

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
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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 The Dayton Power and Light Company for Approval of Revised Tariffs	:	CASE NO. 20-1653-EL-ATA
	:	

The Dayton Power and Light Company d/b/a AES Ohio ("AES Ohio" or the "Company") gives notice of its filing of the Corrected Direct Testimony of Adrien M. McKenzie, CFA and related exhibits, which are attached to this Notice as Exhibit A. A redline version of the text of Mr. McKenzie's testimony is attached as Exhibit B.

During discovery in this proceeding, AES Ohio learned that the version of Mr. McKenzie's testimony and related exhibits filed on December 14, 2020 in this proceeding did not reflect Mr. McKenzie's final analysis of the Company's return on equity as of the filing of its Application on November 30, 2020. Although there are changes to various exhibits, there are no material changes to the text of Mr. McKenzie's testimony, and his recommended return on equity remains the same.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that a copy of the foregoing Notice of The Dayton Power and Light Company d/b/a AES Ohio of Filing Corrected Testimony of Adrien M. McKenzie, CFA has been served via electronic mail upon the following counsel of record, this 21st day of July, 2021:

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EXHIBIT A

**BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO**

THE DAYTON POWER AND LIGHT COMPANY

**CASE NOS. 20-1651-EL-AIR
20-1652-EL-AAM
20-1653-EL-ATA**

**CORRECTED DIRECT TESTIMONY
ADRIEN M. MCKENZIE, CFA**

**ON BEHALF OF
THE DAYTON POWER AND LIGHT COMPANY**

- ☐ **MANAGEMENT POLICIES, PRACTICES, AND ORGANIZATION**
- ☐ **OPERATING INCOME**
- ☐ **RATE BASE**
- ☐ **ALLOCATIONS**
- ☒ **RATE OF RETURN**
- ☐ **RATES AND TARIFFS**
- ☐ **OTHER**

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

CORRECTED DIRECT TESTIMONY OF
ADRIEN M. MCKENZIE, CFA

ON BEHALF OF
THE DAYTON POWER AND LIGHT COMPANY

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**BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO**

**CORRECTED DIRECT TESTIMONY OF
ADRIEN M. MCKENZIE, CFA**

**ON BEHALF OF
THE DAYTON POWER AND LIGHT COMPANY**

EXHIBITS TO DIRECT TESTIMONY

<u>Exhibit</u>	<u>Description</u>
AMM-1	Qualifications of Adrien M. McKenzie
AMM-2	ROE Analyses (Corrected)
AMM-3	Regulatory Mechanisms
AMM-4	DCF Model – Electric Group (Corrected)
AMM-5	BR+SV Growth Rate
AMM-6	CAPM (Corrected)
AMM-7	Empirical CAPM (Corrected)
AMM-8	Electric Utility Risk Premium
AMM-9	Expected Earnings Approach
AMM-10	Flotation Cost Study
AMM-11	DCF Model – Non-Utility Group (Corrected)
AMM-12	Capital Structure

I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Adrien M. McKenzie, and my business address is 3907 Red River, Austin,
3 Texas 78751.

4 **Q. IN WHAT CAPACITY ARE YOU EMPLOYED?**

5 A. I am President of Financial Concepts and Applications, Inc. ("FINCAP"), a firm engaged
6 in financial, economic, and policy consulting to business and government.

7 **Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.**

8 A. A description of my background and qualifications, including a resume containing the
9 details of my experience, is attached as Exhibit AMM-1.

10 **Q. FOR WHOM ARE YOU TESTIFYING IN THIS CASE?**

11 A. I am testifying on behalf of The Dayton Power & Light Company ("DP&L" or "the
12 Company").

A. Overview

13 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

14 A. The purpose of my testimony is to present to the Public Utilities Commission of Ohio
15 ("PUCO") my independent assessment of the fair rate of return on equity ("ROE") for
16 DP&L. In addition, I also examine the reasonableness of the Company's capital structure,
17 considering both the specific risks faced by the Company and other industry guidelines.

18 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

19 A. Yes. I am sponsoring the following exhibits:

- 1 • Exhibit AMM-1 Qualifications of Adrien M. McKenzie
- 2 • Exhibit AMM-2 ROE Analyses (Corrected)
- 3 • Exhibit AMM-3 Regulatory Mechanisms
- 4 • Exhibit AMM-4 DCF Model – Electric Group (Corrected)
- 5 • Exhibit AMM-5 BR+SV Growth Rate
- 6 • Exhibit AMM-6 CAPM (Corrected)
- 7 • Exhibit AMM-7 Empirical CAPM (Corrected)
- 8 • Exhibit AMM-8 Electric Utility Risk Premium
- 9 • Exhibit AMM-9 Expected Earnings Approach
- 10 • Exhibit AMM-10 Flotation Cost Study
- 11 • Exhibit AMM-11 DCF Model – Non-Utility Group (Corrected)
- 12 • Exhibit AMM-12 Capital Structure

13 **Q. PLEASE SUMMARIZE THE INFORMATION AND MATERIALS YOU RELIED**
14 **ON TO SUPPORT THE OPINIONS AND CONCLUSION CONTAINED IN YOUR**
15 **TESTIMONY.**

16 A. To prepare my testimony, I rely on information from a variety of sources that would
17 normally be relied upon by a person in my capacity. In connection with this filing, I
18 considered and relied on corporate disclosures, publicly available financial reports and
19 filings, and other published information relating to the Company. I also reviewed
20 information relating generally to capital market conditions and specifically to investor
21 perceptions, requirements, and expectations for utilities. These sources, coupled with my
22 experience in the fields of finance and utility regulation, have given me a working

1 knowledge of the issues relevant to investors' required return for DP&L, and they form the
2 basis of my analyses and conclusions.

3 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

4 A. First, I summarize my conclusions and recommendations, giving special attention to the
5 importance of financial strength and the implications of regulatory mechanisms and other
6 risk factors. I also comment on the reasonableness of the Company's proposed capital
7 structure.

8 Next, I review DP&L's operations and finances. I then examine current conditions
9 in the capital markets and their implications in evaluating a fair and reasonable ROE for
10 the Company. With this as a background, I conduct well-accepted quantitative analyses to
11 estimate the current cost of equity for a reference group of comparable-risk electric utilities.
12 These include the discounted cash flow ("DCF") model, the Capital Asset Pricing Model
13 ("CAPM"), the empirical form of Capital Asset Pricing Model ("ECAPM"), an equity risk
14 premium approach based on allowed ROEs, and reference to expected earned rates of
15 return for electric utilities, which are all methods that are commonly relied on in regulatory
16 proceedings. In addition, I discuss the issue of stock flotation expenses and the
17 implications of these legitimate costs on the estimation of a reasonable ROE for the
18 Company.

19 Based on the cost of equity estimates indicated by my analyses, I evaluate a fair
20 ROE for DP&L. My ROE evaluation takes into account the specific risks for its
21 jurisdictional utility operations in Ohio and the Company's requirements for financial
22 strength, as well as flotation costs, which are properly considered in setting a fair and
23 reasonable ROE. Finally, consistent with the fact that utilities must compete for capital
24 with firms outside their own industry, I corroborate my utility quantitative analyses by
25 applying the DCF model to a group of low-risk non-utility firms.

1 **Q. WHAT IS YOUR RECOMMENDED ROE FOR DP&L?**

2 A. Based on the results of my analyses, and considering recent dislocations in the capital
3 markets and the economic requirements necessary to support continuous access to capital,
4 I recommend an ROE of 10.5% for DP&L.

II. RETURN ON EQUITY FOR DP&L

5 **Q. WHAT IS THE PURPOSE OF THIS SECTION?**

6 A. This section presents my conclusions regarding the fair ROE applicable to DP&L's electric
7 utility operations. I also describe the relationship between ROE and preservation of a
8 utility's financial integrity and the ability to attract capital. In addition, I discuss the impact
9 of regulatory mechanisms.

A. Importance of Financial Strength

10 **Q. WHAT IS THE ROLE OF THE ROE IN SETTING A UTILITY'S RATES?**

11 A. A utility's ROE is the cost of attracting and retaining common equity investment in the
12 utility's physical plant and assets. This investment is necessary to finance the asset base
13 needed to provide utility service. Investors commit capital only if they expect to earn a
14 return on their investment commensurate with returns available from alternative
15 investments with comparable risks. Moreover, a fair and reasonable ROE is integral in
16 meeting sound regulatory economics and the standards set forth by the U.S. Supreme
17 Court. The Bluefield case set the standard against which just and reasonable rates are
18 measured:

19 A public utility is entitled to such rates as will permit it to earn a return on
20 the value of the property which it employs for the convenience of the public
21 equal to that generally being made at the same time and in the same general
22 part of the country on investments in other business undertakings which are
23 attended by corresponding risks and uncertainties. . . . The return should be
24 reasonable, sufficient to assure confidence in the financial soundness of the

1 utility, and should be adequate, under efficient and economical
2 management, to maintain and support its credit and enable it to raise money
3 necessary for the proper discharge of its public duties.¹

4 The *Hope* case expanded on the guidelines as to a reasonable ROE, reemphasizing
5 the findings in *Bluefield* and establishing that the rate-setting process must produce an end-
6 result that allows the utility a reasonable opportunity to cover its capital costs. The Court
7 stated:

8 From the investor or company point of view it is important that there be
9 enough revenue not only for operating expenses but also for the capital costs
10 of the business. These include service on the debt and dividends on the
11 stock. . . . By that standard, the return to the equity owner should be
12 commensurate with returns on investments in other enterprises having
13 corresponding risks. That return, moreover, should be sufficient to assure
14 confidence in the financial integrity of the enterprise, so as to maintain
15 credit and attract capital.²

16 In summary, the Supreme Court's findings in *Hope* and *Bluefield* established that a
17 just and reasonable ROE must be sufficient to: 1) fairly compensate the utility's investors,
18 2) enable the utility to offer a return adequate to attract new capital on reasonable terms,
19 and 3) maintain the utility's financial integrity. These standards should allow the utility to
20 fulfill its obligation to provide reliable service while meeting the needs of customers
21 through necessary system replacement and expansion, but the Supreme Court's
22 requirements can be met only if the utility has a reasonable opportunity to actually earn its
23 allowed ROE.

24 While the *Hope* and *Bluefield* decisions did not establish a particular method to be
25 followed in fixing rates (or in determining the allowed ROE),³ these and subsequent cases
26 enshrined the importance of an end result that meets the opportunity cost standard of
27 finance. Under this doctrine, the required return is established by investors in the capital

¹ *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923) ("*Bluefield*").

