	1.46	1.59	1.67	1.78	2.58	2.99	2.46	2.45
36	SCANA Corp.	1.51	N/A	N/A	N/A	N/A	1.65	1.74	1.47	1.48	1.48	1.48	1.36	1.33	1.20	1.45	1.62	1.64	1.72
37	Sempra Energy	1.80	1.63	1.84	2.22	2.06	2.24	2.00	2.17	2.20	1.84	1.53	1.28	1.35	1.32	1.60	1.87	1.70	1.73
38	Southern Co.	2.06	2.09	2.20	2.13	1.89	2.07	2.01	1.99	2.02	2.04	2.15	1.99	1.83	1.73	2.12	2.24	2.23	2.35
39	Vectren Corp.	1.83	N/A	N/A	N/A	N/A	2.75	2.29	2.11	2.08	1.82	1.57	1.53	1.41	1.34	1.64	1.74	1.77	1.82
40	WEC Energy Group	2.02	2.63	2.84	2.62	2.11	2.10	2.09	1.82	2.34	2.21	2.05	1.81	1.65	1.40	1.57	1.77	1.71	1.62
41	Westar Energy	1.37	N/A	N/A	N/A	N/A	1.94	1.95	1.49	1.44	1.33	1.26	1.20	1.10	0.93	1.10	1.36	1.30	1.41
42	Xcel Energy Inc.	1.69	2.29	2.46	2.34	1.97	2.06	1.88	1.66	1.55	1.50	1.51	1.41	1.32	1.19	1.30	1.53	1.40	1.38
43	Average	1.73	2.08	1.96	2.10	1.88	2.00	1.85	1.67	1.68	1.60	1.51	1.43	1.35	1.25	1.63	1.90	1.78	1.80
44	Median	1.63	1.75	1.84	2.06	1.83	1.91	1.74	1.57	1.53	1.49	1.47	1.37	1.31	1.15	1.48	1.71	1.71	1.73

Sources:
[1] The Value Line Investment Survey Investment Analyzer Software, downloaded on June 18, 2021.
[2] The Value Line Investment Survey, May 14, June 11, and July 23, 2021.
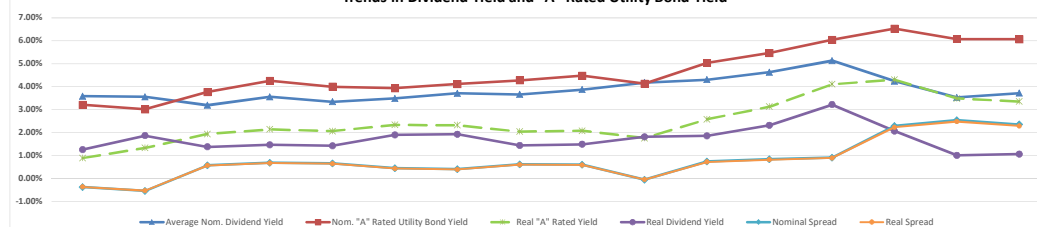
Notes:
[b] Based on the average of the high and low price and the projected Book Value per share.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

Line	Company	16-Year Average (1)	2021 [2/a] (2)	2020 (3)	2019 (4)	2018 (5)	2017 (6)	2016 (7)	2015 (8)	2014 (9)	2013 (10)	2012 (11)	2011 (12)	2010 (13)	2009 (14)	2008 (15)	2007 (16)	2006 (17)
																		Dividend Yield[1]
1	ALLETE	3.94%	3.83%	4.03%	2.85%	2.99%	2.97%	3.56%	3.97%	3.92%	3.89%	4.49%	4.58%	5.03%	5.79%	4.37%	3.60%	3.16%
2	Alliant Energy	3.65%	3.08%	2.90%	2.88%	3.20%	3.07%	3.21%	3.60%	3.53%	3.74%	4.07%	4.28%	4.61%	5.73%	4.10%	3.13%	3.32%
3	Ameren Corp.	4.25%	2.64%	2.57%	2.59%	3.04%	3.12%	3.50%	3.96%	4.02%	4.61%	4.97%	5.28%	5.76%	5.98%	6.21%	4.88%	4.93%
4	American Electric Power	4.00%	3.63%	3.28%	3.10%	3.60%	3.42%	3.54%	3.80%	3.83%	4.23%	4.58%	4.96%	4.90%	5.50%	4.20%	3.40%	4.06%
5	Avangrid, Inc.	3.76%	3.79%	3.69%	3.52%	3.49%	3.79%	4.26%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Avista Corp.	3.77%	3.94%	4.03%	3.48%	2.93%	3.14%	3.39%	3.97%	3.99%	4.51%	4.55%	4.54%	4.76%	4.49%	3.39%	2.68%	2.52%
7	Black Hills	3.72%	3.54%	3.42%	2.74%	3.31%	2.75%	2.87%	3.55%	2.84%	3.19%	4.39%	4.64%	4.79%	6.17%	4.21%	3.40%	3.79%
8	CenterPoint Energy	4.35%	2.91%	4.38%	2.98%	4.09%	4.79%	4.70%	5.06%	3.94%	3.57%	4.04%	4.27%	5.29%	6.37%	4.98%	3.87%	4.39%
9	CMS Energy Corp.	3.20%	2.92%	2.65%	2.64%	3.03%	2.88%	2.99%	3.36%	3.59%	3.76%	4.16%	4.25%	3.98%	3.97%	2.69%	1.16%	N/A
10	Consol. Edison	4.37%	3.95%	3.87%	3.44%	3.68%	3.40%	3.62%	4.12%	4.38%	4.25%	4.07%	4.46%	5.16%	5.99%	5.67%	4.84%	5.04%
11	Dominion Resources	4.01%	3.39%	4.31%	4.76%	4.72%	3.88%	3.82%	3.66%	3.43%	3.78%	4.06%	4.13%	4.41%	5.20%	3.77%	3.32%	3.60%
12	DTE Energy	4.07%	3.38%	3.57%	3.07%	3.34%	3.15%	3.34%	3.53%	3.54%	3.84%	4.19%	4.68%	4.75%	6.29%	5.24%	4.36%	4.86%
13	Duke Energy	4.71%	4.70%	4.35%	4.17%	4.54%	4.15%	4.26%	4.34%	4.26%	4.45%	4.68%	5.21%	5.71%	6.25%	5.16%	4.44%	N/A
14	Edison Int'l	3.24%	4.56%	4.29%	3.73%	3.84%	2.87%	2.81%	2.83%	2.62%	2.85%	2.97%	3.37%	3.66%	3.95%	2.69%	2.21%	2.58%
15	El Paso Electric	2.74%	N/A	N/A	N/A	2.55%	2.49%	2.75%	3.13%	2.97%	2.99%	2.97%	2.11%	N/A	N/A	N/A	N/A	N/A
16	Entergy Corp.	4.04%	3.94%	3.55%	3.52%	4.41%	4.49%	4.55%	4.59%	4.47%	5.07%	4.91%	4.85%	4.20%	3.97%	2.92%	2.39%	2.82%
17	Eversource Energy	3.25%	3.01%	2.63%	2.81%	3.32%	3.14%	3.22%	3.34%	3.40%	3.48%	3.52%	3.23%	3.64%	4.16%	3.25%	2.60%	3.27%
18	Evergy, Inc.	3.70%	3.70%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Exelon Corp.	3.85%	3.83%	3.82%	3.06%	3.32%	3.51%	3.75%	3.88%	3.69%	4.69%	5.73%	4.96%	4.95%	4.26%	2.78%	2.48%	2.83%
20	FirstEnergy Corp.	4.31%	3.69%	4.17%	3.50%	5.17%	4.62%	4.31%	4.23%	4.26%	4.26%	4.90%	5.23%	5.76%	5.09%	3.21%	3.12%	3.40%
21	Fortis Inc.	3.69%	3.97%	3.66%	3.60%	4.07%	3.69%	3.80%	3.76%	3.88%	3.84%	3.64%	3.58%	3.80%	4.21%	3.76%	3.01%	2.79%
22	Great Plains Energy	4.52%	N/A	N/A	N/A	N/A	3.58%	3.64%	3.76%	3.62%	3.84%	4.08%	4.15%	4.49%	5.03%	6.96%	5.49%	5.60%
23	Hawaiian Elec.	4.47%	3.44%	3.40%	3.02%	3.54%	3.65%	3.99%	4.05%	4.76%	4.72%	4.70%	5.04%	5.51%	6.89%	5.00%	5.18%	4.59%
24	IDACORP, Inc.	3.18%	3.04%	2.92%	2.49%	2.61%	2.58%	2.77%	3.06%	3.12%	3.21%	3.28%	3.10%	3.44%	4.46%	3.95%	3.55%	3.39%
25	MGE Energy	3.06%	2.19%	2.10%	1.94%	2.16%	1.95%	2.23%	2.78%	2.78%	2.91%	3.25%	3.63%	3.98%	4.36%	4.24%	4.14%	4.25%
26	NextEra Energy, Inc.	2.87%	0.67%	2.10%	2.41%	2.68%	2.79%	2.91%	3.01%	3.02%	3.30%	3.65%	3.96%	3.90%	N/A	N/A	N/A	N/A
27	NorthWestern Corp	4.07%	4.00%	4.02%	3.28%	3.86%	3.52%	3.43%	3.61%	3.30%	3.66%	4.17%	4.51%	4.93%	5.75%	5.38%	4.09%	N/A
28	OGE Energy	3.77%	5.12%	4.68%	3.54%	3.98%	3.61%	3.87%	3.51%	2.63%	2.48%	2.94%	3.06%	3.68%	4.96%	4.52%	3.77%	3.99%
29	Otter Tail Corp.	4.07%	3.51%	3.45%	2.74%	2.92%	3.12%	3.87%	4.33%	4.14%	4.11%	5.21%	5.57%	5.68%	5.38%	3.63%	3.46%	3.92%
30	PG&E Corp.	3.70%	N/A	N/A	N/A	N/A	2.42%	3.22%	3.45%	3.96%	4.20%	4.25%	4.24%	4.08%	4.26%	4.01%	3.07%	3.22%
31	Pinnacle West Capital	4.47%	4.32%	3.97%	3.29%	3.55%	3.16%	3.46%	3.88%	4.09%	3.98%	5.32%	4.81%	5.43%	6.76%	6.17%	4.75%	4.67%
32	PNM Resources	3.19%	2.75%	2.80%	2.45%	2.79%	2.53%	2.69%	2.90%	2.79%	2.99%	2.96%	3.19%	4.09%	4.76%	4.85%	3.36%	3.21%
33	Portland General	3.67%	3.68%	3.47%	2.85%	3.27%	2.92%	3.06%	3.27%	3.34%	3.67%	4.11%	4.37%	5.20%	5.36%	4.28%	3.34%	2.54%
34	PPL Corp.	4.63%	6.05%	5.84%	5.24%	5.61%	4.24%	4.25%	4.55%	4.45%	4.81%	5.07%	5.10%	5.12%	4.51%	3.10%	2.69%	3.41%
35	Public Serv. Enterprise	3.81%	4.21%	3.64%	3.19%	3.49%	3.74%	3.78%	3.81%	3.92%	4.35%	4.55%	4.24%	4.30%	3.26%	2.73%	3.47%
36	SCANA Corp.	4.37%	N/A	N/A	N/A	N/A	4.03%	3.29%	3.90%	4.05%	4.15%	4.25%	4.78%	4.93%	5.67%	4.92%	4.29%	4.21%
37	Sempra Energy	2.98%	3.39%	3.24%	2.88%	3.20%	2.92%	2.92%	2.71%	2.61%	3.03%	3.71%	3.65%	3.08%	3.23%	2.62%	2.08%	2.47%
38	Southern Co.	4.68%	4.63%	4.36%	4.41%	5.27%	4.63%	4.42%	4.78%	4.69%	4.61%	4.29%	4.63%	5.13%	5.52%	4.58%	4.39%	4.52%
39	Vectren Corp.	4.38%	N/A	N/A	N/A	N/A	2.79%	3.31%	3.60%	3.62%	4.15%	4.82%	5.06%	5.53%	5.85%	4.79%	4.53%	4.52%
40	WEC Energy Group	3.02%	3.00%	2.68%	2.81%	3.38%	3.31%	3.35%	3.49%	3.40%	3.49%	3.24%	3.35%	2.97%	3.16%	2.41%	2.14%	2.18%
41	Westar Energy	4.37%	N/A	N/A	N/A	N/A	3.00%	2.90%	3.73%	3.88%	4.27%	4.57%	4.84%	5.32%	6.27%	5.22%	4.16%	4.28%
42	Xcel Energy Inc.	3.76%	2.81%	2.58%	2.75%	3.25%	3.10%	3.33%	3.69%	3.83%	3.86%	3.90%	4.20%	4.54%	5.14%	4.70%	4.05%	4.40%
43	**Average**	3.86%	3.59%	3.56%	3.19%	3.56%	3.34%	3.49%	3.71%	3.66%	3.87%	4.18%	4.30%	4.63%	5.13%	4.24%	3.53%	3.72%
44	Median	3.83%	3.65%	3.57%	3.06%	3.36%	3.15%	3.43%	3.71%	3.76%	3.85%	4.18%	4.42%	4.76%	5.17%	4.22%	3.43%	3.62%
45	20-Yr Treasury Yields[3]	3.18%	1.99%	1.35%	2.40%	3.02%	2.65%	2.23%	2.55%	3.07%	3.12%	2.54%	3.62%	4.03%	4.11%	4.36%	4.91%	4.99%
46	20-Yr TIPS[3]	1.06%	-0.31%	-0.30%	0.60%	0.94%	0.75%	0.66%	0.78%	0.87%	0.75%	0.21%	1.19%	1.73%	2.21%	2.19%	2.36%	2.37%
47	Implied Inflation[b]	2.10%	2.30%	1.66%	1.79%	2.06%	1.89%	1.56%	1.75%	2.19%	2.35%	2.33%	2.40%	2.26%	1.85%	2.13%	2.49%	2.62%
48	**Real Dividend Yield[c]**	1.72%	1.26%	1.86%	1.37%	1.47%	1.42%	1.90%	1.93%	1.44%	1.49%	1.81%	1.86%	2.32%	3.22%	2.07%	1.01%	1.07%
	A-Rated Utility																	
49	Nominal "A" Rated Yield[4]	4.65%	3.21%	3.02%	3.77%	4.25%	4.00%	3.93%	4.12%	4.28%	4.48%	4.13%	5.04%	5.46%	6.04%	6.53%	6.07%	6.07%
50	Real "A" Rated Yield	2.49%	0.89%	1.33%	1.94%	2.14%	2.07%	2.34%	2.33%	2.04%	2.08%	1.76%	2.58%	3.13%	4.11%	4.31%	3.49%	3.36%
	Baa-Rated Utility																	
51	Nominal "Baa" Rated Yield	5.21%	3.66%	3.66%	4.19%	4.67%	4.38%	4.67%	5.03%	4.80%	4.98%	4.83%	5.57%	5.96%	7.06%	7.25%	6.33%	6.32%
52	Real "Baa" Rated Yield	3.04%	1.33%	1.97%	2.36%	2.55%	2.44%	3.07%	3.22%	2.55%	2.57%	2.44%	3.09%	3.62%	5.11%	5.01%	3.74%	3.60%
	Spreads (A-Rated Utility Bond - Stock)																	
53	Nominal Spread[d]	0.79%	-0.38%	-0.54%	0.58%	0.69%	0.66%	0.44%	0.40%	0.61%	0.61%	-0.05%	0.74%	0.84%	0.91%	2.29%	2.54%	2.35%
54	Real Spread[e]	0.78%	-0.37%	-0.53%	0.57%	0.68%	0.65%	0.44%	0.40%	0.60%	0.59%	-0.05%	0.72%	0.82%	0.89%	2.24%	2.48%	2.29%
	Spreads (Baa-Rated Utility Bond - Stock)																	
55	Nominal Spread[b]	1.35%	0.07%	0.11%	1.00%	1.11%	1.04%	1.19%	1.31%	1.14%	1.11%	0.65%	1.26%	1.34%	1.92%	3.00%	2.80%	2.60%
56	Real Spread[c]	1.32%	0.07%	0.10%	0.98%	1.09%	1.02%	1.17%	1.29%	1.11%	1.09%	0.63%	1.23%	1.31%	1.89%	2.94%	2.73%	2.53%
	Spreads (Treasury Bond - Stock)																	
57	Nominal[f]	-0.67%	-1.60%	-2.20%	-0.79%	-0.54%	-0.69%	-1.26%	-1.17%	-0.59%	-0.75%	-1.64%	-0.68%	-0.60%	-1.02%	0.12%	1.38%	1.27%
58	Real[g]	-0.66%	-1.57%	-2.17%	-0.77%	-0.53%	-0.68%	-1.24%	-1.15%	-0.58%	-0.73%	-1.60%	-0.67%	-0.58%	-1.01%	0.12%	1.34%	1.24%

Trends in Dividend Yield and "A" Rated Utility Bond Yield

Legend: Average Nom. Dividend Yield · Nom. "A" Rated Utility Bond Yield · Real "A" Rated Yield · Real Dividend Yield · Nominal Spread · Real Spread

Sources:
[1] The Value Line Investment Survey Investment Analyzer Software, downloaded on June 18, 2021.
[2] The Value Line Investment Survey, May 14, June 11, and July 23, 2021.
[3] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org.
[4] www.moodys.com, Bond Yields and Key Indicators, through May 31, 2021.

Notes:
[a] Based on the average of the high and low price and the projected Dividends Declared per share, published in the Value Line Investment Survey.
[b] Line 47 = (1 + Line 45) / (1 + Line 46) - 1.
[c] Line 48 = (1 + Line 43) / (1 +Line 47) - 1.
[d] The spread being measured here is the nominal A-rated utility bond yield over the average nominal utility dividend yield; (Line 49 - Line 43).
[e] The spread being measured here is the real A-rated utility bond yield over the average real utility dividend yield; Line 50 - Line 48.
[f] The spread being measured here is the nominal 20-Year Treasury yield over the average nominal utility dividend yield; (Line 45 - Line 43).
[g] The spread being measured here is the real 20-Year TIPS yield over the average real utility dividend yield; Line 48 - Line 46.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

		15-Year Average	Dividend per Share[1]														
Line	Company	Average (1)	2021[2] (2)	2020 (3)	2019 (4)	2018 (5)	2017 (6)	2016 (7)	2015 (8)	2014 (9)	2013 (10)	2012 (11)	2011 (12)	2010 (13)	2009 (14)	2008 (15)	2007 (16)	2006 (17)
1	ALLETE	1.98	2.52	2.47	2.35	2.24	2.14	2.08	2.02	1.96	1.90	1.84	1.78	1.76	1.76	1.72	1.64	1.45
2	Alliant Energy	1.04	1.61	1.52	1.42	1.34	1.26	1.18	1.10	1.02	0.94	0.90	0.85	0.79	0.75	0.70	0.64	0.58
3	Ameren Corp.	1.89	2.20	2.00	1.92	1.85	1.78	1.72	1.66	1.61	1.60	1.60	1.56	1.54	1.54	2.54	2.54	2.54
4	American Electric Power	2.10	3.00	2.84	2.71	2.53	2.39	2.27	2.15	2.03	1.95	1.88	1.85	1.71	1.64	1.64	1.58	1.50
5	Avangrid, Inc.	1.75	1.76	1.76	1.76	1.74	1.73	1.73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Avista Corp.	1.18	1.69	1.62	1.55	1.49	1.43	1.37	1.32	1.27	1.22	1.16	1.10	1.00	0.81	0.69	0.60	0.57
7	Black Hills	1.66	2.29	2.17	2.05	1.93	1.81	1.68	1.62	1.56	1.52	1.48	1.46	1.44	1.42	1.40	1.37	1.32
8	CenterPoint Energy	0.86	0.65	0.90	0.86	1.12	1.35	1.03	0.99	0.95	0.83	0.81	0.79	0.78	0.76	0.73	0.68	0.60
9	CMS Energy Corp.	1.05	1.74	1.63	1.53	1.43	1.33	1.24	1.16	1.08	1.02	0.96	0.84	0.66	0.50	0.36	0.20	N/A
10	Consol. Edison	2.60	3.10	3.06	2.96	2.86	2.76	2.68	2.60	2.52	2.46	2.42	2.40	2.38	2.36	2.34	2.32	2.30
11	Dominion Resources	2.38	2.52	3.45	3.67	3.34	3.04	2.80	2.59	2.40	2.25	2.11	1.97	1.83	1.75	1.58	1.46	1.38
12	DTE Energy	2.87	4.41	4.12	3.85	3.59	3.36	3.06	2.84	2.69	2.59	2.42	2.32	2.18	2.12	2.12	2.12	2.08
13	Duke Energy	3.23	3.90	3.82	3.75	3.64	3.49	3.36	3.24	3.15	3.09	3.03	2.97	2.91	2.82	2.70	2.58	N/A
14	Edison Int'l	1.72	2.68	2.58	2.48	2.43	2.23	1.98	1.73	1.48	1.37	1.31	1.29	1.27	1.25	1.23	1.18	1.10
15	El Paso Electric	1.11	N/A	N/A	N/A	1.42	1.32	1.23	1.17	1.11	1.05	0.97	0.66	N/A	N/A	N/A	N/A	N/A
16	Entergy Corp.	3.27	3.86	3.74	3.66	3.58	3.50	3.42	3.34	3.32	3.32	3.32	3.32	3.24	3.00	3.00	2.58	2.16
17	Eversource Energy	1.50	2.41	2.27	2.14	2.02	1.90	1.78	1.67	1.57	1.47	1.32	1.10	1.03	0.95	0.83	0.78	0.73
18	Evergy, Inc.	2.17	2.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Exelon Corp.	1.64	1.53	1.53	1.45	1.38	1.31	1.26	1.24	1.24	1.46	2.10	2.10	2.10	2.10	2.05	1.82	1.64
20	FirstEnergy Corp.	1.80	1.56	1.56	1.53	1.82	1.44	1.44	1.44	1.44	1.65	2.20	2.20	2.20	2.20	2.20	2.05	1.85
21	Fortis Inc.	1.37	2.08	1.97	1.86	1.75	1.65	1.55	1.43	1.30	1.25	1.21	1.17	1.12	1.04	1.00	0.82	0.67
22	Great Plains Energy	1.11	N/A	N/A	N/A	N/A	1.10	1.06	1.00	0.94	0.88	0.86	0.84	0.83	0.83	1.66	1.66	1.66
23	Hawaiian Elec.	1.26	1.36	1.32	1.28	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
24	IDACORP, Inc.	1.79	2.89	2.72	2.56	2.40	2.24	2.08	1.92	1.76	1.57	1.37	1.20	1.20	1.20	1.20	1.20	1.20
25	MGE Energy	1.14	1.52	1.45	1.38	1.32	1.26	1.21	1.16	1.11	1.07	1.04	1.01	0.99	0.97	0.96	0.94	0.93
26	NextEra Energy, Inc.	0.79	1.54	1.40	1.25	1.11	0.98	0.87	0.77	0.73	0.66	0.60	0.55	0.50	0.47	0.45	0.41	0.38
27	NorthWestern Corp	1.75	2.48	2.40	2.30	2.20	2.10	2.00	1.92	1.60	1.52	1.48	1.44	1.36	1.34	1.32	1.28	1.24
28	OGE Energy	1.03	1.64	1.58	1.51	1.40	1.27	1.16	1.05	0.95	0.85	0.80	0.76	0.73	0.71	0.70	0.68	0.67
29	Otter Tail Corp.	1.26	1.56	1.48	1.40	1.34	1.28	1.25	1.23	1.21	1.19	1.19	1.19	1.19	1.19	1.19	1.17	1.15
30	PG&E Corp.	1.70	N/A	N/A	N/A	N/A	N/A	1.55	1.93	1.82	1.82	1.82	1.82	1.82	1.68	1.56	1.44	1.32
31	Pinnacle West Capital	2.50	3.42	3.23	3.04	2.87	2.70	2.56	2.44	2.33	2.23	2.67	2.10	2.10	2.10	2.10	2.10	2.03
32	PNM Resources	0.84	1.33	1.25	1.18	1.09	0.99	0.88	0.80	0.76	0.68	0.58	0.50	0.50	0.50	0.61	0.91	0.86
33	Portland General	1.19	1.70	1.59	1.52	1.43	1.34	1.26	1.18	1.12	1.10	1.08	1.06	1.04	1.01	0.97	0.93	0.68
34	PPL Corp.	1.47	1.66	1.66	1.65	1.64	1.58	1.52	1.50	1.49	1.47	1.44	1.40	1.40	1.38	1.34	1.22	1.10
35	Public Serv. Enterprise	1.54	2.04	1.96	1.88	1.80	1.72	1.64	1.56	1.48	1.44	1.42	1.37	1.37	1.33	1.29	1.17	1.14
36	SCANA Corp.	2.00	N/A	N/A	N/A	N/A	2.45	2.30	2.18	2.10	2.03	1.98	1.94	1.90	1.88	1.84	1.76	1.68
37	Sempra Energy	2.60	4.40	4.18	3.87	3.58	3.29	3.02	2.80	2.64	2.52	2.40	1.92	1.56	1.56	1.37	1.24	1.20
38	Southern Co.	2.06	2.62	2.54	2.46	2.38	2.30	2.22	2.15	2.08	2.01	1.94	1.87	1.80	1.73	1.66	1.60	1.54
39	Vectren Corp.	1.42	N/A	N/A	N/A	N/A	1.71	1.62	1.54	1.46	1.43	1.41	1.39	1.37	1.35	1.31	1.27	1.23
40	WEC Energy Group	1.49	2.71	2.53	2.36	2.21	2.08	1.98	1.74	1.56	1.45	1.20	1.04	0.80	0.68	0.54	0.50	0.46
41	Westar Energy	1.30	N/A	N/A	N/A	N/A	1.60	1.52	1.44	1.40	1.36	1.32	1.28	1.24	1.20	1.16	1.08	0.98
42	Xcel Energy Inc.	1.24	1.83	1.72	1.62	1.52	1.44	1.36	1.28	1.20	1.11	1.07	1.03	1.00	0.97	0.94	0.91	0.88
43	**Average**	**1.69**	**2.29**	**2.23**	**2.14**	**2.03**	**1.90**	**1.79**	**1.70**	**1.62**	**1.56**	**1.55**	**1.47**	**1.43**	**1.39**	**1.39**	**1.32**	**1.24**
44	**Industry Average Growth**	**4.17%**	**2.68%**	**4.36%**	**5.29%**	**6.91%**	**5.79%**	**5.44%**	**5.20%**	**3.38%**	**0.98%**	**5.59%**	**2.36%**	**3.30%**	**-0.25%**	**4.98%**	**6.51%**	

Sources:
[1] The Value Line Investment Survey Investment Analyzer Software, downloaded on June 18, 2021.
[2] The Value Line Investment Survey, May 14, June 11, and July 23, 2021.