² *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*").

³ *Id.* at 602 (finding, "the Commission was not bound to the use of any single formula or combination of formulae in determining rates." and, "[I]t is not theory but the impact of the rate order which counts.")

1 markets based on expected returns available from comparable risk investments. Coupled
2 with modern financial theory, which has led to the development of formal risk-return
3 models (*e.g.*, DCF and CAPM), practical application of the *Bluefield* and *Hope* standards
4 involves the independent, case-by-case consideration of capital market data in order to
5 evaluate an ROE that will produce a balanced and fair end result for investors and
6 customers.

7 **Q. THROUGHOUT YOUR TESTIMONY, YOU REFER REPEATEDLY TO THE**
8 **CONCEPTS OF "FINANCIAL STRENGTH," "FINANCIAL INTEGRITY," AND**
9 **"FINANCIAL FLEXIBILITY." WOULD YOU BRIEFLY DESCRIBE WHAT YOU**
10 **MEAN BY THESE TERMS?**

11 A. These terms are generally synonymous, and refer to the utility's ability to attract and retain
12 the capital that is necessary to provide service at reasonable cost, consistent with the
13 Supreme Court standards. DP&L's plans call for a continuation of capital investments in
14 the distribution system and technology to preserve and enhance service reliability for its
15 customers. The Company must generate adequate cash flow from operations to fund these
16 requirements and for repayment of maturing debt, together with access to capital from
17 external sources under reasonable terms, on a sustainable basis.

18 Rating agencies and potential debt investors tend to place significant emphasis on
19 maintaining strong financial metrics and credit ratings that support access to debt capital
20 markets under reasonable terms. This emphasis on financial metrics and credit ratings is
21 shared by equity investors who also focus on cash flows, capital structure and liquidity,
22 much like debt investors. Investors understand the important role that a supportive
23 regulatory environment plays in establishing a sound financial profile that will permit the
24 utility access to debt and equity capital markets on reasonable terms in both favorable
25 financial markets and during times of potential disruption and crisis.

1 **Q. WHAT PART DOES REGULATION PLAY IN ENSURING THAT DP&L HAS**
2 **ACCESS TO CAPITAL UNDER REASONABLE TERMS AND ON A**
3 **SUSTAINABLE BASIS?**

4 **A.** Regulatory signals are a major driver of investors' risk assessment for utilities. Investors
5 recognize that constructive regulation is a key ingredient in supporting utility credit ratings
6 and financial integrity, particularly during times of adverse conditions. Security analysts
7 study commission orders and regulatory policy statements to advise investors about where
8 to put their money. As Moody's Investors Service ("Moody's") noted, "the regulatory
9 environment and how the utility adapts to that environment are the most important credit
10 considerations."⁴ Similarly, S&P Global Ratings ("S&P") observed that, "[r]egulatory
11 advantage is the most heavily weighted factor when S&P Global Ratings analyzes a
12 regulated utility's business risk profile."⁵ The Value Line Investment Survey ("Value Line")
13 summarizes these sentiments:

14 As we often point out, the most important factor in any utility's success,
15 whether it provides electricity, gas, or water, is the regulatory climate in
16 which it operates. Harsh regulatory conditions can make it nearly
17 impossible for the best run utilities to earn a reasonable return on their
18 investment.⁶

19 In addition, the ROE set by regulators impacts investor confidence in not only the
20 jurisdictional utility, but also in the ultimate parent company that is the entity that issues
21 common stock.

⁴ Moody's Investors Service, *Regulated Electric and Gas Utilities*, Rating Methodology (Jun. 23, 2017).

⁵ S&P Global Ratings, *Assessing U.S. Investors-Owned Utility Regulatory Environments*, RatingsExpress (Aug. 10, 2016).

⁶ Value Line Investment Survey, *Water Utility Industry* (Jan. 13, 2017) at p. 1780.

1 **Q. DO CUSTOMERS BENEFIT BY ENHANCING THE UTILITY'S FINANCIAL**
2 **FLEXIBILITY?**

3 A. Yes. Providing an ROE that is sufficient to maintain DP&L's ability to attract capital under
4 reasonable terms, even in times of financial and market stress, is not only consistent with
5 the economic requirements embodied in the U.S. Supreme Court's Hope and Bluefield
6 decisions, but also in customers' best interests. Customers enjoy the benefits that come
7 from ensuring that the utility has the financial wherewithal to take whatever actions are
8 required to ensure safe and reliable service.

B. DP&L's Relative Risks

9 **Q. WHAT IS THE PREDICATE UNDERLYING AN EVALUATION OF A JUST AND**
10 **REASONABLE ROE?**

11 A. Consistent with economic and legal standards, the desired end-result is an ROE that
12 compensates investors for assuming the risks of committing capital to support investment
13 in long-lived utility assets necessary to provide service. Even for a company with publicly
14 traded stock, the cost of equity can only be estimated. As a result, applying quantitative
15 models using observable market data only produces an estimate that inherently includes
16 some degree of observation or measurement error. Thus, the accepted approach to increase
17 confidence in the results is to apply these methods to a proxy group of publicly traded
18 companies that investors regard as risk comparable.

1 **Q. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO DP&L AS OF THE DATE**
2 **CERTAIN?**

3 A. As of the date certain, Moody's assigned to DP&L a long-term issuer rating of Baa2.⁷
4 While confirming this rating on December 20, 2019, Moody's also revised its outlook on
5 the Company's credit standing to "negative," warning investors of a potential downgrade
6 due to concerns over DP&L's deteriorating financial metrics.⁸ On November 26, 2019,
7 S&P downgraded DP&L's corporate credit rating from BBB- to BB,⁹ placing DP&L in the
8 same category as speculative grade or "junk" bonds.¹⁰ Similarly, in December 2019 Fitch
9 also moved to lower DP&L's issuer default rating from BBB to BBB-.¹¹ Like Moody's,
10 Fitch has assigned a "Negative" ratings outlook to the Company, indicating the possibility
11 of further deterioration in DP&L's credit standing.¹²

12 **Q. HOW DOES DP&L'S RATING PROFILE COMPARE WITH THE ELECTRIC**
13 **UTILITY INDUSTRY MORE GENERALLY?**

14 A. In its most recent annual outlook for regulated electric utilities, Moody's reported that
15 DP&L's Baa2 rating ranks the Company at the very bottom of the ratings range for other

⁷ Credit rating firms, such as Moody's and S&P, use designations consisting of upper- and lower-case letters "A" and "B" to identify a bond's credit quality rating. "AAA," "AA," "A," and "BBB" ratings are considered investment grade. Credit ratings for bonds below these designations ("BB," "B," "CCC," etc.) are considered speculative grade, and are commonly referred to as "junk bonds." The term "investment grade" refers to bonds with ratings in the "BBB" category and above.

⁸ Moody's Investors Service, *Moody's confirms DPL and Dayton Power and Light's ratings; outlook negative*, Rating Action (Dec. 20, 2019).

⁹ S&P Global Ratings, *DPL Inc. And Subsidiary Downgraded to 'BB'; Outlook Remains Negative*, RatingsDirect (Nov. 26, 2019).

¹⁰ After my analyses were prepared, on November 3, 2020, S&P announced that it was upgrading DP&L's corporate credit rating one notch from "BB" to BB+" and assigned an outlook of "developing," noting the potential for an upgrade or downgrade, depending on trends in financial measures. S&P Global Ratings, *DPL, Inc. And Subsidiary Dayton Power & Light Co. Ratings Raised On Upgrade Of Parent; Outlooks Remain Developing*, Research Update (Nov. 3, 2020). Given that DP&L's rating remains below the investment grade threshold of BBB-, this one-notch upgrade has no impact on my conclusions or recommendations.

¹¹ Fitch Ratings, Inc., *Fitch Downgrades DPL to "BB+" and DP&L to "BBB-"; Outlook Negative*, Press Release (Dec. 29, 2019).

¹² *Id.*

1 transmission and distribution operating companies,¹³ with only two of the forty-one rated
2 companies having ratings as low as DP&L. Meanwhile, the BB rating assigned by S&P
3 ranks DP&L below those of all but two of the other 246 North American electric, gas, and
4 water utilities regularly compiled by S&P,¹⁴ indicating that investors would view the
5 Company as being one of the riskiest investments in the regulated utilities sector. DP&L's
6 BBB- rating from Fitch falls on the very bottom rung on the ladder of the investment-grade
7 rating scale, and also indicates greater risk than the median issuer default ratings of BBB+
8 and A- for utility parent holding companies and operating companies, respectively,
9 reported by Fitch.¹⁵

10 **Q. WHAT IS THE SIGNIFICANCE OF "INVESTMENT GRADE" VERSUS**
11 **"BELOW INVESTMENT GRADE"?**

12 A. The term "investment grade" refers to a security having sufficient quality, or relatively low
13 risk, to be suitable for certain investment purposes, with many investors being restricted
14 by federal regulations or investment guidelines from the purchase of debt securities that do
15 not have an investment grade rating. There is a precipitous increase in risk associated with
16 moving from investment grade to below investment grade securities. Credit rating
17 differences within the investment grade range tend to reflect relatively modest gradations
18 among fairly secure investments. Meanwhile, moving to below investment grade implies
19 an altogether different risk plateau – one where the firm is regarded as a speculative
20 investment. Fitch observed that when credit market conditions are unsettled, "flight to

¹³ Moody's Investors Service, *Regulated electric and gas utilities—US; 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics*, Outlook (Nov. 7, 2019). In contrast to the "stable" outlook assigned to Cleveland Electric Illuminating Company and Potomac Edison Company, however, as noted earlier, Moody's has assigned a "negative" outlook to DP&L.

¹⁴ S&P Global Ratings, *North American Electric, Gas, And Water Utilities—Strongest To Weakest*, Issuer Ranking (June 22, 2020). Only PG&E Corporation and Pacific Gas & Electric Company, which just emerged from bankruptcy, had lower ratings than DP&L.

¹⁵ Fitch Ratings, Inc., *Fitch Ratings 2020 Outlook: North American Utilities*, Power & Gas (Dec. 4, 2019).