Notes:
PG&E is excluded from 2017, 2018 and 2019 average calculations due to their Dividend Suspension.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

Earnings per Share[1]

Line	Company	16-Year Average (1)	20212 (2)	2020 (3)	2019 (4)	2018 (5)	2017 (6)	2016 (7)	2015 (8)	2014 (9)	2013 (10)	2012 (11)	2011 (12)	2010 (13)	2009 (14)	2008 (15)	2007 (16)	2006 (17)
1	ALLETE	2.90	3.15	3.35	3.33	3.38	3.13	3.14	3.38	2.90	2.63	2.58	2.65	2.19	1.89	2.82	3.08	2.77
2	Alliant Energy	1.70	2.60	2.47	2.33	2.19	1.99	1.65	1.69	1.74	1.65	1.53	1.38	1.38	0.95	1.27	1.35	1.03
3	Ameren Corp.	2.83	3.80	3.50	3.35	3.32	2.77	2.68	2.38	2.40	2.10	2.41	2.47	2.77	2.78	2.88	2.98	2.66
4	American Electric Power	3.47	4.70	4.42	4.08	3.90	3.62	4.23	3.59	3.34	3.18	2.98	3.13	2.60	2.97	2.99	2.86	2.86
5	Avangrid, Inc.	1.85	2.35	1.88	2.26	1.92	1.67	1.98	0.86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Avista Corp.	1.79	2.15	1.90	2.97	2.07	1.95	2.15	1.89	1.84	1.85	1.32	1.72	1.65	1.58	1.36	0.72	1.47
7	Black Hills	2.56	3.90	3.73	3.53	3.47	3.38	2.63	2.83	2.89	2.61	1.97	1.01	1.66	2.32	0.18	2.68	2.21
8	CenterPoint Energy	1.24	1.45	1.29	1.49	0.74	1.57	1.00	1.08	1.42	1.24	1.35	1.27	1.07	1.01	1.30	1.17	1.33
9	CMS Energy Corp.	1.71	2.85	2.64	2.39	2.32	2.17	1.98	1.89	1.74	1.66	1.53	1.45	1.33	0.93	1.23	0.64	0.64
10	Consol. Edison	3.78	4.40	3.94	4.08	4.55	4.10	3.94	3.94	3.62	3.93	3.86	3.57	3.47	3.14	3.36	3.48	2.95
11	Dominion Resources	2.88	3.95	1.82	2.19	3.25	3.53	3.44	3.20	3.05	3.09	2.75	2.76	2.89	2.64	3.04	2.13	2.40
12	DTE Energy	4.55	7.05	7.08	6.31	6.17	5.73	4.83	4.44	5.10	3.76	3.88	3.67	3.24	2.73	2.66	2.45	
13	Duke Energy	3.94	5.15	3.92	5.07	4.13	4.22	3.71	4.10	4.13	3.98	3.71	4.14	4.02	3.39	3.03	3.60	2.73
14	Edison Int'l	3.38	4.20	1.72	3.98	-1.26	4.51	3.94	4.15	4.33	3.78	4.55	3.23	3.35	3.24	3.68	3.32	3.28
15	El Paso Electric	2.02	N/A	N/A	N/A	2.07	2.42	2.39	2.03	2.27	2.20	2.26	2.48	2.07	1.50	1.73	1.63	1.27
16	Entergy Corp.	6.08	5.95	6.90	6.30	5.88	5.19	6.88	5.81	5.77	4.96	6.02	7.55	6.66	6.30	6.20	5.60	5.36
17	Eversource Energy	2.52	3.85	3.55	3.45	3.25	3.11	2.96	2.76	2.58	2.49	1.89	2.22	2.10	1.91	1.86	1.59	0.82
18	Evergy, Inc.	3.60	3.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Exelon Corp.	2.95	2.45	2.60	3.01	2.07	2.78	1.80	2.54	2.10	2.31	1.92	3.75	3.87	4.29	4.10	4.03	3.50
20	FirstEnergy Corp.	2.57	2.50	1.85	1.84	1.33	2.73	2.10	2.00	0.85	2.97	2.13	1.88	3.25	3.32	4.38	4.22	3.82
21	Fortis Inc.	1.93	2.75	2.60	2.68	2.52	2.66	1.89	2.11	1.38	1.63	1.65	1.74	1.62	1.51	1.52	1.29	1.36
22	Great Plains Energy	1.33	N/A	N/A	N/A	N/A	-0.06	1.61	1.37	1.57	1.62	1.35	1.25	1.53	1.03	1.16	1.85	1.62
23	Hawaiian Elec.	1.57	2.00	1.81	1.99	1.85	1.64	2.29	1.50	1.64	1.62	1.67	1.44	1.21	0.91	1.07	1.11	1.33
24	IDACORP, Inc.	3.55	4.80	4.69	4.61	4.49	4.21	3.94	3.87	3.85	3.64	3.37	3.36	2.95	2.64	2.18	1.86	2.35
25	MGE Energy	2.03	2.75	2.60	2.51	2.43	2.20	2.18	2.06	2.32	2.16	1.86	1.76	1.67	1.47	1.59	1.51	1.37
26	NextEra Energy, Inc.	1.42	2.65	2.10	1.94	1.67	1.63	1.45	1.52	1.40	1.21	1.14	1.21	1.19	0.99	1.02	0.82	0.81
27	NorthWestern Corp	2.63	3.60	3.06	3.53	3.40	3.34	3.39	2.90	2.99	2.46	2.26	2.53	2.14	2.02	1.77	1.44	1.31
28	OGE Energy	1.75	2.20	2.08	2.24	2.12	1.92	1.69	1.69	1.98	1.94	1.79	1.73	1.50	1.33	1.25	1.32	1.23
29	Otter Tail Corp.	1.52	2.60	2.34	2.17	2.06	1.86	1.60	1.56	1.55	1.37	1.05	0.45	0.38	0.71	1.09	1.78	1.69
30	PG&E Corp.	1.49	N/A	N/A	N/A	-13.25	3.50	2.83	2.00	3.06	1.83	2.07	2.78	2.82	3.03	3.22	2.78	2.76
31	Pinnacle West Capital	3.68	5.10	4.87	4.77	4.54	4.43	3.95	3.92	3.58	3.66	3.50	2.99	3.08	2.26	2.12	2.96	3.17
32	PNM Resources	1.43	2.25	2.15	2.28	1.66	1.92	1.65	1.64	1.45	1.41	1.31	1.08	0.87	0.58	0.11	0.76	1.72
33	Portland General	1.95	2.65	1.72	2.39	2.37	2.29	2.16	2.04	2.18	1.77	1.87	1.95	1.66	1.31	1.39	2.33	1.14
34	PPL Corp.	2.35	2.45	2.04	2.37	2.58	2.11	2.79	2.37	2.38	2.38	2.61	2.61	2.29	1.19	2.45	2.63	2.29
35	Public Serv. Enterprise	2.95	3.45	3.61	3.90	2.76	2.82	2.83	3.30	2.99	2.45	2.44	3.11	3.07	3.08	2.90	2.59	1.85
36	SCANA Corp.	3.30	N/A	N/A	N/A	N/A	4.20	4.16	3.81	3.79	3.39	3.15	2.97	2.98	2.85	2.95	2.74	2.59
37	Sempra Energy	4.98	8.15	6.58	5.97	5.48	4.63	4.24	5.23	4.63	4.22	4.35	4.47	4.02	4.78	4.43	4.26	4.23
38	Southern Co.	2.73	3.40	3.25	3.17	3.00	3.21	2.83	2.84	2.77	2.70	2.67	2.55	2.36	2.32	2.25	2.28	2.10
39	Vectren Corp.	1.94	N/A	N/A	N/A	N/A	2.60	2.55	2.39	2.02	1.94	1.73	1.64	1.79	1.63	1.83	1.44	
40	WEC Energy Group	2.54	4.05	3.79	3.58	3.34	3.14	2.96	2.34	2.59	2.51	2.35	2.18	1.92	1.60	1.52	1.42	1.32
41	Westar Energy	1.96	N/A	N/A	N/A	N/A	2.27	2.43	2.09	2.35	2.27	2.15	1.79	1.80	1.28	1.31	1.84	1.88
42	Xcel Energy Inc.	2.01	2.95	2.79	2.64	2.47	2.30	2.21	2.10	2.03	1.91	1.85	1.72	1.56	1.49	1.46	1.35	1.35
43	**Average**	**2.65**	**3.55**	**3.16**	**3.28**	**2.87**	**2.90**	**2.81**	**2.67**	**2.66**	**2.50**	**2.43**	**2.44**	**2.36**	**2.19**	**2.21**	**2.26**	**2.11**
44	**Industry Average Growth**	**3.65%**	**12.35%**	**-3.54%**	**14.00%**	**-0.78%**	**3.24%**	**5.25%**	**0.08%**	**6.36%**	**3.26%**	**-0.70%**	**3.61%**	**7.71%**	**-1.07%**	**-2.17%**	**7.14%**	

Sources:

[1] The Value Line Investment Survey Investment Analyzer Software, downloaded on June 18, 2021.

[2] The Value Line Investment Survey, May 14, June 11, and July 23, 2021.

Notes:

PG&E is excluded from 2017, 2018, and 2019 average calculations due to their Dividend Suspension.

Dayton Light and Power Companies

Electric Utilities
(Valuation Metrics)

Line	Company	Cash Flow / Capital Spending				
		2019 (1)	2020 (2)	2021 (3)	2022 (4)	3 - 5 yr Projection (5)
1	ALLETE	0.63x	0.55x	0.80x	2.24x	2.22x
2	Alliant Energy	0.73x	0.95x	0.97x	0.99x	1.06x
3	Ameren Corp.	0.79x	0.62x	0.60x	0.78x	0.84x
4	American Electric Power	0.75x	0.81x	0.70x	0.70x	0.91x
5	Avangrid, Inc.	0.70x	0.56x	0.62x	0.58x	0.23x
6	Avista Corp.	0.89x	0.88x	0.88x	0.94x	1.13x
7	Black Hills	0.51x	0.61x	0.76x	0.86x	1.03x
8	CenterPoint Energy	0.83x	0.73x	0.63x	0.75x	0.89x
9	CMS Energy Corp.	0.79x	0.78x	0.77x	0.69x	1.00x
10	Consol. Edison	0.79x	0.83x	0.89x	0.95x	1.09x
11	Dominion Resources	0.81x	0.73x	0.89x	0.89x	0.77x
12	DTE Energy	0.83x	0.74x	0.70x	1.02x	1.43x
13	Duke Energy	0.78x	0.85x	0.93x	0.92x	1.00x
14	Edison Int'l	0.69x	0.55x	0.75x	0.81x	0.93x
15	El Paso Electric	0.96x	0.83x	N/A	N/A	N/A
16	Entergy Corp.	0.79x	0.74x	1.03x	1.07x	1.12x
17	Eversource Energy	0.78x	0.80x	0.74x	0.77x	1.06x
18	Evergy, Inc.	1.34x	1.03x	0.98x	1.01x	1.16x
19	Exelon Corp.	1.18x	1.09x	1.32x	1.32x	1.47x
20	FirstEnergy Corp.	0.74x	0.83x	0.91x	0.90x	1.09x
21	Fortis Inc.	0.68x	0.65x	0.75x	0.78x	0.91x
22	Hawaiian Elec.	1.12x	1.27x	1.46x	1.28x	1.28x
23	IDACORP, Inc.	1.25x	1.33x	1.16x	1.14x	1.00x
24	MGE Energy	0.97x	0.82x	0.87x	1.04x	1.28x
25	NextEra Energy, Inc.	0.67x	0.58x	0.69x	0.66x	0.67x
26	NorthWestern Corp	1.07x	0.84x	0.83x	0.85x	1.14x
27	OGE Energy	1.26x	1.24x	1.10x	1.17x	1.29x
28	Otter Tail Corp.	0.80x	0.48x	1.45x	0.89x	2.18x
29	Pinnacle West Capital	0.98x	0.91x	0.83x	0.89x	1.21x
30	PNM Resources	0.72x	0.72x	0.71x	0.73x	1.03x
31	Portland General	0.99x	0.78x	0.91x	1.22x	1.44x
32	PPL Corp.	0.92x	0.90x	1.12x	1.40x	1.62x
33	Public Serv. Enterprise	1.07x	1.13x	1.05x	0.99x	1.11x
34	Sempra Energy	0.66x	0.77x	0.76x	0.92x	1.37x
35	Southern Co.	0.88x	0.99x	0.93x	1.13x	1.42x
36	WEC Energy Group	0.91x	0.97x	0.75x	0.82x	1.14x
37	Xcel Energy Inc.	0.69x	0.66x	0.86x	0.87x	1.06x
38	Average	0.86x	0.83x	0.89x	0.97x	1.15x
39	Median	0.80x	0.81x	0.86x	0.91x	1.10x

Source:
   The Value Line Investment Survey, May 14, June 11, and July 23, 2021.
Notes:
   Based on the projected Cash Flow per share and Capital Spending per share.

Dayton Power and Light Company

Proxy Group

Line	Company	Credit Ratings[1]		Common Equity Ratios	
		S&P (1)	**Moody's** (2)	**MI**[1] (3)	**Value Line**[2] (4)
1	ALLETE, Inc.	BBB	Baa1	49.7%	59.0%
2	Ameren Corporation	BBB+	Baa1	43.3%	44.3%
3	Avista Corporation	BBB	Baa2	46.0%	49.6%
4	Black Hills Corporation	BBB+	Baa2	39.8%	42.1%
5	CMS Energy Corporation	BBB+	Baa2	25.8%	28.6%
6	Dominion Energy, Inc.	BBB+	Baa2	37.1%	39.5%
7	DTE Energy Company	BBB+	Baa2	38.5%	39.5%
8	Edison International	BBB	Baa3	35.0%	39.5%
9	Entergy Corporation	BBB+	Baa2	30.8%	33.7%
10	Exelon Corporation	BBB+	Baa2	43.2%	47.9%
11	FirstEnergy Corp.	BB	Ba1	22.6%	24.6%
12	Hawaiian Electric Industries, Inc.	BBB-	N/A	48.9%	52.7%
13	IDACORP, Inc.	BBB	Baa1	56.1%	56.1%
14	NorthWestern Corporation	BBB	Baa2	46.1%	47.2%
15	OGE Energy Corp.	BBB+	Baa1	50.0%	51.0%
16	Otter Tail Corporation	BBB	Baa2	50.2%	58.2%
17	Public Service Enterprise Group Incorporated	BBB+	Baa1	47.7%	52.4%
18	Sempra Energy	BBB+	Baa2	40.6%	44.8%
19	**Average**	**BBB**	**Baa2**	**41.7%**	**45.0%**
20	**Median**			**43.2%**	**46.0%**
21	**Dayton Power and Light Company**	**BB+**	**Baa2**		**53.87%**[3]

Sources:
[1] S&P Global Market Intelligence, Downloaded on August 6, 2021.
[2] *The Value Line Investment Survey*, May 14, June 11, and July 23, 2021.
[3] Testimony of Adrien M. McKenzie, pg 81 of 84.