1 quality' is selective within the [utility] sector, favoring companies at higher rating levels."¹⁶
2 The negative impact of declining credit quality on a utility's capital costs and financial
3 flexibility becomes more pronounced as debt ratings move down the scale from investment
4 to non-investment grade. As the former Chairman of the New York State Public Service
5 Commission noted in his role as spokesman for NARUC:

6 While there is a large difference between A and BBB, there is an even
7 brighter line between Investment Grade (BBB-/Baa3 bond ratings by
8 S&P/Moody's, and higher) and non-Investment Grade (Junk) (BB+/Ba1 and
9 lower). The cost of issuing non-investment grade debt, assuming the
10 market is receptive to it, has in some cases been hundreds of basis points
11 over the yield on investment grade securities.¹⁷

12 As S&P observed with respect to the BB long-term issuer rating assigned to DP&L:

13 Obligors rated 'BB', 'B', 'CCC', and 'CC' are regarded as having significant
14 speculative characteristics. 'BB' indicates the least degree of speculation and
15 'CC' the highest. While such obligors will likely have some quality and
16 protective characteristics, these may be outweighed by large uncertainties or
17 major exposure to adverse conditions.¹⁸

18 **Q. IS THERE ANY DIRECT CAPITAL MARKET EVIDENCE REGARDING THE**
19 **AMOUNT OF THE PREMIUM INVESTORS REQUIRE FROM A FIRM THAT IS**
20 **RATED BELOW INVESTMENT GRADE?**

21 A. Although rates of return on equity for below investment grade firms cannot be directly
22 observed, the yields on long-term bonds provide direct evidence of the additional return
23 that investors require to compensate for the risks associated with speculative grade credit
24 ratings. While average yields for double-B utility bonds are not published, the yields on
25 high-yield corporate bond indices are reported by the Federal Reserve Bank of St. Louis
26 and summarized in the table below:

¹⁶ Fitch Ratings Ltd., *U.S. Utilities, Power, and Gas 2010 Outlook*, Global Power North America Special Report (Dec. 4, 2009).

¹⁷ George Brown, *Credit and Capital Issues Affecting the Electric Power Industry*, Federal Energy Regulatory Commission Technical Conference (Jan. 13, 2009).

¹⁸ S&P Global Ratings, *S&P Global Ratings Definitions* (Sep. 18, 2019).

TABLE AMM-1
SPECULATIVE GRADE YIELD SPREADS

	<u>BBB</u>	<u>BB</u>
Feb.	2.90%	3.72%
Mar.	4.06%	6.40%
Apr.	3.96%	6.23%
May	3.32%	5.57%
Jun.	2.78%	4.78%
Jul. 2020	<u>2.48%</u>	<u>4.42%</u>
6-Mo. Average	3.25%	5.19%
Spread Over BBB	--	194

Source: ICE Benchmark Administration Limited
(IBA), ICE BofAML US Corporate Effective Yield;
<https://fred.stlouisfed.org>.

As shown above, the additional premium required by fixed-income investors to compensate for the risks associated with a speculative grade, BB corporate debt rating is approximately 190 basis points.

Q. DO BOND YIELD SPREADS FULLY CAPTURE THE IMPACT OF HEIGHTENED RISKS ON THE COST OF COMMON EQUITY?

A. No. The primary mission of credit rating agencies like Moody's, S&P, and Fitch is to provide debtholders with an accurate benchmark of the relative risks of default associated with long-term bonds and other debt securities. For example, in reporting its decision to assign a negative outlook to DP&L's credit standing, Moody's noted that its evaluation of risks relates only to "future credit risk of entities, credit commitments, or debt or debt-like securities."¹⁹ Moody's further clarified that it defines credit risk "as the risk that an entity will not meet its contractual, financial obligations as they come due and any estimated financial loss in the event of default or impairment. . . . Credit ratings do not address any

¹⁹ Moody's Investors Service, *Moody's confirms DPL and Dayton Power and Light's ratings; outlook negative*, Rating Action (Dec. 20, 2019).

1 other risk . . ."²⁰ Bondholders, who are the subset of investors most relevant to the credit
2 rating agencies, do not share in a utility's net income or profits. As a result, the focus of
3 rating agencies, such as Moody's, is on the sufficiency of cash flows to meet the contractual
4 obligations associated with outstanding debt securities. On the other hand, equity investors
5 are intensely focused on the ability of the utility to generate earnings, pay dividends, and
6 generate growth.

7 This difference in the characteristics and priorities between debt and equity
8 securities gives rise to the considerable distinction in the risks faced by debt holders and
9 equity investors. Long-term debt is senior to common equity capital in its claim on a
10 utility's net revenues and is, therefore, the least risky. Common shareholders are the last
11 in line and they share only in whatever net revenues remain after all other claimants have
12 been paid. As a result, the implications of DP&L's risk exposures are magnified for
13 common equity investors. Thus, investors would undoubtedly require an even wider
14 premium for bearing the higher risk associated with the more junior common stock of a
15 utility with DP&L's risk profile.

16 **Q. DO YOU CONSIDER THE IMPLICATIONS OF COST RECOVERY**
17 **MECHANISMS IN EVALUATING A FAIR ROE FOR DP&L?**

18 A. Yes. Adjustment mechanisms, cost trackers, and future test years have become
19 increasingly prevalent in the utility industry in recent years, along with alternatives to
20 traditional ratemaking such as formula rates. In response to the increasing risk sensitivity
21 of investors to uncertainty over fluctuations in costs and the importance of advancing other
22 public interest goals such as reliability, energy conservation, and safety, utilities and their
23 regulators have sought to mitigate some of the cost recovery uncertainty and align the
24 interest of utilities and their customers through a variety of adjustment mechanisms. Based

²⁰ *Id.* (emphasis added).

1 largely on the expanded use of ratemaking mechanisms to address operational risks and
2 investment recovery, Moody's upgraded most regulated utilities in January 2014.²¹ This
3 industry-wide upgrade is consistent with the view that investors perceive the impact of
4 regulatory mechanisms to have an across-the-board impact on risk perceptions for virtually
5 all utilities.

6 Reflective of this trend, companies in the electric utility industry operate under a
7 wide variety of cost adjustment mechanisms. These enhanced tools encompass revenue
8 decoupling and adjustment clauses designed to address capital investment outside of a
9 traditional rate case, as well as riders to recover environmental compliance costs, bad debt
10 expenses, certain taxes and fees, and post-retirement employee benefit costs. *RRA*
11 *Regulatory Focus* concluded in its most recent review of adjustment clauses that:

12 More recently and with greater frequency, commissions have approved
13 mechanisms that permit the costs associated with the construction of new
14 generation capacity or delivery infrastructure to be reflected in rates,
15 effectively including these items in rate base without a full rate case. In
16 some instances, these mechanisms may even provide the utilities a cash
17 return on construction work in progress.

18 . . . [C]ertain types of adjustment clauses are more prevalent than others.
19 For example, those that address electric and fuel and gas commodity
20 charges are in place in all jurisdictions. Also, about two-thirds of all utilities
21 have riders in place to recover costs related to energy efficiency programs,
22 and roughly half of the utilities utilize some type of decoupling
23 mechanism.²²

24 **Q. HAVE YOU SUMMARIZED THE VARIOUS REGULATORY MECHANISMS**
25 **AVAILABLE TO OTHER ELECTRIC UTILITIES?**

26 A. Yes. Reflective of industry trends, the other companies in the proxy group of electric
27 utilities that I used to estimate the cost of equity operate under a variety of regulatory

²¹ Moody's Investors Service, *US utility sector upgrades driven by stable and transparent regulatory frameworks*, Sector Comment (Feb. 3, 2014).

²² S&P Global Market Intelligence, *Adjustment Clauses, A State-by-State Overview*, *RRA Regulatory Focus* (Nov. 12, 2019).

1 adjustment mechanisms. As detailed on pages 2-3 of Exhibit AMM-3, 44 of the 62
2 operating utilities owned by the firms in the Electric Group benefit from capital cost
3 trackers that allow for recovery of new capital investment in generation facilities or other
4 infrastructure outside of a traditional rate case. In addition, almost half of all the operating
5 utilities²³ operate under a full or partial decoupling mechanism that accounts for various
6 factors affecting sales volumes and revenues and 44 operate in jurisdictions that allow for
7 some form of future test period. Other mechanisms automatically recover storm, pension,
8 and bad debt costs, along with various taxes and franchise fees.

9 **Q. HAVE RECENT EVENTS IN OHIO NEGATIVELY IMPACTED THE**
10 **COMPANY'S PROFILE OF REGULATORY MECHANISMS AND RISKS?**

11 A. Yes. Under the 2017 Electric Security Plan ("ESP 3"), the Company benefited from
12 decoupling, riders to address investment and modernization of the distribution system
13 ("DMR" and "DIR"), and other regulatory mechanisms. This plan was substantially
14 modified by the Commission in November 2019, and in December 2019, DP&L was
15 authorized to revert to its previous rate plan ("ESP 1"). While ESP 1 includes a Rate
16 Stabilization Charge ("RSC"), it eliminated the DMR, DIR, decoupling, and several other
17 adjustment mechanisms.

18 In response to modifications to ESP 3 in November 2019, Moody's placed the
19 Company on review for a downgrade, noting that "[t]he unexpected, immediate reduction
20 in revenue will negatively affect financial coverage metrics as both the parent and operating
21 utility, pressuring credit quality."²⁴ In explaining its decision to maintain a negative
22 outlook on DP&L's ratings, Moody's observed that:

²³ Of the 62 operating companies represented on pages 2-3 of Exhibit AMM-3, 27 of them have some form of decoupling mechanism.

²⁴ Moody's Investors Service, *Rating Action: Moody's places the ratings of DPL and Dayton Power and Light on review for downgrade* (Nov. 25, 2019).

1 The revision of the outlook to negative on both DPL and DP&L reflects the
2 lower cash flow provided by ESP-I compared to the previous ESP-III, the
3 termination of decoupling and other credit supportive riders, the less
4 consistent and more unpredictable nature of the Ohio regulatory
5 environment as it pertains to DP&L, and the ongoing pressure on both DPL
6 and DP&L's financial metrics as the group strives to modernize the utility's
7 electric grid and address significant debt maturities over the next two
8 years.²⁵

9 Similarly, S&P noted a "less-than-predictable regulatory framework in Ohio," and
10 concluded that "DP&L is prone to regulatory lag, and the PUCO has historically rendered
11 decisions that adversely affected the credit quality of DP&L and peer utilities in the state."²⁶

12 **Q. DOES DP&L'S ABILITY TO COLLECT THE RSC SET IT APART FROM OTHER**
13 **FIRMS OPERATING IN THE UTILITY INDUSTRY?**

14 A. No. As my testimony documents, a broad array of adjustment mechanisms is available to
15 the companies in my proxy group of electric utilities. Most of the companies also have
16 adjustment clauses to effectively recover certain capital expenditures, conservation
17 program impacts, renewable energy outlays, environmental compliance costs, decoupling,
18 and transmission-related charges. Thus, while investors would consider the RSC to be
19 supportive of the Company's financial integrity, this does not provide a basis to distinguish
20 the risks of DP&L from the utilities in my proxy group. In fact, while the average credit
21 ratings for my proxy group are lower than the industry average, DP&L's speculative grade
22 rating from S&P and the "Negative" outlook assigned by Moody's and Fitch indicate that
23 investors would view the Company's investment risks as considerably higher, even with
24 the RSC.