Dayton Power and Light Company

Consensus Analysts' Growth Rates

Line	Company	Zacks Estimated Growth %[1] (1)	Zacks Number of Estimates (2)	MI Estimated Growth %[2] (3)	MI Number of Estimates (4)	Yahoo! Finance Estimated Growth %[3] (5)	Yahoo! Finance Number of Estimates (6)	Average of Growth Rates (7)
1	ALLETE, Inc.	6.00%	N/A	5.67%	3	7.00%	N/A	6.22%
2	Ameren Corporation	7.34%	N/A	7.17%	4	7.70%	N/A	7.40%
3	Avista Corporation	5.44%	N/A	5.29%	3	6.90%	N/A	5.88%
4	Black Hills Corporation	5.11%	N/A	5.40%	3	4.67%	N/A	5.06%
5	CMS Energy Corporation	6.91%	N/A	6.78%	5	6.64%	N/A	6.78%
6	Dominion Energy, Inc.	6.72%	N/A	6.77%	5	6.78%	N/A	6.76%
7	DTE Energy Company	6.00%	N/A	6.33%	3	6.00%	N/A	6.11%
8	Edison International	3.40%	N/A	2.77%	3	3.40%	N/A	3.19%
9	Entergy Corporation	#N/A	N/A	5.80%	2	5.80%	N/A	5.80%
10	Exelon Corporation	3.24%	N/A	1.49%	3	- 0.47%	N/A	2.37%
11	FirstEnergy Corp.	4.17%	N/A	4.06%	3	- 1.84%	N/A	4.11%
12	Hawaiian Electric Industries, Inc.	7.35%	N/A	7.10%	1	1.30%	N/A	5.25%
13	IDACORP, Inc.	3.87%	N/A	2.75%	3	3.20%	N/A	3.27%
14	NorthWestern Corporation	4.86%	N/A	5.14%	4	4.46%	N/A	4.82%
15	OGE Energy Corp.	4.41%	N/A	3.11%	2	3.80%	N/A	3.77%
16	Otter Tail Corporation	4.70%	N/A	5.50%	2	9.00%	N/A	6.40%
17	Public Service Enterprise Group Incorporated	3.54%	N/A	4.82%	5	2.65%	N/A	3.67%
18	Sempra Energy	4.89%	N/A	3.66%	4	4.30%	N/A	4.28%
19	**Average**	**5.17%**	**N/A**	**4.98%**	**3**	**5.23%**	**N/A**	**5.06%**
20	**Median**							**5.15%**

Sources:

[1] Zacks, http://www.zacks.com/, downloaded on July 30, 2021.

[2] S&P Global Market Intelligence, https://platform.mi.spglobal.com, downloaded on July 30, 2021.

[3] Yahoo! Finance, http://www.finance.yahoo.com/, downloaded on July 30, 2021.

Note:

Yahoo! Finance next year number of estimates.

Dayton Power and Light Company

Constant Growth DCF Model
(Consensus Analysts' Growth Rates)

Line	Company	13-Week AVG Stock Price[1] (1)	Analysts' Growth[2] (2)	Annualized Dividend[3] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	ALLETE, Inc.	$69.59	6.22%	$2.52	3.85%	10.07%
2	Ameren Corporation	$83.71	7.40%	$2.20	2.82%	10.23%
3	Avista Corporation	$44.40	5.88%	$1.69	4.03%	9.91%
4	Black Hills Corporation	$67.30	5.06%	$2.26	3.53%	8.59%
5	CMS Energy Corporation	$61.65	6.78%	$1.74	3.01%	9.79%
6	Dominion Energy, Inc.	$76.48	6.76%	$2.52	3.52%	10.28%
7	DTE Energy Company	$129.76	6.11%	$4.34	3.55%	9.66%
8	Edison International	$57.14	3.19%	$2.65	4.79%	7.98%
9	Entergy Corporation	$104.67	5.80%	$3.80	3.84%	9.64%
10	Exelon Corporation	$45.23	2.37%	$1.53	3.46%	5.83%
11	FirstEnergy Corp.	$37.84	4.11%	$1.56	4.29%	8.41%
12	Hawaiian Electric Industries, Inc.	$43.24	5.25%	$1.36	3.31%	8.56%
13	IDACORP, Inc.	$100.56	3.27%	$2.84	2.92%	6.19%
14	NorthWestern Corporation	$63.18	4.82%	$2.48	4.11%	8.94%
15	OGE Energy Corp.	$33.97	3.77%	$1.61	4.92%	8.69%
16	Otter Tail Corporation	$48.63	6.40%	$1.56	3.41%	9.81%
17	Public Service Enterprise Group Incorporated	$61.34	3.67%	$2.04	3.45%	7.12%
18	Sempra Energy	$135.69	4.28%	$4.40	3.38%	7.67%
19	**Average**	**$70.24**	**5.06%**	**$2.39**	**3.68%**	**8.74%**
20	**Median**					**8.81%**

Sources:

[1] S&P Global Market Intelligence, Downloaded on August 2, 2021.

[2] Exhibit CCW-4.

[3] *The Value Line Investment Survey*, May 14, June 11, and July 23, 2021.

Dayton Power and Light Company

Payout Ratios

Line	Company	Dividends Per Share		Earnings Per Share		Payout Ratio	
		2020 (1)	Projected (2)	2020 (3)	Projected (4)	2020 (5)	Projected (6)
1	ALLETE, Inc.	$2.47	$2.90	$3.35	$4.50	73.73%	64.44%
2	Ameren Corporation	$2.00	$2.90	$3.50	$5.00	57.14%	58.00%
3	Avista Corporation	$1.62	$2.00	$1.90	$2.75	85.26%	72.73%
4	Black Hills Corporation	$2.17	$2.80	$3.73	$4.75	58.18%	58.95%
5	CMS Energy Corporation	$1.63	$2.30	$2.64	$3.75	61.74%	61.33%
6	Dominion Energy, Inc.	$3.45	$3.20	$1.82	$4.75	189.56%	67.37%
7	DTE Energy Company	$4.12	$5.55	$7.08	$9.25	58.19%	60.00%
8	Edison International	$2.58	$3.10	$1.72	$5.25	150.00%	59.05%
9	Entergy Corporation	$3.74	$4.80	$6.90	$7.50	54.20%	64.00%
10	Exelon Corporation	$1.53	$1.90	$2.60	$3.50	58.85%	54.29%
11	FirstEnergy Corp.	$1.56	$1.90	$1.85	$3.25	84.32%	58.46%
12	Hawaiian Electric Industries, Inc.	$1.32	$1.55	$1.81	$2.50	72.93%	62.00%
13	IDACORP, Inc.	$2.72	$3.70	$4.69	$5.75	58.00%	64.35%
14	NorthWestern Corporation	$2.40	$2.80	$3.06	$4.00	78.43%	70.00%
15	OGE Energy Corp.	$1.58	$1.95	$2.08	$2.75	75.96%	70.91%
16	Otter Tail Corporation	$1.48	$1.95	$2.34	$3.25	63.25%	60.00%
17	Public Service Enterprise Group Incorporated	$1.96	$2.40	$3.61	$4.25	54.29%	56.47%
18	Sempra Energy	$4.18	$5.50	$6.58	$10.75	63.53%	51.16%
19	**Average**	**$2.36**	**$2.96**	**$3.40**	**$4.86**	**77.64%**	**61.86%**

Source:
The Value Line Investment Survey, May 14, June 11, and July 23, 2021.

Dayton Power and Light Company

Sustainable Growth Rate

Line	Company	Dividends Per Share (1)	Earnings Per Share (2)	Book Value Per Share (3)	Book Value Growth (4)	ROE (5)	Adjustment Factor (6)	Adjusted ROE (7)	Payout Ratio (8)	Retention Rate (9)	Internal Growth Rate (10)	Sustainable Growth Rate (11)
				3 to 5 Year Projections								
1	ALLETE, Inc.	$2.90	$4.50	$51.50	3.18%	8.74%	1.02	8.87%	64.44%	35.56%	3.16%	3.57%
2	Ameren Corporation	$2.90	$5.00	$47.75	6.23%	10.47%	1.03	10.79%	58.00%	42.00%	4.53%	7.31%
3	Avista Corporation	$2.00	$2.75	$33.50	2.71%	8.21%	1.01	8.32%	72.73%	27.27%	2.27%	3.10%
4	Black Hills Corporation	$2.80	$4.75	$51.75	4.87%	9.18%	1.02	9.40%	58.95%	41.05%	3.86%	5.00%
5	CMS Energy Corporation	$2.30	$3.75	$27.75	7.85%	13.51%	1.04	14.02%	61.33%	38.67%	5.42%	8.01%
6	Dominion Energy, Inc.	$3.20	$4.75	$39.75	6.19%	11.95%	1.03	12.31%	67.37%	32.63%	4.02%	6.10%
7	DTE Energy Company	$5.55	$9.25	$82.00	5.04%	11.28%	1.02	11.56%	60.00%	40.00%	4.62%	5.88%
8	Edison International	$3.10	$5.25	$46.75	4.74%	11.23%	1.02	11.49%	59.05%	40.95%	4.71%	4.88%
9	Entergy Corporation	$4.80	$7.50	$69.00	4.81%	10.87%	1.02	11.12%	64.00%	36.00%	4.00%	5.06%
10	Exelon Corporation	$1.90	$3.50	$40.25	3.81%	8.70%	1.02	8.86%	54.29%	45.71%	4.05%	4.15%
11	FirstEnergy Corp.	$1.90	$3.25	$21.75	10.29%	14.94%	1.05	15.67%	58.46%	41.54%	6.51%	9.58%
12	Hawaiian Electric Industries, Inc.	$1.55	$2.50	$25.75	3.76%	9.71%	1.02	9.89%	62.00%	38.00%	3.76%	4.46%
13	IDACORP, Inc.	$3.70	$5.75	$60.75	3.67%	9.47%	1.02	9.64%	64.35%	35.65%	3.44%	3.44%
14	NorthWestern Corporation	$2.80	$4.00	$47.75	3.04%	8.38%	1.01	8.50%	70.00%	30.00%	2.55%	3.36%
15	OGE Energy Corp.	$1.95	$2.75	$22.50	4.39%	12.22%	1.02	12.48%	70.91%	29.09%	3.63%	3.63%
16	Otter Tail Corporation	$1.95	$3.25	$26.50	4.76%	12.26%	1.02	12.55%	60.00%	40.00%	5.02%	5.35%
17	Public Service Enterprise Group Incorporated	$2.40	$4.25	$40.00	4.75%	10.63%	1.02	10.87%	56.47%	43.53%	4.73%	4.73%
18	Sempra Energy	$5.50	$10.75	$98.00	6.93%	10.97%	1.03	11.34%	51.16%	48.84%	5.54%	7.62%
19	**Average**	**$2.96**	**$4.86**	**$46.28**	**5.06%**	**10.71%**	**1.02**	**10.98%**	**61.86%**	**38.14%**	**4.21%**	**5.29%**
20	**Median**											**4.94%**

Sources and Notes:
Cols. (1), (2) and (3): *The Value Line Investment Survey*, May 14, June 11, and July 23, 2021.
Col. (4): [Col. (3) / Page 2 Col. (2)] ^ (1/number of years projected) - 1.
Col. (5): Col. (2) / Col. (3).
Col. (6): [2 * (1 + Col. (4))] / (2 + Col. (4)).
Col. (7): Col. (6) * Col. (5).
Col. (8): Col. (1) / Col. (2).
Col. (9): 1 - Col. (8).
Col. (10): Col. (9) * Col. (7).
Col. (11): Col. (10) + Page 2 Col. (9).

Dayton Power and Light Company

Sustainable Growth Rate

Line	Company	13-Week Average Stock Price[1] (1)	2020 Book Value Per Share[2] (2)	Market to Book Ratio (3)	Common Shares Outstanding (in Millions)[2] 2020 (4)	3-5 Years (5)	Growth (6)	S Factor[3] (7)	V Factor[4] (8)	S * V (9)
1	ALLETE, Inc.	$69.59	$44.04	1.58	52.10	54.00	0.72%	1.14%	36.72%	0.42%
2	Ameren Corporation	$83.71	$35.29	2.37	253.30	280.00	2.02%	4.80%	57.84%	2.78%
3	Avista Corporation	$44.40	$29.31	1.51	69.24	75.00	1.61%	2.44%	33.98%	0.83%
4	Black Hills Corporation	$67.30	$40.79	1.65	62.79	68.50	1.76%	2.90%	39.39%	1.14%
5	CMS Energy Corporation	$61.65	$19.02	3.24	288.94	306.00	1.15%	3.74%	69.15%	2.59%
6	Dominion Energy, Inc.	$76.48	$29.44	2.60	806.00	860.00	1.31%	3.39%	61.51%	2.09%
7	DTE Energy Company	$129.76	$64.12	2.02	193.77	206.00	1.23%	2.49%	50.59%	1.26%
8	Edison International	$57.14	$37.08	1.54	378.91	385.00	0.32%	0.49%	35.11%	0.17%
9	Entergy Corporation	$104.67	$54.56	1.92	200.24	212.00	1.15%	2.20%	47.87%	1.05%
10	Exelon Corporation	$45.23	$33.39	1.35	976.00	990.00	0.29%	0.39%	26.17%	0.10%
11	FirstEnergy Corp.	$37.84	$13.33	2.84	543.12	590.00	1.67%	4.74%	64.77%	3.07%
12	Hawaiian Electric Industries, Inc.	$43.24	$21.41	2.02	109.18	113.00	0.69%	1.39%	50.48%	0.70%
13	IDACORP, Inc.	$100.56	$50.73	1.98	50.46	50.45	- 0.00%	- 0.01%	49.55%	- 0.00%
14	NorthWestern Corporation	$63.18	$41.10	1.54	50.59	54.50	1.50%	2.31%	34.95%	0.81%
15	OGE Energy Corp.	$33.97	$18.15	1.87	200.10	200.10	0.00%	0.00%	46.56%	0.00%
16	Otter Tail Corporation	$48.63	$21.00	2.32	41.47	42.00	0.25%	0.59%	56.81%	0.33%
17	Public Service Enterprise Group Incorporated	$61.34	$31.71	1.93	504.00	504.00	0.00%	0.00%	48.31%	0.00%
18	Sempra Energy	$135.69	$70.11	1.94	288.47	322.00	2.22%	4.30%	48.33%	2.08%
19	**Average**	**$70.24**	**$36.37**	**2.01**	**281.59**	**295.14**	**1.05%**	**2.19%**	**47.67%**	**1.14%**

Sources and Notes:

[1] S&P Global Market Intelligence, Downloaded on August 2, 2021.

[2] *The Value Line Investment Survey*, May 14, June 11, and July 23, 2021.

[3] Expected Growth in the Number of Shares, Column (3) * Column (6).

[4] Expected Profit of Stock Investment, [1 - 1 / Column (3)].

Dayton Power and Light Company

Constant Growth DCF Model
(Sustainable Growth Rate)

Line	Company	13-Week AVG Stock Price[1] (1)	Sustainable Growth[2] (2)	Annualized Dividend[3] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	ALLETE, Inc.	$69.59	3.57%	$2.52	3.75%	7.32%
2	Ameren Corporation	$83.71	7.31%	$2.20	2.82%	10.13%
3	Avista Corporation	$44.40	3.10%	$1.69	3.92%	7.02%
4	Black Hills Corporation	$67.30	5.00%	$2.26	3.53%	8.53%
5	CMS Energy Corporation	$61.65	8.01%	$1.74	3.05%	11.06%
6	Dominion Energy, Inc.	$76.48	6.10%	$2.52	3.50%	9.60%
7	DTE Energy Company	$129.76	5.88%	$4.34	3.54%	9.43%
8	Edison International	$57.14	4.88%	$2.65	4.86%	9.74%
9	Entergy Corporation	$104.67	5.06%	$3.80	3.81%	8.87%
10	Exelon Corporation	$45.23	4.15%	$1.53	3.52%	7.67%
11	FirstEnergy Corp.	$37.84	9.58%	$1.56	4.52%	14.10%
12	Hawaiian Electric Industries, Inc.	$43.24	4.46%	$1.36	3.29%	7.75%
13	IDACORP, Inc.	$100.56	3.44%	$2.84	2.92%	6.36%
14	NorthWestern Corporation	$63.18	3.36%	$2.48	4.06%	7.41%
15	OGE Energy Corp.	$33.97	3.63%	$1.61	4.91%	8.54%
16	Otter Tail Corporation	$48.63	5.35%	$1.56	3.38%	8.73%
17	Public Service Enterprise Group Incorporated	$61.34	4.73%	$2.04	3.48%	8.22%
18	Sempra Energy	$135.69	7.62%	$4.40	3.49%	11.11%
19	**Average**	**$70.24**	**5.29%**	**$2.39**	**3.69%**	**8.98%**
20	**Median**					**8.64%**

Sources:

[1] S&P Global Market Intelligence, Downloaded on August 2, 2021.

[2] Exhibit CCW-7, page 1.

[3] *The Value Line Investment Survey*, May 14, June 11, and July 23, 2021.

Dayton Power and Light Company

Electricity Sales Are Linked to U.S. Economic Growth
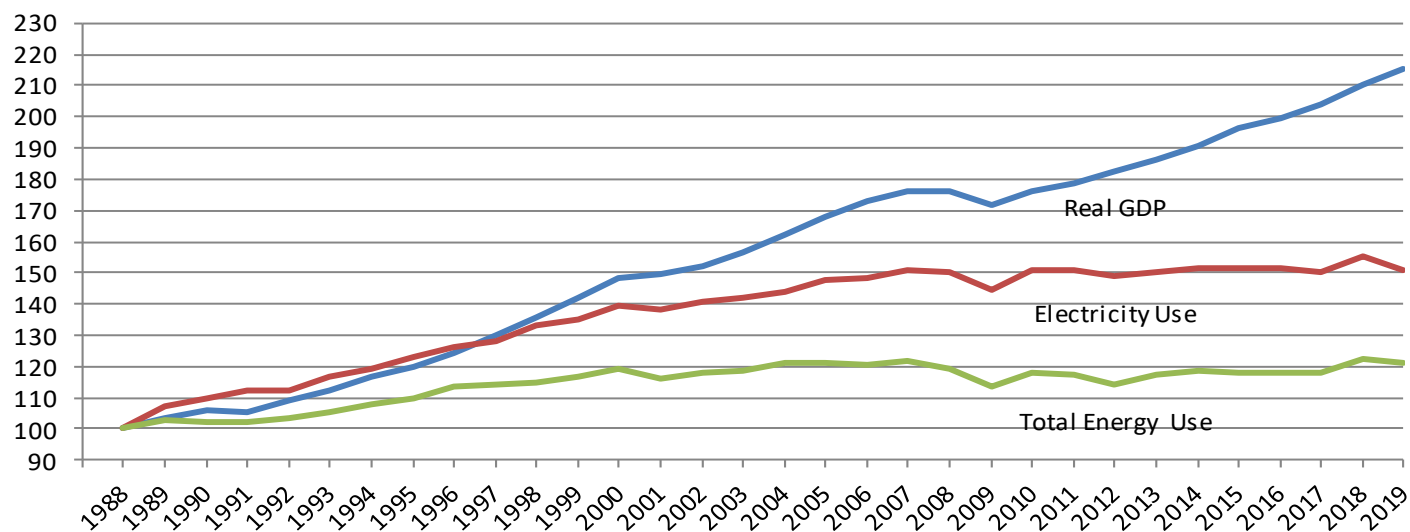
Note:
1988 represents the base year. Graph depicts increases or decreases from the base year.

Sources:
U.S. Energy Information Administration
Federal Reserve Bank of St. Louis

Dayton Power and Light Company

Multi-Stage Growth DCF Model

| Line | Company | 13-Week AVG Stock Price[1] (1) | Annualized Dividend[2] (2) | First Stage Growth[3] (3) | Second Stage Growth | | | | | Third Stage Growth[4] (9) | Multi-Stage Growth DCF (10) |
					Year 6 (4)	Year 7 (5)	Year 8 (6)	Year 9 (7)	Year 10 (8)		
1	ALLETE, Inc.	$69.59	$2.52	6.22%	5.91%	5.60%	5.28%	4.97%	4.66%	4.35%	8.60%
2	Ameren Corporation	$83.71	$2.20	7.40%	6.89%	6.39%	5.88%	5.37%	4.86%	4.35%	7.68%
3	Avista Corporation	$44.40	$1.69	5.88%	5.62%	5.37%	5.11%	4.86%	4.60%	4.35%	8.72%
4	Black Hills Corporation	$67.30	$2.26	5.06%	4.94%	4.82%	4.70%	4.58%	4.47%	4.35%	8.01%
5	CMS Energy Corporation	$61.65	$1.74	6.78%	6.37%	5.97%	5.56%	5.16%	4.75%	4.35%	7.78%
6	Dominion Energy, Inc.	$76.48	$2.52	6.76%	6.36%	5.95%	5.55%	5.15%	4.75%	4.35%	8.35%
7	DTE Energy Company	$129.76	$4.34	6.11%	5.82%	5.52%	5.23%	4.93%	4.64%	4.35%	8.25%
8	Edison International	$57.14	$2.65	3.19%	3.38%	3.58%	3.77%	3.96%	4.15%	4.35%	8.85%
9	Entergy Corporation	$104.67	$3.80	5.80%	5.56%	5.32%	5.07%	4.83%	4.59%	4.35%	8.50%
10	Exelon Corporation	$45.23	$1.53	2.37%	2.70%	3.03%	3.36%	3.69%	4.02%	4.35%	7.44%
11	FirstEnergy Corp.	$37.84	$1.56	4.11%	4.15%	4.19%	4.23%	4.27%	4.31%	4.35%	8.58%
12	Hawaiian Electric Industries, Inc.	$43.24	$1.36	5.25%	5.10%	4.95%	4.80%	4.65%	4.50%	4.35%	7.82%
13	IDACORP, Inc.	$100.56	$2.84	3.27%	3.45%	3.63%	3.81%	3.99%	4.17%	4.35%	7.08%
14	NorthWestern Corporation	$63.18	$2.48	4.82%	4.74%	4.66%	4.58%	4.50%	4.43%	4.35%	8.56%
15	OGE Energy Corp.	$33.97	$1.61	3.77%	3.87%	3.97%	4.06%	4.16%	4.25%	4.35%	9.12%
16	Otter Tail Corporation	$48.63	$1.56	6.40%	6.06%	5.72%	5.37%	5.03%	4.69%	4.35%	8.16%
17	Public Service Enterprise Group Incorporate	$61.34	$2.04	3.67%	3.78%	3.89%	4.01%	4.12%	4.23%	4.35%	7.66%
18	Sempra Energy	$135.69	$4.40	4.28%	4.29%	4.30%	4.31%	4.33%	4.34%	4.35%	7.71%
19	**Average**	**$70.24**	**$2.39**	**5.06%**	**4.94%**	**4.82%**	**4.71%**	**4.59%**	**4.47%**	**4.35%**	**8.16%**
20	**Median**										**8.20%**

Sources:
[1] S&P Global Market Intelligence, Downloaded on August 2, 2021.
[2] *The Value Line Investment Survey*, May 28, June 11, and July 23, 2021.
[3] Exhibit CCW-4.
[4] *Blue Chip Financial Forecasts*, June 1, 2021 at 14.

Dayton Power and Light Company

Common Stock Market/Book Ratio
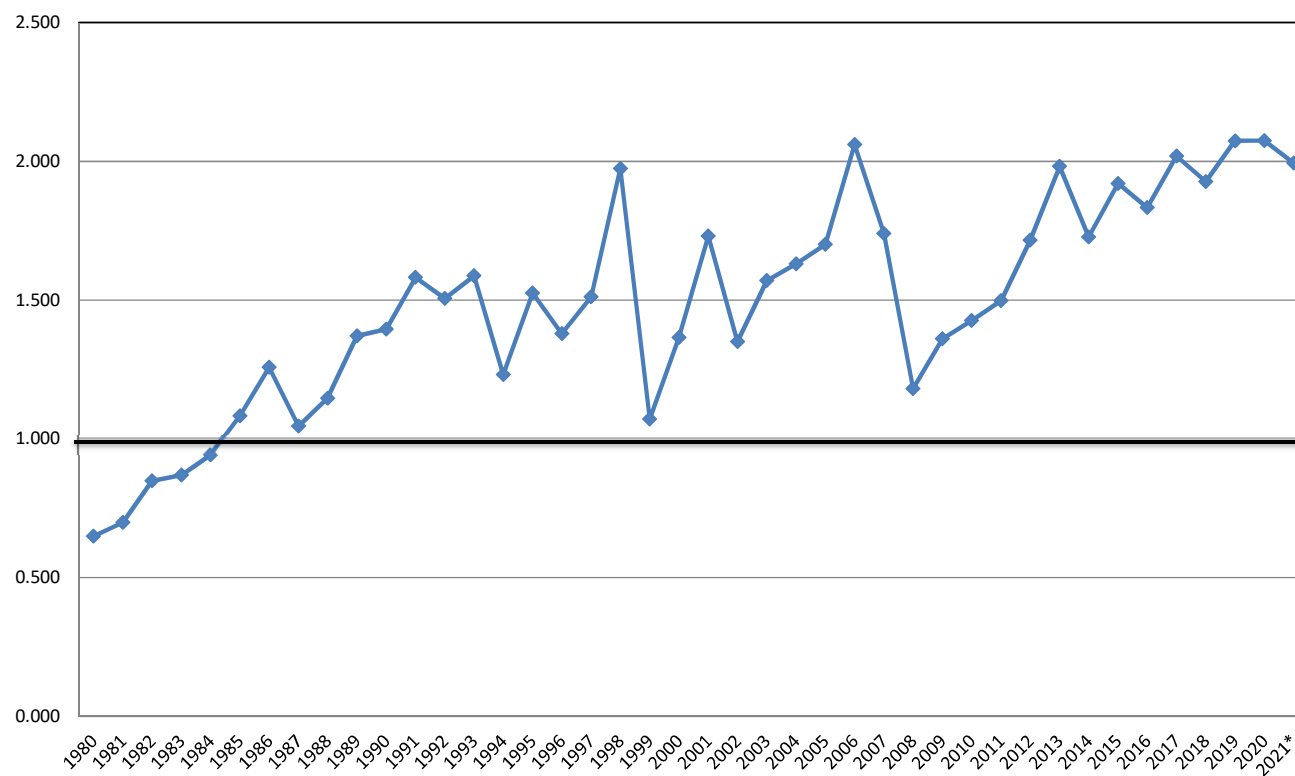
Source:

1980 - 2000: Mergent Public Utility Manual.

2001 - 2015: AUS Utility Reports, multiple dates.

2016 - 2020: Value Line Investment Survey, multiple dates.

* Value Line Investment Survey Reports, May 14, May 28, June 11 and July 23, 2021.