²⁵ Moody's Investors Service, *Rating Action: Moody's confirms DPL and Dayton Power and Light's ratings; negative outlook* (Dec. 20, 2019).

²⁶ S&P Global Ratings, *Dayton Power & Light Co.*, RatingsDirect (Aug. 21, 2020).

Q. WHAT OTHER CONSIDERATIONS ARE RELEVANT TO INVESTORS' ASSESSMENT OF DP&L?

A. Investors are also exposed to considerable uncertainty due to the propensity for legal review of the PUCO's decisions. Moody's has recognized that appeals to the Ohio Supreme Court are lengthy and can undermine regulatory certainty for the state's utilities.²⁷ As S&P Global Market Intelligence noted, "the tendency for commission rulings to come before the courts and for extensive litigation as appeals go through several layers of court review may add an untenable degree of uncertainty to the regulatory process."²⁸ In addition, DP&L may be exposed to the risk of a potential refund to customers if found to have significantly excessive earnings.

C. Recommended ROE

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSES.

A. In order to reflect the risks and prospects associated with DP&L's jurisdictional utility operations, my analyses focus on a proxy group of 22 other electric utilities with comparable investment risks. Because investors' required ROE is unobservable and no single method should be viewed in isolation, I apply the DCF, CAPM, ECAPM, and risk premium methods to estimate a fair ROE for DP&L, as well as referencing the expected earnings approach. As summarized in Exhibit AMM-2 (Corrected), considering these results, and giving less weight to extremes at the high and low ends of the range, I conclude that my analyses support a cost of equity in the 9.4% to 10.7% range, or 9.5% to 10.8%

²⁷ Moody's Investors Service, *Moody's affirms DPL and Dayton Power & Light ratings; changes outlooks to stable from positive*, Rating Action (Jun. 27, 2019) (noting that "uncertainty has arisen after the Ohio Supreme Court last week ruled that the Public Utilities Commission of Ohio (PUCO) had improperly authorized the neighboring utility subsidiaries of FirstEnergy Corp. (Baa3 stable) to collect DMR charges, ending their collection from ratepayers. . .").

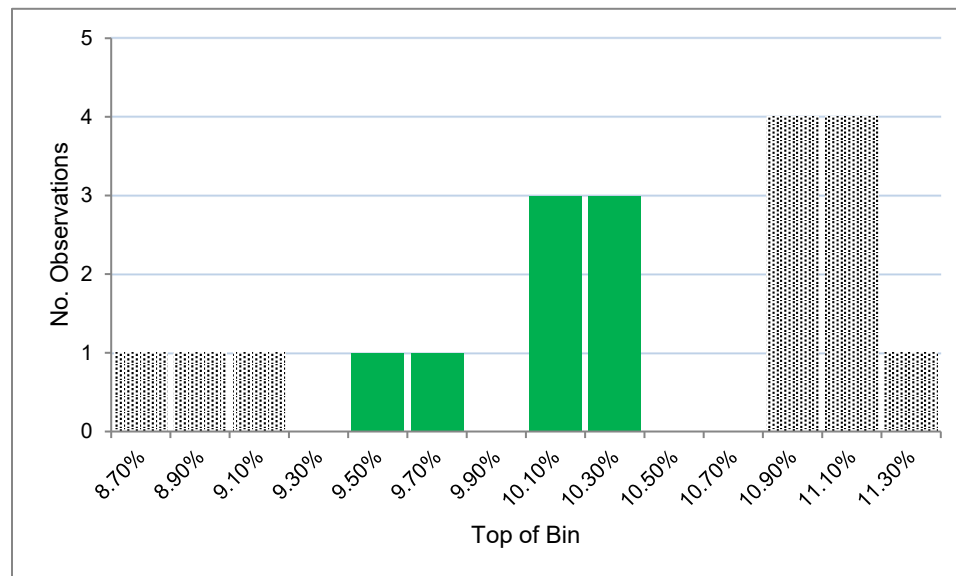
²⁸ S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar. 25, 2020).

1 after incorporating an adjustment to account for the impact of common equity flotation
2 costs.

3 **Q. HOW DOES YOUR RECOMMENDED ROE RANGE COMPARE TO THE**
4 **DISTRIBUTION OF COST OF EQUITY ESTIMATES RESULTING FROM YOUR**
5 **ANALYSES?**

6 A. The results of my analyses are presented on Schedule AMM-2, and summarized in the
7 frequency table shown in Figure AMM-1 (Corrected), below:

8 **FIGURE AMM-1 (CORRECTED)**
9 **DISTRIBUTION OF COST OF EQUITY ESTIMATES**



10 As illustrated above, my recommended cost of equity range of 9.4% to 10.7% (before
11 flotation costs) captures the bulk of the individual cost of equity estimates making up the
12 middle of the distribution, with three values falling below this range and nine results
13 exceeding it.

14 **Q. WHAT IS YOUR CONCLUSION REGARDING THE FAIR ROE FOR DP&L?**

15 A. I recommend an ROE of 10.5% for DP&L's electric utility operations. In evaluating a fair
16 ROE for the Company's electric utility operations, the Commission should consider the

1 economic reality that DP&L's common equity investors face far greater risks than most
2 electric utilities. As my evidence demonstrates:

- 3 • DP&L's credit standing indicates that investors would view the Company as
4 having greater risks than other electric utilities, including those in my proxy
5 group.
- 6 • This conclusion is reinforced by the Company's relative lack of regulatory
7 adjustment mechanisms.
- 8 • Unlike most utilities in this country, DP&L may be exposed to the risk of a
9 potential refund to customers if found to have significantly excessive earnings.
- 10 • In light of this greater risk exposure, the ROE for DP&L must exceed the central
11 tendency result implied for the proxy group.
- 12 • Continued support for DP&L's financial integrity is imperative to ensure that the
13 Company can confront potential challenges associated with funding infrastructure
14 development necessary to meet the needs of its customers, even during times of
15 capital market turmoil.
- 16 • To consider these factors, I recommend an ROE for DP&L of 10.5%, which falls
17 approximately at the midpoint of the upper end of my recommended range, or 35
18 basis points above the 10.15% midpoint.
- 19 • The reasonableness of this increment of return is confirmed by the evidence of
20 speculative grade yield spreads, which imply a significantly higher return required
21 to compensate for the greater risks associated with DP&L.

22 **Q. WHAT DO THE DCF RESULTS FOR YOUR SELECT GROUP OF NON-UTILITY**
23 **FIRMS INDICATE WITH RESPECT TO YOUR EVALUATION?**

24 A. Average DCF estimates for a low-risk group of firms in the competitive sector of the
25 economy range from 9.3% to 10.4%, before consideration of flotation costs.²⁹ While I do
26 not base my recommendation directly on these results, considering the lower risks
27 associated with the Non-Utility Group, they confirm that a 10.5% ROE falls in a reasonable
28 range to maintain DP&L's financial integrity, provide a return commensurate with
29 investments of comparable risk, and support the Company's ability to attract capital.

²⁹ Exhibit AMM-11 (Corrected), page 3.

III. FUNDAMENTAL ANALYSES

1 **Q. WHAT IS THE PURPOSE OF THIS SECTION?**

2 A. As a predicate to subsequent quantitative analyses, this section briefly reviews the
3 operations and finances of DP&L. In addition, it examines conditions in the capital
4 markets and the general economy. An understanding of the fundamental factors driving
5 the risks and prospects of electric utilities is essential in developing an informed opinion
6 of investors' expectations and requirements that are the basis of a fair rate of return.

A. Dayton Power & Light Company

7 **Q. BRIEFLY DESCRIBE DP&L AND ITS ELECTRIC UTILITY OPERATIONS.**

8 A. DP&L, a wholly-owned subsidiary of AES, is engaged in the transmission and distribution
9 of electric power to over 527,000 customer accounts, serving 1.25 million people in West
10 Central Ohio. At June 30, 2020, DP&L had total assets of approximately \$2.3 billion, and
11 in 2019 the Company's revenues were approximately \$735 million. The Company's
12 transmission and distribution facilities consist of approximately 19,600 miles of
13 transmission and distribution lines. DP&L is a member of PJM Interconnection, LLC
14 ("PJM"), a Federal Energy Regulatory Commission ("FERC")-approved transmission
15 organization, and provides regional transmission service pursuant to the PJM Open Access
16 Transmission Tariff.

17 **Q. WHERE DOES DP&L OBTAIN THE CAPITAL USED TO FINANCE ITS**
18 **INVESTMENT IN ELECTRIC UTILITY PLANT?**

19 A. As a wholly-owned subsidiary of AES, the Company obtains common equity capital solely
20 from its parent, whose common stock is publicly traded on the New York Stock Exchange.
21 In addition to capital supplied by AES, DP&L also issues debt securities directly under its
22 own name.

1 **Q. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO THE COMPANY?**

2 A. As discussed previously, in November, 2019 S&P downgraded DP&L's issuer credit rating
3 to "BB."³⁰ While Moody's currently assigns the Company a long-term issuer rating of
4 "Baa2" on December 20, 2019, Moody's revised the outlook for DP&L's ratings from
5 "stable" to "negative," warning investors of a potential downgrade.³¹ Meanwhile, Fitch
6 Ratings, Inc. ("Fitch") has assigned the Company a long-term issuer default rating of
7 "BBB-."

8 **Q. DOES DP&L ANTICIPATE THE NEED FOR ADDITIONAL CAPITAL GOING**
9 **FORWARD?**

10 A. Yes. DP&L will require capital investment to provide for necessary maintenance and
11 replacements of its utility infrastructure, as well as to fund investment in new facilities. As
12 shown in Schedule S-1, the Company expects to make significant capital expenditures over
13 the next five years.