Dayton Power and Light Company

Equity Risk Premium - Treasury Bond

Line	Year	Authorized Electric Returns[1] (1)	30 yr. Treasury Bond Yield[2] (2)	Indicated Risk Premium (3)	Rolling 5 - Year Average (4)	Rolling 10 - Year Average (5)
1	1986	13.93%	7.80%	6.13%		
2	1987	12.99%	8.58%	4.41%		
3	1988	12.79%	8.96%	3.83%		
4	1989	12.97%	8.45%	4.52%		
5	1990	12.70%	8.61%	4.09%	4.60%	
6	1991	12.55%	8.14%	4.41%	4.25%	
7	1992	12.09%	7.67%	4.42%	4.26%	
8	1993	11.41%	6.60%	4.81%	4.45%	
9	1994	11.34%	7.37%	3.97%	4.34%	
10	1995	11.55%	6.88%	4.67%	4.46%	4.53%
11	1996	11.39%	6.70%	4.69%	4.51%	4.38%
12	1997	11.40%	6.61%	4.79%	4.59%	4.42%
13	1998	11.66%	5.58%	6.08%	4.84%	4.65%
14	1999	10.77%	5.87%	4.90%	5.03%	4.68%
15	2000	11.43%	5.94%	5.49%	5.19%	4.82%
16	2001	11.09%	5.49%	5.60%	5.37%	4.94%
17	2002	11.16%	5.43%	5.73%	5.56%	5.07%
18	2003	10.97%	4.96%	6.01%	5.55%	5.19%
19	2004	10.75%	5.05%	5.70%	5.71%	5.37%
20	2005	10.54%	4.65%	5.89%	5.79%	5.49%
21	2006	10.34%	4.87%	5.47%	5.76%	5.57%
22	2007	10.31%	4.83%	5.48%	5.71%	5.64%
23	2008	10.37%	4.28%	6.09%	5.73%	5.64%
24	2009	10.52%	4.07%	6.45%	5.88%	5.79%
25	2010	10.29%	4.25%	6.04%	5.90%	5.85%
26	2011	10.19%	3.91%	6.28%	6.07%	5.91%
27	2012	10.01%	2.92%	7.09%	6.39%	6.05%
28	2013	9.81%	3.45%	6.36%	6.44%	6.09%
29	2014	9.75%	3.34%	6.41%	6.44%	6.16%
30	2015	9.60%	2.84%	6.76%	6.58%	6.24%
31	2016	9.60%	2.60%	7.00%	6.72%	6.40%
32	2017	9.68%	2.90%	6.79%	6.66%	6.53%
33	2018	9.55%	3.11%	6.44%	6.68%	6.56%
34	2019	9.64%	2.58%	7.06%	6.81%	6.62%
35	2020	9.39%	1.56%	7.83%	7.02%	6.80%
36	2021 [3]	9.45%	2.13%	7.32%	7.09%	6.90%
37	**Average**	**10.94%**	**5.25%**	**5.69%**	**5.64%**	**5.64%**
38	**Minimum**				**4.25%**	**4.38%**
39	**Maximum**				**7.09%**	**6.90%**

Sources:

[1] *Regulatory Research Associates, Inc*., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 p. 5, and Jan. 2011 p. 3.
S&P Global Market Intelligence, RRA Regulatory Focus, Major Rate Case Decisions, January - June 2021,
July 27, 2021, p. 1.
2006 - 2021 Authorized Returns exclude limited issue rider cases.

[2] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/.
The yields from 2002 to 2005 represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.

[3] Data represents January - June, 2021.

Dayton Power and Light Company

Equity Risk Premium - Utility Bond

Line	Year	Authorized Electric Returns[1] (1)	Average "A" Rated Utility Bond Yield[2] (2)	Indicated Risk Premium (3)	Rolling 5 - Year Average (4)	Rolling 10 - Year Average (5)
1	1986	13.93%	9.58%	4.35%		
2	1987	12.99%	10.10%	2.89%		
3	1988	12.79%	10.49%	2.30%		
4	1989	12.97%	9.77%	3.20%		
5	1990	12.70%	9.86%	2.84%	3.12%	
6	1991	12.55%	9.36%	3.19%	2.88%	
7	1992	12.09%	8.69%	3.40%	2.99%	
8	1993	11.41%	7.59%	3.82%	3.29%	
9	1994	11.34%	8.31%	3.03%	3.26%	
10	1995	11.55%	7.89%	3.66%	3.42%	3.27%
11	1996	11.39%	7.75%	3.64%	3.51%	3.20%
12	1997	11.40%	7.60%	3.80%	3.59%	3.29%
13	1998	11.66%	7.04%	4.62%	3.75%	3.52%
14	1999	10.77%	7.62%	3.15%	3.77%	3.52%
15	2000	11.43%	8.24%	3.19%	3.68%	3.55%
16	2001	11.09%	7.76%	3.33%	3.62%	3.56%
17	2002	11.16%	7.37%	3.79%	3.61%	3.60%
18	2003	10.97%	6.58%	4.39%	3.57%	3.66%
19	2004	10.75%	6.16%	4.59%	3.86%	3.82%
20	2005	10.54%	5.65%	4.89%	4.20%	3.94%
21	2006	10.34%	6.07%	4.27%	4.39%	4.00%
22	2007	10.31%	6.07%	4.24%	4.48%	4.04%
23	2008	10.37%	6.53%	3.84%	4.37%	3.97%
24	2009	10.52%	6.04%	4.48%	4.34%	4.10%
25	2010	10.29%	5.47%	4.82%	4.33%	4.26%
26	2011	10.19%	5.04%	5.15%	4.51%	4.45%
27	2012	10.01%	4.13%	5.88%	4.83%	4.66%
28	2013	9.81%	4.48%	5.33%	5.13%	4.75%
29	2014	9.75%	4.28%	5.47%	5.33%	4.84%
30	2015	9.60%	4.12%	5.48%	5.46%	4.90%
31	2016	9.60%	3.93%	5.67%	5.57%	5.04%
32	2017	9.68%	4.00%	5.68%	5.53%	5.18%
33	2018	9.55%	4.25%	5.30%	5.52%	5.33%
34	2019	9.64%	3.77%	5.87%	5.60%	5.47%
35	2020	9.39%	3.05%	6.34%	5.77%	5.62%
36	2021 [3]	9.45%	3.17%	6.28%	5.89%	5.73%
37	Average	10.94%	6.61%	4.34%	4.29%	4.27%
38	Minimum				2.88%	3.20%
39	Maximum				5.89%	5.73%

Sources:

[1] *Regulatory Research Associates, Inc*., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 p. 5, and Jan. 2011 p. 3.
 S&P Global Market Intelligence, RRA Regulatory Focus, Major Rate Case Decisions, January - June 2021,
 July 27, 2021, p. 1.
 2006 - 2021 Authorized Returns exclude limited issue rider cases.
[2] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/.
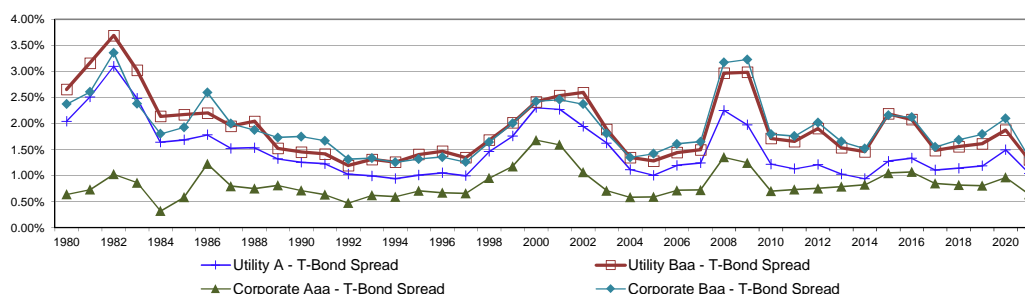 The yields from 2002 to 2005 represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.
[3] Data represents January - June, 2021.

Dayton Power and Light Company

Bond Yield Spreads

			Public Utility Bond				Corporate Bond				Utility to Corporate	
Line	Year	T-Bond Yield[1] (1)	A[2] (2)	Baa[2] (3)	A-T-Bond Spread (4)	Baa-T-Bond Spread (5)	Aaa[3] (6)	Baa[3] (7)	Aaa-T-Bond Spread (8)	Baa-T-Bond Spread (9)	Baa Spread (10)	A-Aaa Spread (11)
1	1980	11.30%	13.34%	13.95%	2.04%	2.65%	11.94%	13.67%	0.64%	2.37%	0.28%	1.40%
2	1981	13.44%	15.95%	16.60%	2.51%	3.16%	14.17%	16.04%	0.73%	2.60%	0.56%	1.78%
3	1982	12.76%	15.86%	16.45%	3.10%	3.69%	13.79%	16.11%	1.03%	3.35%	0.34%	2.07%
4	1983	11.18%	13.66%	14.20%	2.48%	3.02%	12.04%	13.55%	0.86%	2.38%	0.65%	1.62%
5	1984	12.39%	14.03%	14.53%	1.64%	2.14%	12.71%	14.19%	0.32%	1.80%	0.34%	1.32%
6	1985	10.79%	12.47%	12.96%	1.68%	2.17%	11.37%	12.72%	0.58%	1.93%	0.24%	1.10%
7	1986	7.80%	9.58%	10.00%	1.78%	2.20%	9.02%	10.39%	1.22%	2.59%	-0.39%	0.56%
8	1987	8.58%	10.10%	10.53%	1.52%	1.95%	9.38%	10.58%	0.80%	2.00%	-0.05%	0.72%
9	1988	8.96%	10.49%	11.00%	1.53%	2.04%	9.71%	10.83%	0.75%	1.87%	0.17%	0.78%
10	1989	8.45%	9.77%	9.97%	1.32%	1.52%	9.26%	10.18%	0.81%	1.73%	-0.21%	0.51%
11	1990	8.61%	9.86%	10.06%	1.25%	1.45%	9.32%	10.36%	0.71%	1.75%	-0.30%	0.54%
12	1991	8.14%	9.36%	9.55%	1.22%	1.41%	8.77%	9.80%	0.63%	1.67%	-0.25%	0.59%
13	1992	7.67%	8.69%	8.86%	1.02%	1.19%	8.14%	8.98%	0.47%	1.31%	-0.12%	0.55%
14	1993	6.60%	7.59%	7.91%	0.99%	1.31%	7.22%	7.93%	0.62%	1.33%	-0.02%	0.37%
15	1994	7.37%	8.31%	8.63%	0.94%	1.26%	7.96%	8.62%	0.59%	1.25%	0.01%	0.35%
16	1995	6.88%	7.89%	8.29%	1.01%	1.41%	7.59%	8.20%	0.71%	1.32%	0.09%	0.30%
17	1996	6.70%	7.75%	8.17%	1.05%	1.47%	7.37%	8.05%	0.67%	1.35%	0.12%	0.38%
18	1997	6.61%	7.60%	7.95%	0.99%	1.34%	7.26%	7.86%	0.66%	1.26%	0.09%	0.34%
19	1998	5.58%	7.04%	7.26%	1.46%	1.68%	6.53%	7.22%	0.95%	1.64%	0.04%	0.51%
20	1999	5.87%	7.62%	7.88%	1.75%	2.01%	7.04%	7.87%	1.18%	2.01%	0.01%	0.58%
21	2000	5.94%	8.24%	8.36%	2.30%	2.42%	7.62%	8.36%	1.68%	2.42%	-0.01%	0.62%
22	2001	5.49%	7.76%	8.03%	2.27%	2.54%	7.08%	7.95%	1.59%	2.45%	0.08%	0.68%
23	2002	5.43%	7.37%	8.02%	1.94%	2.59%	6.49%	7.80%	1.06%	2.37%	0.22%	0.88%
24	2003	4.96%	6.58%	6.84%	1.62%	1.89%	5.67%	6.77%	0.71%	1.81%	0.08%	0.91%
25	2004	5.05%	6.16%	6.40%	1.11%	1.35%	5.63%	6.39%	0.58%	1.35%	0.00%	0.53%
26	2005	4.65%	5.65%	5.93%	1.00%	1.28%	5.24%	6.06%	0.59%	1.42%	-0.14%	0.41%
27	2006	4.87%	6.07%	6.32%	1.20%	1.44%	5.59%	6.48%	0.71%	1.61%	-0.16%	0.48%
28	2007	4.83%	6.07%	6.33%	1.24%	1.50%	5.56%	6.48%	0.72%	1.65%	-0.15%	0.52%
29	2008	4.28%	6.53%	7.25%	2.25%	2.97%	5.63%	7.45%	1.35%	3.17%	-0.20%	0.90%
30	2009	4.07%	6.04%	7.06%	1.97%	2.99%	5.31%	7.30%	1.24%	3.23%	-0.24%	0.73%
31	2010	4.25%	5.47%	5.96%	1.22%	1.71%	4.95%	6.04%	0.70%	1.79%	-0.08%	0.52%
32	2011	3.91%	5.04%	5.57%	1.13%	1.66%	4.64%	5.67%	0.73%	1.76%	-0.10%	0.40%
33	2012	2.92%	4.13%	4.83%	1.21%	1.90%	3.67%	4.94%	0.75%	2.02%	-0.11%	0.46%
34	2013	3.45%	4.48%	4.98%	1.03%	1.53%	4.24%	5.10%	0.79%	1.65%	-0.12%	0.24%
35	2014	3.34%	4.28%	4.80%	0.94%	1.46%	4.16%	4.86%	0.82%	1.52%	-0.06%	0.12%
36	2015	2.84%	4.12%	5.03%	1.27%	2.19%	3.89%	5.00%	1.05%	2.16%	0.03%	0.23%
37	2016	2.60%	3.93%	4.67%	1.33%	2.08%	3.66%	4.71%	1.07%	2.12%	-0.04%	0.27%
38	2017	2.90%	4.00%	4.38%	1.10%	1.48%	3.74%	4.44%	0.85%	1.55%	-0.06%	0.26%
39	2018	3.11%	4.25%	4.67%	1.14%	1.56%	3.93%	4.80%	0.82%	1.69%	-0.13%	0.32%
40	2019	2.58%	3.77%	4.19%	1.18%	1.61%	3.39%	4.38%	0.81%	1.79%	-0.18%	0.38%
41	2020	1.56%	3.05%	3.44%	1.49%	1.87%	2.53%	3.66%	0.96%	2.10%	-0.22%	0.53%
42	2021 [4]	2.13%	3.17%	3.43%	1.04%	1.30%	2.77%	3.47%	0.64%	1.34%	-0.04%	0.40%
43	Average	6.21%	7.69%	8.12%	1.48%	1.91%	7.05%	8.13%	0.84%	1.92%	0.00%	0.65%

Yield Spreads
Treasury Vs. Corporate & Treasury Vs. Utility

Legend: Utility A - T-Bond Spread; Utility Baa - T-Bond Spread; Corporate Aaa - T-Bond Spread; Corporate Baa - T-Bond Spread

Sources:
[1] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/.
[2] The utility yields for the period 1980-2000 were obtained from Mergent Public Utility Manual, Mergent Weekly News Reports, 2003.
The utility yields for the period 2001-2009 were obtained from the Mergent Bond Record.
The utility yields for the period 2010-2021 were obtained from http://credittrends.moodys.com/.
[3] The corporate yields for the period 1980-2009 were obtained from the St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/.
The corporate yields from 2010-2021 were obtained from http://credittrends.moodys.com/.
[4] Data represents January - July, 2021.