B. Outlook for Capital Costs

14 **Q. PLEASE SUMMARIZE CURRENT ECONOMIC AND CAPITAL MARKET**
15 **CONDITIONS?**

16 A. In the second quarter of 2020, U.S. real GDP growth declined sharply at an annual rate of
17 -31.7%, following a decline of 0.5% in the prior quarter. The unemployment rate continued
18 to fall gradually to 8.4% in August of 2020, from its peak at 14.7% in April, which is
19 indicative of a frail but improving labor market and an economy that remains significantly
20 below full employment. Inflation, as evidenced by the Consumer Price Index, was low at

³⁰ As I noted earlier, on November 3, 2020, after my analyses were prepared, S&P announced that it was upgrading DP&L's corporate credit rating one notch from "BB" to BB+." DP&L's rating remains below the investment grade threshold of BBB- and this one-notch upgrade has no impact on my conclusions or recommendations.

³¹ Moody's Investors Service, *Moody's confirms DPL and Dayton Power and Light's ratings; negative outlook*, Rating Action (Dec. 20, 2019).

1 around 1.3% in August 2020. Investors continue to face volatility as capital markets
2 respond to uncertainties surrounding the sharp decline in real economic output associated
3 with the COVID-19 pandemic and related state and federal shutdowns, as well as the
4 resulting economic stimulus packages that characterized the first half of 2020. This
5 underlying risk and unease has been felt worldwide as countries have struggled to manage
6 the pandemic. China's GDP showed a sharp contraction in the first quarter of 2020,
7 followed by tepid growth in the second quarter. The European Union evidenced sharp
8 declines in GDP during the first and second quarters of 2020. Economic activity has
9 remained weak in many emerging market economies, including Brazil and Mexico. The
10 global economic contraction comes on top of already heightened geopolitical tensions in
11 the Middle East, which in the past have led to ongoing concerns over possible disruptions
12 in crude oil supplies and attendant price volatility.

13 **Q. HOW HAVE COMMON EQUITY MARKETS BEEN IMPACTED BY COVID-19?**

14 A. The threat posed by the coronavirus pandemic has led to extreme volatility in capital
15 markets worldwide as investors dramatically revise their risk perceptions and return
16 requirements in the face of the severe disruptions to commerce and the economy.
17 Simultaneously, energy markets have been roiled by the threat to demand posed by a
18 worldwide economic slowdown and a breakdown of Russia's partnership with the
19 Organization of the Petroleum Exporting Countries. These simultaneous demand and
20 supply shocks have led to sharp declines in oil prices, which have further confounded
21 investors and destabilized the economic outlook and asset prices.

22 Despite the actions of the world's central banks to ease market strains and bolster
23 the economy, global financial markets have experienced precipitous declines in asset
24 values. On March 12, 2020, the Dow Jones Industrial Average ("DJIA") suffered its worst
25 decline since the 1987 "Black Monday" crash, falling by almost 10% in a single session,

1 and pushing the index into a bear market, defined as a 20% drop from a previous high. On
2 March 16, 2020, the DJIA experienced its greatest fall, point-wise, in history, ending the
3 day with a decline of 2,997 points. Similarly, between February 19 and March 23, 2020,
4 the S&P 500 lost more than 30% of its total value. The Chicago Board Options Exchange
5 Volatility Index (commonly known as the "VIX"), which is a key measure of expectations
6 of near-term volatility and market sentiment, rose to levels not seen since the 2008-2009
7 Financial Crisis.

8 **Q. HAVE UTILITIES AND THEIR INVESTORS FACED SIMILAR TURMOIL?**

9 A. Yes. As of March 23, 2020, the Dow Jones Utility Average ("DJUA") had fallen
10 approximately 36% from the previous high reached on February 18, 2020, demonstrating
11 the fact that regulated utilities and their investors are not immune from the impact of
12 financial market turmoil. As with the broader market, utility stock prices have recovered
13 from these lows, but as of August 2020 the DJUA remained 12% below its previous high.
14 While equity markets have recovered from the lows reached in March 2020, the
15 pronounced selloff and ongoing volatility evidence investors' trepidation to commit capital
16 and marks a significant upward revision in their perceptions of risk and required returns.

17 Concerns over weakening credit quality prompted S&P to revise its outlook for the
18 regulated utility industry from "stable" to "negative."³² As S&P explained:

19 Even before the current downturn and COVID-19, a confluence of factors,
20 including the adverse impacts of tax reform, historically high capital
21 spending, and associated increased debt, resulted in little cushion in ratings
22 for unexpected operating challenges.³³

³² S&P Global Ratings, *COVID-10: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (Apr. 2, 2020).

³³ S&P Global Ratings, *North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic*, RatingsDirect (May 11, 2020).

1 While recognizing regulatory protections that should mitigate the impact of the
2 coronavirus pandemic, S&P noted that "the timing and extent of these protections adds
3 uncertainty to already stretched financial profiles."³⁴ S&P warned investors that pressure
4 on electric utility finances "sets the stage for downgrades."³⁵ As S&P concluded,
5 challenges posed by the coronavirus crisis "have the potential to significantly impact the
6 financial performance of the investor-owned utilities, increasing the overall level of
7 investor risk, and will have to be addressed by . . . regulators."³⁶

8 Meanwhile Moody's noted that utilities were forced to seek alternatives to volatile
9 commercial paper markets in order to fund operations, and emphasized the importance of
10 maintaining adequate liquidity in the sector to weather a prolonged period of financial
11 volatility and turbulent capital markets.³⁷ As Moody's concluded in its recent review of
12 PG&E's investment risks:

13 The coronavirus outbreak, weak global economic outlook and asset price
14 declines are creating a severe and extensive credit shock across many
15 sectors, regions and markets. The combined credit effects of these
16 developments are unprecedented.³⁸

17 **Q. WHAT ACTIONS HAS THE FEDERAL RESERVE TAKEN IN RESPONSE TO**
18 **THE THREAT TO THE ECONOMY POSED BY THE CORONAVIRUS**
19 **PANDEMIC?**

20 **A.** In early 2020, the Federal Reserve quickly lowered its policy rate to close to zero to support
21 economic activity, stabilize markets and bolster the flow of credit to households,
22 businesses, and communities. In March 2020, the Federal Reserve lowered the target range

³⁴ *Id.*

³⁵ *Id.*

³⁶ S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar. 25, 2020).

³⁷ Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar. 26, 2020).

³⁸ Moody's Investors Service, *Moody's assigns Baa3 rating to Pacific Gas & Electric's first mortgage bonds and B1 rating to PG&E Corp's senior secured debt; outlooks stable*, Rating Action (Jun. 15, 2020).

1 for its benchmark federal funds rate by a total of 150 basis points, to the current range of
2 0% to 0.25%. The Federal Open Market Committee expects to maintain this target range
3 until it is confident that the economy has weathered recent events.

4 In addition, the Federal Reserve has announced a broad range of unprecedented
5 programs designed to support financial market liquidity and economic stability. The
6 quantitative easing measures initially adopted in response to the 2008 financial crisis were
7 reintroduced by directing the purchase of Treasury securities and agency mortgage-backed
8 securities "in the amounts needed to support the smooth functioning of markets,"³⁹ while
9 continuing to reinvest all principal payments from its existing holdings. In addition, the
10 Federal Reserve has also announced wide-ranging initiatives designed to support credit
11 markets and ensure liquidity, including credit facilities to support households, businesses,
12 and state and local governments, as well as the purchase of corporate bonds on the
13 secondary market.⁴⁰

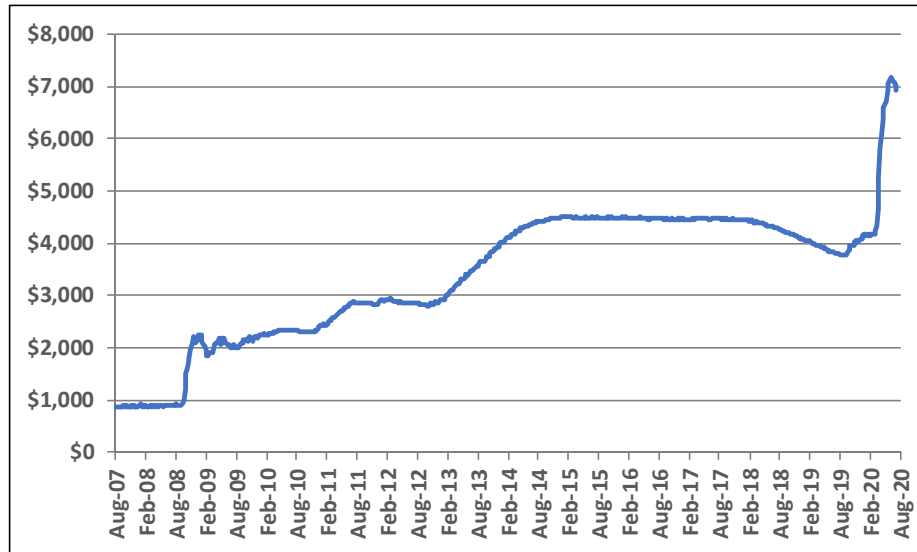
14 As illustrated in Figure AMM-2 below, the Federal Reserve's asset holdings now
15 amount to over \$7 trillion, which is an all-time high, and the resulting effect on capital
16 market conditions has likely never been more pronounced. While the Federal Reserve's
17 aggressive monetary stimulus may help to ensure market liquidity and support the
18 economy, these actions also support financial asset prices, which in turn place artificial
19 downward pressure on bond yields.

³⁹ Federal Reserve, *Press Release* (Mar. 23, 2020).

<https://www.federalreserve.gov/monetarypolicy/files/monetary20200323a1.pdf>.

⁴⁰ See, e.g., *Federal Reserve takes additional actions to provide up to \$2.3 trillion in loans to support the economy*, Press Release (Apr. 9, 2020). <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200409a.htm>.

FIGURE AMM-2
FEDERAL RESERVE BALANCE SHEET
(\$ BILLIONS)



<https://fred.stlouisfed.org/series/WALCL>

Q. DO TRENDS IN THE YIELDS ON TREASURY NOTES AND BONDS ACCURATELY REFLECT THE EXPECTATIONS AND REQUIREMENTS OF DP&L'S EQUITY INVESTORS?