Dayton Power and Light Company

<u>Treasury and Utility Bond Yields</u>

<u>Line</u>	<u>Date</u>	Treasury <u>Bond Yield</u>[1] (1)	"A" Rated Utility <u>Bond Yield</u>[2] (2)	"Baa" Rated Utility <u>Bond Yield</u>[2] (3)
1	07/30/21	1.89%	2.90%	3.15%
2	07/23/21	1.92%	2.95%	3.19%
3	07/16/21	1.93%	2.94%	3.20%
4	07/09/21	1.99%	3.00%	3.24%
5	07/02/21	2.05%	3.04%	3.27%
6	06/25/21	2.16%	3.16%	3.41%
7	06/18/21	2.01%	3.02%	3.26%
8	06/11/21	2.15%	3.16%	3.41%
9	06/04/21	2.24%	3.24%	3.50%
10	05/28/21	2.26%	3.28%	3.53%
11	05/21/21	2.33%	3.35%	3.60%
12	05/14/21	2.35%	3.38%	3.63%
13	05/07/21	2.28%	3.29%	3.53%
14	**Average**	**2.12%**	**3.13%**	**3.38%**
15	**Spread To Treasury**		**1.01%**	**1.26%**

Sources:

[1] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org.

[2] http://credittrends.moodys.com/.

Dayton Power and Light Company

Treasury and Utility Bond Yields

Line	Date	Treasury Bond Yield[1] (1)	"A" Rated Utility Bond Yield[2] (2)	"Baa" Rated Utility Bond Yield[2] (3)
1	07/30/21	1.89%	2.90%	3.15%
2	07/23/21	1.92%	2.95%	3.19%
3	07/16/21	1.93%	2.94%	3.20%
4	07/09/21	1.99%	3.00%	3.24%
5	07/02/21	2.05%	3.04%	3.27%
6	06/25/21	2.16%	3.16%	3.41%
7	06/18/21	2.01%	3.02%	3.26%
8	06/11/21	2.15%	3.16%	3.41%
9	06/04/21	2.24%	3.24%	3.50%
10	05/28/21	2.26%	3.28%	3.53%
11	05/21/21	2.33%	3.35%	3.60%
12	05/14/21	2.35%	3.38%	3.63%
13	05/07/21	2.28%	3.29%	3.53%
14	04/30/21	2.30%	3.31%	3.56%
15	04/23/21	2.25%	3.25%	3.53%
16	04/16/21	2.26%	3.26%	3.52%
17	04/09/21	2.34%	3.33%	3.60%
18	04/01/21	2.34%	3.38%	3.65%
19	03/26/21	2.37%	3.47%	3.73%
20	03/19/21	2.45%	3.56%	3.82%
21	03/12/21	2.40%	3.51%	3.81%
22	03/05/21	2.28%	3.36%	3.64%
23	02/26/21	2.17%	3.23%	3.52%
24	02/19/21	2.14%	3.16%	3.44%
25	02/12/21	2.01%	3.06%	3.35%
26	02/05/21	1.97%	3.03%	3.33%
27	**Average**	**2.19%**	**3.22%**	**3.48%**
28	**Spread To Treasury**		**1.03%**	**1.29%**

Sources:

[1] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org.

[2] http://credittrends.moodys.com/.

Dayton Power and Light Company

Trends in Bond Yields
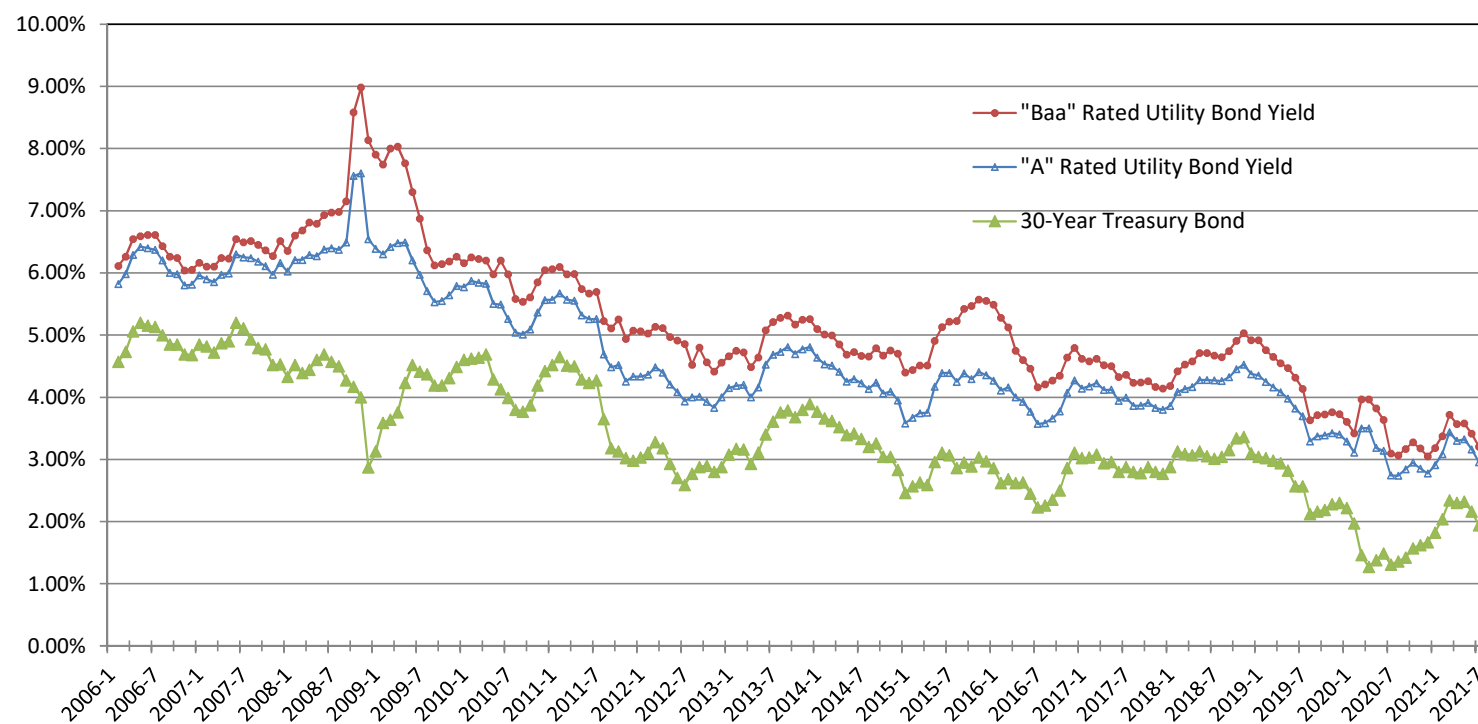
Legend:
- "Baa" Rated Utility Bond Yield
- "A" Rated Utility Bond Yield
- 30-Year Treasury Bond

Sources:
Mergent Bond Record.
www.moodys.com, Bond Yields and Key Indicators.
St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/

Dayton Power and Light Company

Yield Spread Between Utility Bonds and 30-Year Treasury Bonds

A Spread — Baa Spread

Sources:
Mergent Bond Record.
www.moodys.com, Bond Yields and Key Indicators.
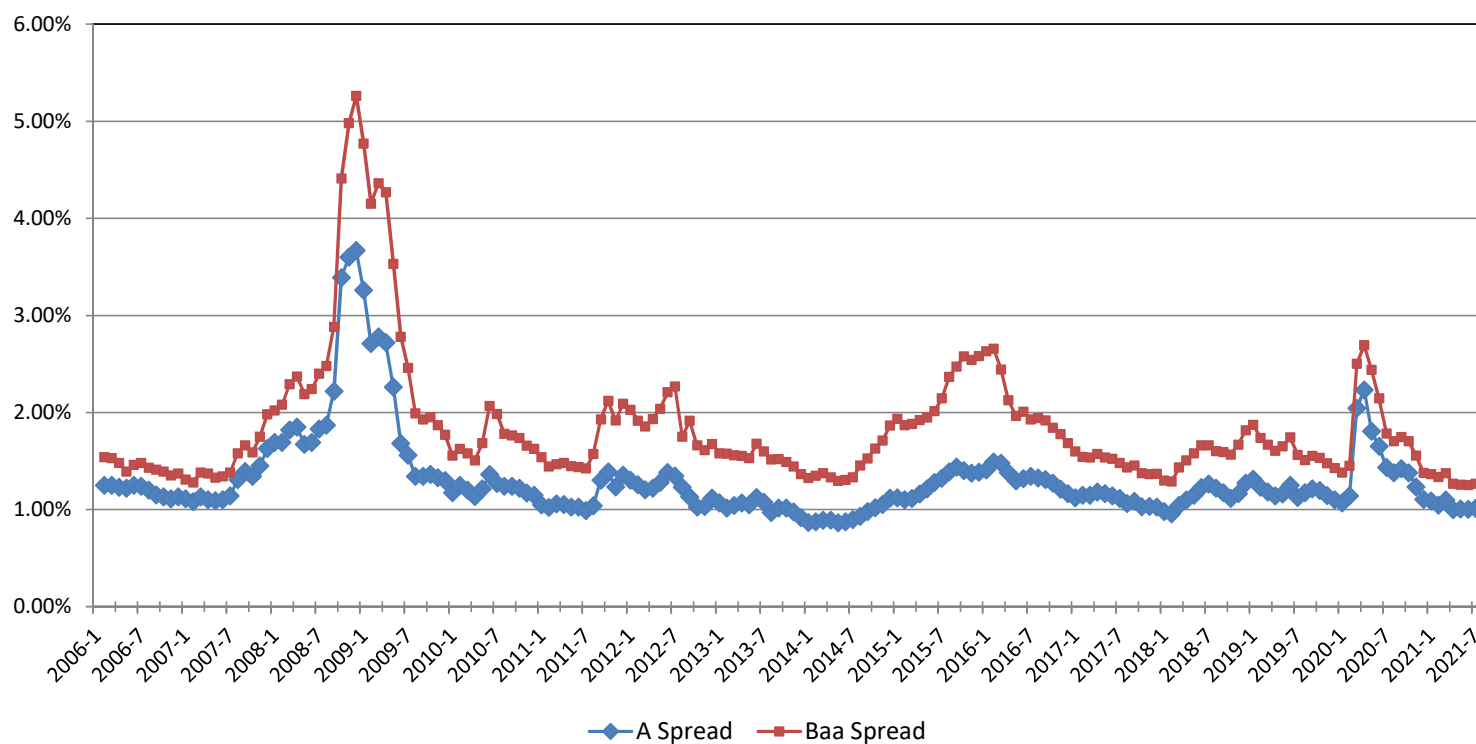St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/

Dayton Power and Light Company

Beta

Line	Company	Beta[1]	S&P Global Market Intelligence Beta[2]
1	ALLETE, Inc.	0.90	0.73
2	Ameren Corporation	0.80	0.63
3	Avista Corporation	0.95	0.69
4	Black Hills Corporation	1.00	0.76
5	CMS Energy Corporation	0.80	0.66
6	Dominion Energy, Inc.	0.85	0.58
7	DTE Energy Company	0.95	0.70
8	Edison International	0.95	0.72
9	Entergy Corporation	0.95	0.74
10	Exelon Corporation	0.95	0.75
11	FirstEnergy Corp.	0.85	0.69
12	Hawaiian Electric Industries, Inc.	0.80	0.59
13	IDACORP, Inc.	0.85	0.70
14	NorthWestern Corporation	0.95	0.79
15	OGE Energy Corp.	1.05	0.80
16	Otter Tail Corporation	0.90	0.76
17	Public Service Enterprise Group Incorporated	0.90	0.74
18	Sempra Energy	0.95	0.70
19	**Average**	**0.91**	**0.71**
20	**Median**	**0.93**	**0.71**
21	**Historical Beta[3]**	**0.73**	

Source:

[1] *The Value Line Investment Survey,* May 14, June 11, and July 23, 2021.

[2] S&P Global Market Intelligence, betas for the period 7/30/2016 - 7/30/2021.

[3] Exhibit CCW-16, page 2.

Dayton Power and Light Company

Historical Betas
(Electric Utilities)

Line	Company	Average	1Q21	4Q20	3Q20	2Q20	1Q20	4Q19	3Q19	2Q19	1Q19	4Q18	3Q18	2Q18	1Q18	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16	2Q16	1Q16	4Q15	3Q15	2Q15	1Q15	4Q14	3Q14
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1	ALLETE, Inc.	0.76	0.90	0.85	0.85	0.85	0.60	0.65	0.65	0.65	0.65	0.65	0.70	0.75	0.75	0.80	0.75	0.80	0.80	0.75	0.75	0.75	0.80	0.80	0.80	0.80	0.80	0.80	0.80
2	Ameren Corporation	0.69	0.80	0.85	0.80	0.80	0.50	0.55	0.55	0.60	0.60	0.55	0.60	0.65	0.65	0.70	0.65	0.65	0.70	0.65	0.70	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
3	Avista Corporation	0.74	0.95	0.90	0.95	0.60	0.60	0.60	0.60	0.65	0.65	0.65	0.70	0.70	0.75	0.75	0.70	0.70	0.70	0.70	0.75	0.75	0.80	0.80	0.80	0.80	0.80	0.80	0.75
4	Black Hills Corporation	0.86	1.00	0.95	1.00	0.65	0.70	0.70	0.75	0.80	0.75	0.80	0.85	0.90	0.90	0.90	0.85	0.85	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.85
5	CMS Energy Corporation	0.66	0.75	0.80	0.80	0.80	0.50	0.50	0.55	0.55	0.55	0.55	0.55	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.70	0.75	0.75	0.70	0.75	0.75	0.70	0.75
6	Dominion Energy, Inc.	0.67	0.80	0.80	0.80	0.80	0.50	0.55	0.55	0.55	0.55	0.60	0.60	0.65	0.65	0.65	0.65	0.65	0.70	0.65	0.70	0.70	0.78	0.70	0.70	0.70	0.70	0.70	0.70
7	DTE Energy Company	0.69	0.95	0.95	0.90	0.90	0.50	0.55	0.55	0.55	0.55	0.55	0.60	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.70	0.70	0.75	0.75	0.75	0.75	0.75	0.75	0.75
8	Edison International	0.68	0.95	0.90	0.90	0.55	0.55	0.60	0.60	0.60	0.55	0.60	0.60	0.60	0.65	0.65	0.60	0.60	0.65	0.65	0.70	0.70	0.70	0.75	0.75	0.75	0.75	0.75	0.75
9	Entergy Corporation	0.69	0.95	0.95	0.95	0.95	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70
10	Exelon Corporation	0.72	0.95	0.95	0.95	0.90	0.65	0.70	0.70	0.70	0.70	0.65	0.65	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70	0.65	0.70	0.70	0.65	0.70	0.70	0.70	0.70
11	FirstEnergy Corp.	0.69	0.85	0.85	0.85	0.85	0.60	0.65	0.60	0.65	0.65	0.60	0.60	0.65	0.70	0.70	0.65	0.65	0.65	0.65	0.65	0.70	0.65	0.70	0.65	0.70	0.70	0.70	0.70
12	Hawaiian Electric Industries, Inc.	0.70	0.80	0.80	0.80	0.55	0.55	0.55	0.55	0.60	0.60	0.60	0.65	0.65	0.70	0.70	0.70	0.70	0.70	0.70	0.75	0.75	0.80	0.80	0.80	0.80	0.80	0.80	0.75
13	IDACORP, Inc.	0.71	0.80	0.80	0.80	0.50	0.55	0.55	0.60	0.60	0.55	0.60	0.65	0.70	0.70	0.70	0.70	0.75	0.75	0.75	0.75	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
14	NorthWestern Corporation	0.69	0.95	0.90	0.90	0.55	0.60	0.60	0.60	0.60	0.55	0.60	0.65	0.65	0.70	0.70	0.65	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.75	0.70	0.70	0.70	0.70
15	OGE Energy Corp.	0.91	1.05	1.10	1.05	1.05	0.70	0.75	0.80	0.80	0.85	0.85	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.85
16	Otter Tail Corporation	0.83	0.85	0.85	0.85	0.85	0.70	0.70	0.65	0.70	0.70	0.75	0.80	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.80	0.85	0.85	0.85	0.95	0.90	0.90	0.95
17	Public Service Enterprise Group Incorporated	0.73	0.90	0.90	0.90	0.90	0.60	0.65	0.65	0.65	0.65	0.65	0.65	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
18	Sempra Energy	0.79	1.00	0.95	0.95	0.65	0.70	0.75	0.75	0.75	0.75	0.75	0.75	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.80	0.80	0.75	0.75	0.75
19	**Average**	0.73	0.90	0.89	0.89	0.76	0.59	0.62	0.63	0.64	0.64	0.64	0.67	0.71	0.73	0.74	0.72	0.72	0.73	0.72	0.74	0.76	0.77	0.78	0.77	0.78	0.77	0.77	0.76

Source: Value Line Software Analyzer

Dayton Power and Light Company

CAPM Return

Line	Description	Duff & Phelps Normalized[2] MRP (1)	Risk Premium[3] Derived MRP (2)	FERC S&P 500 DCF[5] Derived MRP (Div-Paying Companies) (3)	FERC S&P 500 DCF[4] Derived MRP (All Companies) (4)
	Current Beta				
1	Risk-Free Rate[1,2]	2.50%	2.70%	2.70%	2.70%
2	Market Risk Premium	5.50%	8.80%	10.90%	10.90%
3	Beta[6]	0.91	0.91	0.91	0.91
4	**CAPM**	**7.50%**	**10.69%**	**12.60%**	**12.60%**
	Historical Beta				
5	Risk-Free Rate[1,2]	2.50%	2.70%	2.70%	2.70%
6	Market Risk Premium	5.50%	8.80%	10.90%	10.90%
7	Beta[6]	0.73	0.73	0.73	0.73
8	**CAPM**	**6.54%**	**9.17%**	**10.71%**	**10.71%**
	Current S&P Global Market Intelligence Beta				
9	Risk-Free Rate[1,2]	2.50%	2.70%	2.70%	2.70%
10	Market Risk Premium	5.50%	8.80%	10.90%	10.90%
11	Beta[6]	0.71	0.71	0.71	0.71
12	**CAPM**	**6.38%**	**8.91%**	**10.40%**	**10.40%**

Sources:

[1] *Blue Chip Financial Forecasts*, July 1, 2021, at 2.

[2] *Duff & Phelps*: "Technical Update: Duff & Phelps Recommended U.S. Equity Risk Premium Decreased from 6.0% to 5.5%," December 10, 2020.

[3] *Duff & Phelps, 2021 SBBI Yearbook* at 6-18.

[4] S&P 500 1-Step DCF through July 2021 for all Companies.

[5] S&P 500 1-Step DCF through July 2021 for Dividend Paying Companies.

[6] Attachment CCW-16, page 1.

Dayton Power and Light Company

Development of the Market Risk Premium

Line	Description	MRP
Risk Premium Based Method:		
1	Lg. Co. Stock Real Market Return	9.10% [1]
2	Projected Consumer Price Index	2.20% [2]
3	Expected Market Return	11.50%
4	Risk-Free Rate	2.70% [2]
5	Market Risk Premium	**8.80%**
FERC S&P 500 1-Step DCF Based Method:		
6	S&P 500 Growth	11.60% [3]
7	Index Dividend Yield	1.90% [3]
8	Adjusted Yield	2.01%
9	Expected Market Return	13.61%
10	Risk-Free Rate	2.70% [2]
11	Market Risk Premium	**10.90%**
FERC S&P 500 1-Step DCF Based Method:		
12	Short-Term S&P 500 Growth	11.80% [4]
13	Index Dividend Yield	1.70% [4]
14	Adjusted Yield	1.80%
15	Expected Market Return	13.60%
16	Risk-Free Rate	2.70% [2]
17	Market Risk Premium	**10.90%**

Sources & Note:
[1] Duff & Phelps 2020 SBBI Yearbook at 6-18.
[2] *Blue Chip Financial Forecasts*, July 12, 2021.
[3] S&P 500 one-step dcf through June 2021 for Dividend Paying Companies.
[4] S&P 500 one-step dcf through June 2021 for all Companies.

Dayton Power and Light Company

Beta

Line	Company	S&P Global Market Intelligence Beta[1]
1	CenterPoint Energy, Inc.	0.88
2	Edison International	0.76
3	Exelon Corporation	0.79
4	FirstEnergy Corp.	0.73
5	PNM Resources, Inc.	0.85
6	**Average**	**0.80**
7	**Median**	**0.79**

Source:

[1] S&P Global Market Intelligence, betas for the period 7/30/2016 - 7/30/2021.

Dayton Power and Light Company

Staff Revised Multi-Stage Growth DCF Model

Line	Company	13-Week AVG Stock Price[1] (1)	Annualized Dividend[2] (2)	First Stage Growth[3] (3)	Year 6 (4)	Year 7 (5)	Year 8 (6)	Year 9 (7)	Year 10 (8)	Year 11 (9)	Year 12 (10)	Year 13 (11)	Year 14 (12)	Year 15 (13)	Year 16 (14)	Year 17 (15)	Year 18 (16)	Year 19 (17)	Year 20 (18)	Year 21 (19)	Year 22 (20)	Year 23 (21)	Year 24 (22)	Third Stage Growth[4] (23)	Multi-Stage Growth DCF (24)
1	CenterPoint Energy, Inc.	$19.90	$0.60	4.74%	4.72%	4.70%	4.68%	4.66%	4.64%	4.62%	4.60%	4.58%	4.56%	4.54%	4.52%	4.50%	4.48%	4.46%	4.44%	4.42%	4.41%	4.39%	4.37%	4.35%	7.63%
2	Edison International	$57.57	$2.58	5.54%	5.48%	5.42%	5.36%	5.30%	5.24%	5.18%	5.12%	5.06%	5.00%	4.94%	4.88%	4.82%	4.76%	4.70%	4.64%	4.58%	4.53%	4.47%	4.41%	4.35%	9.60%
3	Exelon Corporation	$39.05	$1.53	3.33%	3.38%	3.43%	3.48%	3.53%	3.58%	3.63%	3.69%	3.74%	3.79%	3.84%	3.89%	3.94%	3.99%	4.04%	4.09%	4.14%	4.19%	4.24%	4.30%	4.35%	8.01%
4	FirstEnergy Corp.	$35.25	$1.55	5.37%	5.32%	5.27%	5.22%	5.17%	5.11%	5.06%	5.01%	4.96%	4.91%	4.86%	4.81%	4.76%	4.70%	4.65%	4.60%	4.55%	4.50%	4.45%	4.40%	4.35%	9.43%
5	PNM Resources, Inc.	$44.00	$1.67	5.11%	5.07%	5.03%	5.00%	4.96%	4.92%	4.88%	4.84%	4.80%	4.77%	4.73%	4.69%	4.65%	4.61%	4.58%	4.54%	4.50%	4.46%	4.42%	4.38%	4.35%	8.63%
19	**Average**	**$39.15**	**$1.59**	**4.82%**	**4.79%**	**4.77%**	**4.75%**	**4.72%**	**4.70%**	**4.68%**	**4.65%**	**4.63%**	**4.61%**	**4.58%**	**4.56%**	**4.53%**	**4.51%**	**4.49%**	**4.46%**	**4.44%**	**4.42%**	**4.39%**	**4.37%**	**4.35%**	**8.66%**
20	**Median**																								**8.63%**

Sources:
[1] Staff Schedule D-1.3, pg 130, ln 255.
[2] Staff Schedule D-1.3, pg 131, ln 262
[3] Staff Schedule D-1.3, pg 131, ln 282.
[4] *Blue Chip Financial Forecasts*, June 1, 2021 at 14.

Dayton Power and Light Company

MCKENZIE REVIED DCF
COST OF EQUITY ESTIMATES

| Line | Company | Earnings Growth | | | br+sv |
		V Line (1)	IBES (2)	Zacks (3)	Growth (4)
1	Algonquin Pwr & Util	n/a	10.26%	12.94%	n/a
2	ALLETE	9.82%	11.32%	n/a	7.97%
3	Ameren Corp.	8.64%	8.49%	9.39%	8.90%
4	Avangrid, Inc.	7.74%	8.59%	9.28%	5.10%
5	Avista Corp.	5.44%	10.34%	9.62%	7.46%
6	Black Hills Corp.	7.27%	8.46%	9.53%	7.58%
7	CMS Energy Corp.	10.24%	9.82%	9.75%	9.76%
8	Dominion Energy	6.59%	6.33%	7.12%	7.97%
9	DTE Energy Co.	8.79%	9.82%	9.46%	8.79%
10	Edison International	n/a	6.12%	8.06%	10.33%
11	Emera Inc.	10.47%	10.34%	n/a	8.25%
12	Entergy Corp.	6.76%	9.71%	9.53%	8.92%
13	Exelon Corp.	9.13%	0.57%	8.13%	8.27%
14	FirstEnergy Corp.	13.14%	2.24%	n/a	13.61%
15	Hawaiian Elec.	4.13%	5.93%	4.30%	5.52%
16	IDACORP, Inc.	6.60%	5.70%	5.73%	6.52%
17	NorthWestern Corp.	5.95%	8.16%	7.84%	7.20%
18	OGE Energy Corp.	8.10%	7.50%	8.79%	7.71%
19	Otter Tail Corp.	7.39%	12.89%	n/a	7.80%
20	PNM Resources	9.07%	8.02%	7.94%	9.12%
21	Pub Sv Enterprise Grp.	8.79%	5.19%	7.25%	9.00%
22	Sempra Energy	13.49%	9.76%	10.85%	10.79%
23	Average (b)	8.94%	9.57%	8.98%	8.73%
24	Midpoint (b) (c)	10.04%	10.20%	10.03%	10.06%
25	Median	8.37%	8.47%	9.04%	8.25%

Source:
Exhibit AMM-4, Page 3 of 4.

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Case No(s). 20-1651-EL-AIR, 20-1652-EL-AAM, 20-1653-EL-ATA

Summary: Testimony Direct Testimony of Christopher C. Walters On Behalf of The Office of The Ohio Consumers' Counsel electronically filed by Mrs. Tracy J Greene on behalf of Healey, Christopher