A. No. While Treasury bond yields provide one indicator of capital costs, they do not serve as a direct guide to the magnitude—or even direction—for changes in the cost of equity for utilities. For example, during times of heightened uncertainty and risk, investors may prefer the relative safety of U.S. government bonds, which can lead to a significant fall in Treasury bond yields at the same time that required returns on common stocks are increasing. Treasury bond yields may also be disproportionately impacted by monetary policies, such as quantitative easing, designed with the express intent of artificially suppressing bond yields. FERC has recognized that movements in Treasury bond yields do not provide a reliable guide to changes in required returns for utilities, concluding that,

1 "adjusting ROEs based on changes in U.S. Treasury bond yields may not produce a rational
2 result, as both the magnitude and direction of the correlation may be inaccurate."⁴¹

3 **Q. DOES THE PROSPECT OF ECONOMIC RECESSION IMPLY LOWER CAPITAL**
4 **COSTS?**

5 A. No. Investors' required rates of return for DP&L and other financial assets are a function
6 of risk, with greater exposure to uncertainty requiring higher—not lower—rates of return
7 to induce long-term investment. With respect to credit markets, S&P observed that
8 conditions "look set to remain extraordinarily difficult for borrowers at least into the second
9 half of the year, with the economic stop associated with coronavirus-containment measures
10 continuing with no clear end in sight."⁴² And while regulated utilities are favorably
11 positioned relative to other industry sectors, S&P nevertheless noted that "access to the
12 equity markets remains extraordinarily challenging."⁴³

13 While expected growth rates may moderate as the economy softens, it is important
14 not to confuse investors' expectations for future growth with their required rate of return.
15 In fact, trends in growth rates say nothing at all about investors' overall risk perceptions.
16 The fact that investors' required rates of return for long-term capital can rise in tandem with
17 expectations of declining growth that might accompany an economic slowdown is
18 demonstrated in the equity markets, where perceptions of greater risks led investors to
19 sharply reevaluate what they are willing to pay for utility common stocks. While the
20 decline in utility stock prices may in part be attributed to somewhat diminished
21 expectations of future cash flows, there is also every indication that investors' discount rate,

⁴¹ *Coakley v. Bangor Hydro-Elec.*, 147 FERC ¶ 61,234 at P 159 (2014).

⁴² S&P Global Ratings, *Credit Conditions North America: Unprecedented Uncertainty Slams Credit* (Mar. 31, 2020).

⁴³ S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (Apr. 2, 2020).

1 or cost of common equity, has moved higher to accommodate the greater risks they now
2 associate with equity investments.

3 **Q. IS THERE ANY DIRECT EVIDENCE THAT THE RISKS ASSOCIATED WITH**
4 **ELECTRIC UTILITY COMMON STOCKS HAVE INCREASED AS A RESULT OF**
5 **RECENT MARKET TURMOIL?**

6 A. Yes. Beta is a widely referenced measure of equity risk that is based on the relative
7 volatility of a utility's common stock price relative to the market as a whole, and reflects
8 the tendency of a stock's price to follow changes in the market. A stock that tends to
9 respond less to market movements has a beta less than 1.00, while stocks that tend to move
10 more than the market have betas greater than 1.00. Beta is the only relevant measure of
11 investment risk under modern capital market theory, and is widely cited in academics and
12 in the investment industry as a guide to investors' risk perceptions.

13 As shown subsequently in Table AMM-7, the current average beta for the proxy
14 group of comparable utilities that I rely on in this case for estimating the Company's ROE
15 is 0.88. Prior to the pandemic, the average beta for the same group of companies was 0.59.
16 This dramatic increase in a primary gauge of investors' risk perceptions is further proof of
17 the rise in electric utility risk in 2020.

18 **Q. HOW DO INTEREST RATES ON LONG-TERM BONDS COMPARE WITH**
19 **THOSE PROJECTED FOR THE NEXT FEW YEARS?**

20 A. Table AMM-2 below compares current interest rates on 10-year and 30-year Treasury
21 bonds, triple-A rated corporate bonds, and double-A rated utility bonds with the average of
22 near-term projections from the Blue Chip Financial Forecasts, Energy Information
23 Administration ("EIA"), IHS Markit, and The Value Line Investment Survey ("Value
24 Line"):

TABLE AMM-2
INTEREST RATE TRENDS

	<u>Jul. 2020</u>	<u>Average 2021-25</u>	<u>Change (bp)</u>
10-Yr. Treasury	0.62%	1.90%	128
30-Yr. Treasury	1.31%	2.24%	93
Aaa Corporate	2.14%	3.25%	111
Aa Utility	2.46%	4.12%	166

Source:

Value Line Investment Survey, Forecast for the U.S. Economy (May 29, 2020).

IHS Markit, Long-Term Macro Forecast - Baseline (May 28, 2020).

Energy Information Administration, Annual Energy Outlook 2020 (Jan. 29, 2020).

Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2020).

As evidenced above, there is a clear consensus that the cost of permanent capital will be higher in the 2021-2025 timeframe than it is currently. As a result, current cost of capital estimates are likely to understate investors' requirements during the time the rates set in this proceeding are effective.

Q. IS IT NECESSARY THAT INTEREST RATE FORECASTS, LIKE THOSE SHOWN ABOVE, BE PERFECTLY ACCURATE IN ORDER TO BE RELIED ON?

A. No. When estimating investors' required rate of return, what investors expect, not what actually happens, is what matters most. While the projections of various services may be proven optimistic or pessimistic in hindsight, this is irrelevant in assessing expected interest rates and how they might influence the Company's allowed ROE. Any difference in actual rates as compared to analysts' forecasts is beside the point. What is most important is that investors share analysts' views when the forecasts were made and incorporate those views into their decision-making process, not the actual rates that ultimately transpire.

1 **Q. WOULD IT BE REASONABLE TO DISREGARD THE IMPLICATIONS OF**
2 **CURRENT CAPITAL MARKET CONDITIONS IN ESTABLISHING A FAIR ROE**
3 **FOR DP&L?**

4 A. No. They reflect the circumstances under which DP&L must attract and retain capital. The
5 standards underlying a fair rate of return require that the Company's authorized ROE reflect
6 a return competitive with other investments of comparable risk and preserve its ability to
7 maintain access to capital on reasonable terms. These standards can be met only by
8 considering the requirements of investors. As S&P concluded, challenges posed by the
9 coronavirus crisis "have the potential to significantly impact the financial performance of
10 the investor-owned utilities, increasing the overall level of investor risk, and will have to
11 be addressed by state regulators."⁴⁴

12 While market dislocations may complicate the evaluation of the cost of common
13 equity, there has been little indication that the challenges confronting the economy and
14 financial markets will be resolved quickly. If the upward shift in investors' risk perceptions
15 and required rates of return for long-term capital is not incorporated in the allowed ROE,
16 the results will fail to meet the comparable earnings standard that is fundamental in
17 determining the cost of capital. From a more practical perspective, failing to provide
18 investors with the opportunity to earn a rate of return commensurate with DP&L's risks
19 will weaken its financial integrity, while hampering the Company's ability to attract
20 necessary capital.

21 **Q. SHOULD THE ECONOMIC DISLOCATIONS CAUSED BY THE CORONAVIRUS**
22 **PANDEMIC BE CONSIDERED?**

23 A. Yes. No one knows the future of our complex global economy. While there is continued
24 hope for a relatively swift economic rebound as COVID-19 containment measures are

⁴⁴ S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar. 25, 2020).

1 gradually lifted, residual impacts of the unprecedented economic and health crisis could
2 linger indefinitely. In any event, it would be imprudent to gamble the interests of customers
3 and the economy of Ohio in the hope that the harsh economic reality will suddenly be
4 resolved. DP&L must raise capital in the real world of financial markets. To ignore the
5 current reality would be unwise given the importance of reliable electric service for
6 customers and the economy.

IV. COMPARABLE RISK PROXY GROUP

7 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?**

8 A. This section describes the procedures underlying my identification of a proxy group of
9 publicly traded companies.

10 **Q. CAN QUANTITATIVE METHODS BE APPLIED DIRECTLY TO DP&L TO**
11 **ESTIMATE THE COST OF EQUITY?**

12 A. No. Application of quantitative methods to estimate the cost of common equity requires
13 observable capital market data, such as stock prices and beta values. Moreover, even for a
14 firm with publicly traded stock, the cost of common equity can only be estimated. As a
15 result, applying quantitative models using observable market data only produces an
16 estimate that inherently includes some degree of observation error. Thus, the accepted
17 approach to increase confidence in the results is to apply quantitative methods to a proxy
18 group of publicly traded companies that investors regard as risk-comparable. The results
19 of the analysis on the sample of companies are relied upon to establish a range of
20 reasonableness for the cost of equity for the specific company at issue.

1 **Q. WHAT SPECIFIC PROXY GROUP OF UTILITIES DO YOU RELY ON FOR**
2 **YOUR ANALYSES?**

3 A. My analyses relied on a proxy group composed of 22 companies, which I refer to as the
4 "Electric Group." To develop this group, I began with the following criteria:

- 5 1. Companies that are included in the Electric Utility Industry groups compiled
6 by Value Line.
- 7 2. Electric utilities that paid common dividends over the last six months and
8 have not announced a dividend cut since that time.
- 9 3. Electric utilities with no ongoing involvement in a major merger or
10 acquisition that would distort quantitative results.

11 In addition, my analysis also considered credit ratings from S&P and Moody's,
12 along with Value Line's Safety Rank in evaluating relative risk. Typically, I limit the proxy
13 group to those companies with ratings from Moody's or S&P that fall within one "notch"
14 higher or lower than the utility at issue. As noted earlier, the Company has been assigned
15 a corporate credit rating of BB by S&P, which would normally result in a ratings range of
16 BB- to BB+. Since no utilities in the prospective proxy group fall within that range, I
17 applied a somewhat lower risk S&P ratings range of BBB- to BBB+. The Company has
18 been assigned a long-term rating of Baa2 by Moody's, and implementing my typical
19 convention resulted in a Moody's ratings range of Baa3 to Baa1.

20 **Q. YOUR UNIVERSE OF PROXY COMPANIES BEGAN WITH THOSE COVERED**
21 **BY VALUE LINE. IS THERE ANY OTHER PUBLICLY TRADED UTILITY THAT**
22 **IS NOT YET COVERED BY VALUE LINE THAT INVESTORS WOULD REGARD**
23 **AS COMPARABLE?**

24 A. Yes. Investors would regard Algonquin Power & Utilities, Inc. ("Algonquin") as a
25 comparable investment alternative that is relevant to an evaluation of a just and reasonable
26 ROE for DP&L. Although it has not yet been included in Value Line's electric utility
27 industry groups, investors also regard Algonquin as having operations comparable to those

1 of other electric utilities in the proxy group. Algonquin is a North American diversified
2 generation, transmission, and distribution utility with approximately \$10 billion in total
3 assets. Algonquin provides regulated utility services to over 750,000 customers in Arizona,
4 Arkansas, California, Georgia, Illinois, Iowa, Kansas, Massachusetts, Missouri, New
5 Hampshire, Oklahoma, and Texas.⁴⁵ A majority of Algonquin's revenues, earnings, and
6 assets are related to its regulated U.S. utility operations.⁴⁶ In addition, Algonquin reports
7 interim and annual consolidated financial statements in U.S. dollars, its dividend is
8 denominated in U.S. dollars, and its common shares are listed on the New York Stock
9 Exchange. While Algonquin is not rated by Moody's, it has been assigned a credit rating
10 of BBB by S&P.

11 **Q. WHAT OTHER PUBLICLY TRADED UTILITY IS RELEVANT IN**
12 **ESTABLISHING A PROXY GROUP?**

13 A. Emera should also be included in the proxy group.

14 **Q. PLEASE EXPLAIN WHY EMERA SHOULD BE CONSIDERED.**

15 A. Emera's credit ratings fall within the screening criteria discussed above. While Emera is
16 currently included in Value Line's "Power Industry" sector, rather than its "Electric Utility"
17 industry groups, investors consider Emera to have risks and operations comparable to those
18 of other electric utilities. Emera is primarily engaged in electricity generation,
19 transmission, and distribution; gas transmission and distribution; and utility energy
20 services, and serves approximately 2.5 million customers. Emera completed its acquisition

⁴⁵ Algonquin completed its acquisition of Empire District in 2017, which more than doubled its size. Empire District was included in Value Line's electric utility industry group prior to its merger with Algonquin.

⁴⁶ For example, Algonquin reported that during 2019 regulated utility operations accounted for 84% of total revenues, 86% of operating income, and 63% of total assets. Approximately 95% of Algonquin's consolidated revenue and 90% of property, plant, and equipment are attributable to operations in the U.S.

https://www.sec.gov/cgi-bin/viewer?action=view&cik=1174169&accession_number=0001174169-20-000018&xbrl_type=v#.

1 of TECO Energy in 2016 and Value Line reported that Emera's Florida electric utility is its
2 largest operating segment and that "over 95% of earnings now [come] from regulated
3 operations."⁴⁷

4 Similarly, CFRA highlighted Emera's primary focus on electric utility operations,
5 and classified Emera in its "Electric Utilities" industry group,⁴⁸ and Emera reports as an
6 "Electric Utility" under the Standard Industrial Classification Code (4911).⁴⁹ S&P noted
7 that "Emera, Inc. is a geographically diverse electric and natural gas holding utility
8 company,"⁵⁰ and reported that regulated utility operations contribute "about 95% of
9 consolidated cash flow."⁵¹ Thus, investors would regard Emera as a comparable
10 investment alternative that is relevant to an evaluation of the required rate of return for
11 Avista. Emera's operations are dominated by its U.S.-based utilities in Florida, Maine, and
12 New Mexico, which together accounted for approximately 67 percent of consolidated net
13 income and total assets at year-end 2018.⁵²

V. CAPITAL MARKET ESTIMATES

14 Q. WHAT IS THE PURPOSE OF THIS SECTION?

15 A. This section presents capital market estimates of the cost of equity. First, I address the
16 concept of the cost of common equity, along with the risk-return tradeoff principle
17 fundamental to capital markets. Next, I describe various quantitative analyses conducted

⁴⁷ The Value Line Investment Survey (Mar. 20, 2020).

⁴⁸ CFRA, *Emera Incorporated*, Quantitative Stock Report (Jun. 24, 2017). CFRA, founded as the Center for Financial Research and Analysis, is one of the world's largest providers of institutional-grade independent equity research, acquired the equity and fund research arm of S&P in October 2016.

⁴⁹ See, e.g., Emera, Inc., 2019 SEC Form 40-F,
<https://www.sec.gov/Archives/edgar/data/1127248/000119312520090975/d904641d40f.htm>.

⁵⁰ S&P Global Ratings, *Emera Inc. And Subsidiaries 'BBB+' Ratings Affirmed; Outlooks Remain Negative*, RatingsDirect (Mar. 26, 2019).

⁵¹ S&P Global Ratings, *Emera Inc. And TECO Downgraded On Weak Financials, Outlook Stable; Subsidiaries Ratings Affirmed*, Research Update (Mar. 24, 2020).

⁵² Emera, Inc., 2018 Financial Statements at Note 4. While Emera announced the planned sale of its Maine utility operations on March 25, 2019, this transaction is small in relation to Emera's total business, with the sale price representing approximately 4 percent of total assets.

1 to estimate the cost of common equity for the proxy group of comparable risk utilities.
2 Finally, I examine flotation costs, which are properly considered in evaluating a fair and
3 reasonable rate of return on equity.

A. **Economic Standards**

4 **Q. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THE COST OF**
5 **EQUITY CONCEPT?**

6 A. The fundamental economic principle underlying the cost of equity concept is the notion
7 that investors are risk averse. In capital markets where relatively risk-free assets are
8 available (e.g., U.S. Treasury securities), investors can be induced to hold riskier assets
9 only if they are offered a premium, or additional return, above the rate of return on a risk-
10 free asset. Because all assets compete with each other for investor funds, riskier assets
11 must yield a higher expected rate of return than safer assets to induce investors to invest
12 and hold them.

13 Given this risk-return tradeoff, the required rate of return (k) from an asset (i) can
14 generally be expressed as:

$$15 \quad k_i = R_f + RP_i$$

16 where: R_f = Risk-free rate of return, and
17 RP_i = Risk premium required to hold riskier asset i .

18 Thus, the required rate of return for a particular asset at any time is a function of:
19 (1) the yield on risk-free assets, and (2) the asset's relative risk, with investors demanding
20 correspondingly larger risk premiums for bearing greater risk.

1 **Q. IS THERE EVIDENCE THAT THE RISK-RETURN TRADEOFF PRINCIPLE**
2 **ACTUALLY OPERATES IN THE CAPITAL MARKETS?**

3 A. Yes. The risk-return tradeoff can be readily documented in segments of the capital markets
4 where required rates of return can be directly inferred from market data and where
5 generally accepted measures of risk exist. Bond yields, for example, reflect investors'
6 expected rates of return, and bond ratings measure the risk of individual bond issues.
7 Comparing the observed yields on government securities, which are considered free of
8 default risk, to the yields on bonds of various rating categories demonstrates that the risk-
9 return tradeoff does, in fact, exist.

10 **Q. DOES THE RISK-RETURN TRADEOFF OBSERVED WITH FIXED INCOME**
11 **SECURITIES EXTEND TO COMMON STOCKS AND OTHER ASSETS?**

12 A. It is widely accepted that the risk-return tradeoff evidenced with long-term debt extends to
13 all assets. Documenting the risk-return tradeoff for assets other than fixed income
14 securities, however, is complicated by two factors. First, there is no standard measure of
15 risk applicable to all assets. Second, for most assets – including common stock – required
16 rates of return cannot be directly observed. Yet there is every reason to believe that
17 investors exhibit risk aversion in deciding whether or not to hold common stocks and other
18 assets, just as when choosing among fixed-income securities.

19 **Q. IS THIS RISK-RETURN TRADEOFF LIMITED TO DIFFERENCES BETWEEN**
20 **FIRMS?**

21 A. No. The risk-return tradeoff principle applies not only to investments in different firms,
22 but also to different securities issued by the same firm. The securities issued by a utility
23 vary considerably in risk because they have different characteristics and priorities. As
24 noted earlier, common shareholders are the last in line and they receive only the net
25 revenues, if any, remaining after all other claimants have been paid. As a result, the rate of

1 return that investors require from a utility's common stock, the most junior and riskiest of
2 its securities, must be considerably higher than the yield offered by the utility's senior, long-
3 term debt.

4 **Q. WHAT ARE THE CHALLENGES IN DETERMINING A JUST AND**
5 **REASONABLE ROE FOR A REGULATED ENTERPRISE?**

6 A. The actual return investors require is unobservable. Different methodologies have been
7 developed to estimate investors' expected and required return on capital, but all such
8 methodologies are merely theoretical tools and generally produce a range of estimates,
9 based on different assumptions and inputs. The DCF method, which is frequently
10 referenced and relied on by regulators, is only one theoretical approach to gain insight into
11 the return investors require; there are numerous other methodologies for estimating the cost
12 of capital and the ranges produced by the different approaches can vary widely.

13 **Q. IS IT CUSTOMARY TO CONSIDER THE RESULTS OF MULTIPLE**
14 **APPROACHES WHEN EVALUATING A JUST AND REASONABLE ROE?**

15 A. Yes. In my experience, financial analysts and regulators routinely consider the results of
16 alternative approaches in determining allowed ROEs. It is widely recognized that no single
17 method can be regarded as failsafe; with all approaches having advantages and
18 shortcomings. As the FERC has noted, "[t]he determination of rate of return on equity
19 starts from the premise that there is no single approach or methodology for determining the
20 correct rate of return."⁵³ Similarly, a publication of the Society of Utility and Regulatory
21 Financial Analysts concluded that:

22 Each model requires the exercise of judgment as to the reasonableness of
23 the underlying assumptions of the methodology and on the reasonableness
24 of the proxies used to validate the theory. Each model has its own way of
25 examining investor behavior, its own premises, and its own set of

⁵³ *Northwest Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 4 (1997).

1 simplifications of reality. Each method proceeds from different
2 fundamental premises, most of which cannot be validated empirically.
3 Investors clearly do not subscribe to any singular method, nor does the stock
4 price reflect the application of any one single method by investors.⁵⁴

5 As this treatise succinctly observed, "no single model is so inherently precise that
6 it can be relied on solely to the exclusion of other theoretically sound models."⁵⁵ Similarly,
7 *New Regulatory Finance* concluded that:

8 There is no single model that conclusively determines or estimates the
9 expected return for an individual firm. Each methodology possesses its own
10 way of examining investor behavior, its own premises, and its own set of
11 simplifications of reality. Each method proceeds from different
12 fundamental premises that cannot be validated empirically. Investors do
13 not necessarily subscribe to any one method, nor does the stock price reflect
14 the application of any one single method by the price-setting investor.
15 There is no monopoly as to which method is used by investors. In the
16 absence of any hard evidence as to which method outdoes the other, all
17 relevant evidence should be used and weighted equally, in order to
18 minimize judgmental error, measurement error, and conceptual
19 infirmities.⁵⁶

20 Thus, while the DCF model is a recognized approach to estimating the ROE, it is
21 not without shortcomings and does not otherwise eliminate the need to ensure that the "end
22 result" is fair. The Indiana Utility Regulatory Commission has recognized this principle:

23 There are three principal reasons for our unwillingness to place a great deal
24 of weight on the results of any DCF analysis. One is . . . the failure of the
25 DCF model to conform to reality. The second is the undeniable fact that
26 rarely if ever do two expert witnesses agree on the terms of a DCF equation
27 for the same utility – for example, as we shall see in more detail below,
28 projections of future dividend cash flow and anticipated price appreciation
29 of the stock can vary widely. And, the third reason is that the unadjusted
30 DCF result is almost always well below what any informed financial
31 analysis would regard as defensible, and therefore require an upward
32 adjustment based largely on the expert witness's judgment. In these

⁵⁴ David C. Parcell, *The Cost of Capital – A Practitioner's Guide*, Society of Utility and Regulatory Financial Analysts (2010) at 84.

⁵⁵ *Id.*

⁵⁶ Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 429.

1 circumstances, we find it difficult to regard the results of a DCF
2 computation as any more than suggestive.⁵⁷

3 More recently, the FERC recognized the potential for any application of the DCF
4 model to produce unreliable results.⁵⁸

5 As this discussion indicates, consideration of the results of alternative approaches
6 reduces the potential for error associated with any single quantitative method. Just as
7 investors inform their decisions through the use of a variety of methodologies, my
8 evaluation of a fair ROE for the Company considered the results of multiple financial
9 models.

10 **Q. DOES THE FACT THAT DP&L IS A SUBSIDIARY OF AES IN ANY WAY ALTER**
11 **THESE FUNDAMENTAL STANDARDS UNDERLYING A FAIR AND**
12 **REASONABLE ROE?**

13 **A.** No. While the Company has no publicly traded common stock and AES is DP&L's
14 ultimate parent company, this does not change the standards governing the determination
15 of a fair ROE for the Company. Ultimately, the common equity that is required to support
16 the utility operations of DP&L must be raised in the capital markets, where investors
17 consider the Company's ability to offer a rate of return that is competitive with other risk-
18 comparable alternatives. DP&L must compete with other investment opportunities and
19 unless there is a reasonable expectation that investors will have the opportunity to earn
20 returns commensurate with the underlying risks, capital will be allocated elsewhere, the
21 Company's financial integrity will be weakened, and investors will demand an even higher
22 rate of return. DP&L's ability to offer a reasonable return on investment is a necessary
23 ingredient in ensuring that customers continue to enjoy economical rates and reliable
24 service.

⁵⁷ *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990).

⁵⁸ *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014).

1 **Q. WHAT DOES THE ABOVE DISCUSSION IMPLY WITH RESPECT TO**
2 **ESTIMATING THE COST OF COMMON EQUITY FOR A UTILITY?**

3 A. Although the cost of common equity cannot be observed directly, it is a function of the
4 returns available from other investment alternatives and the risks to which the equity capital
5 is exposed. Because it is not readily observable, the cost of common equity for a particular
6 utility must be estimated by analyzing information about capital market conditions
7 generally, assessing the relative risks of the company specifically, and employing various
8 quantitative methods that focus on investors' required rates of return. These various
9 quantitative methods typically attempt to infer investors' required rates of return from stock
10 prices, interest rates, or other capital market data.

B. Discounted Cash Flow Analyses

11 **Q. HOW IS THE DCF MODEL USED TO ESTIMATE THE COST OF COMMON**
12 **EQUITY?**

13 A. DCF models are based on the assumption that the price of a share of common stock is equal
14 to the present value of the expected cash flows (i.e., future dividends and stock price) that
15 will be received while holding the stock, discounted at investors' required rate of return.
16 Rather than developing annual estimates of cash flows into perpetuity, the DCF model can
17 be simplified to a "constant growth" form:

$$P_0 = \frac{D_1}{k_e - g}$$

18
19 where: P_0 = Current price per share;
20 D_1 = Expected dividend per share in the coming year;
21 k_e = Cost of equity; and,
22 g = Investors' long-term growth expectations.

1 The cost of common equity (k_e) can be isolated by rearranging terms within the
2 equation:

$$k_e = \frac{D_1}{P_0} + g$$

3
4 This constant growth form of the DCF model recognizes that the rate of return to
5 stockholders consists of two parts: 1) dividend yield (D_1/P_0); and 2) growth (g). In other
6 words, investors expect to receive a portion of their total return in the form of current
7 dividends and the remainder through price appreciation.

8 **Q. WHAT STEPS ARE REQUIRED TO APPLY THE CONSTANT GROWTH DCF**
9 **MODEL?**

10 A. The first step in implementing the constant growth DCF model is to determine the expected
11 dividend yield (D_1/P_0) for the firm in question. This is usually calculated based on an
12 estimate of dividends to be paid in the coming year divided by the current price of the
13 stock. The second, and more controversial, step is to estimate investors' long-term growth
14 expectations (g) for the firm. The final step is to sum the firm's dividend yield and
15 estimated growth rate to arrive at an estimate of its cost of common equity.

16 **Q. HOW DO YOU DETERMINE THE DIVIDEND YIELD FOR THE ELECTRIC**
17 **GROUP?**

18 A. Estimates of dividends to be paid by each of these utilities over the next twelve months,
19 obtained from Value Line, serve as D_1 . This annual dividend is then divided by a 30-day
20 average stock price as of August 12, 2020 for each utility to arrive at the expected dividend
21 yield. The expected dividends, stock prices, and resulting dividend yields for the firms in
22 the Electric Group are presented on page 1 of Exhibit AMM-4 (Corrected). As shown
23 there, dividend yields for the firms in the Electric Group range from 2.6% to 5.1%, and
24 average 3.9%.

1 **Q. WHAT IS THE NEXT STEP IN APPLYING THE CONSTANT GROWTH DCF**
2 **MODEL?**

3 A. The next step is to evaluate growth expectations, or "g," for the firm in question. In
4 constant growth DCF theory, earnings, dividends, book value, and market price are all
5 assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. But
6 implementation of the DCF model is more than just a theoretical exercise; it is an attempt
7 to replicate the mechanism investors used to arrive at observable stock prices. A wide
8 variety of techniques can be used to derive growth rates, but the only "g" that matters in
9 applying the DCF model is the value that investors expect.

10 **Q. WHAT ARE INVESTORS MOST LIKELY TO CONSIDER IN DEVELOPING**
11 **THEIR GROWTH EXPECTATIONS?**

12 A. Implementation of the DCF model is solely concerned with replicating the forward-looking
13 evaluation of real-world investors. In the case of utilities, dividend growth rates are not
14 likely to provide a meaningful guide to investors' current growth expectations. This is
15 because utilities have significantly altered their dividend policies in response to more
16 accentuated business risks and capital requirements in the industry, with the payout ratio
17 for electric utilities falling significantly from historical levels. As a result, dividend growth
18 in the utility industry has lagged growth in earnings as utilities conserve financial
19 resources.

20 A measure that plays a pivotal role in determining investors' long-term growth
21 expectations are future trends in earnings per share ("EPS"), which provide the source for
22 future dividends and ultimately support share prices. The importance of earnings in
23 evaluating investors' expectations and requirements is well accepted in the investment
24 community, and surveys of analytical techniques relied on by professional analysts indicate
25 that growth in earnings is far more influential than trends in dividends per share ("DPS").

1 The availability of projected EPS growth rates also is key to investors relying on
2 this measure as compared to future trends in DPS. Apart from Value Line, investment
3 advisory services do not generally publish comprehensive DPS growth projections, and
4 this scarcity of dividend growth rates relative to the abundance of earnings forecasts attests
5 to their relative influence. The fact that securities analysts focus on EPS growth, and that
6 DPS growth rates are not routinely published, indicates that projected EPS growth rates are
7 likely to provide a superior indicator of the future long-term growth expected by investors.

8 **Q. DO THE GROWTH RATE PROJECTIONS OF SECURITY ANALYSTS**
9 **CONSIDER HISTORICAL TRENDS?**

10 A. Yes. Professional security analysts study historical trends extensively in developing their
11 projections of future earnings. Hence, to the extent there is any useful information in
12 historical patterns, that information is incorporated into analysts' growth forecasts.

13 **Q. DID PROFESSOR MYRON J. GORDON, A PIONEER OF THE DCF APPROACH,**
14 **RECOGNIZE THE PIVOTAL ROLE THAT EARNINGS PLAY IN FORMING**
15 **INVESTORS' EXPECTATIONS?**

16 A. Yes. Dr. Gordon specifically recognized that "it is the growth that investors expect that
17 should be used" in applying the DCF model and he concluded:

18 A number of considerations suggest that investors may, in fact, use earnings
19 growth as a measure of expected future growth.⁵⁹

20 **Q. ARE ANALYSTS' ASSESSMENTS OF GROWTH RATES APPROPRIATE FOR**
21 **ESTIMATING INVESTORS' REQUIRED RETURN USING THE DCF MODEL?**

22 A. Yes. In applying the DCF model to estimate the cost of common equity, the only relevant
23 growth rate is the forward-looking expectations of investors that are captured in current

⁵⁹ Myron J. Gordon, *The Cost of Capital to a Public Utility*, MSU Pub. Util. Studies (1974) at 89.

1 stock prices. Investors, just like securities analysts and others in the investment
2 community, do not know how the future will actually turn out. They can only make
3 investment decisions based on their best estimate of what the future holds in the way of
4 long-term growth for a particular stock, and securities prices are constantly adjusting to
5 reflect their assessment of available information.

6 Any claims that analysts' estimates are not relied upon by investors are illogical
7 given the reality of a competitive market for investment advice. If financial analysts'
8 forecasts do not add value to investors' decision making, then it is irrational for investors
9 to pay for these estimates. Similarly, those financial analysts who fail to provide reliable
10 forecasts will lose out in competitive markets relative to those analysts whose forecasts
11 investors find more credible. The reality that analyst estimates are routinely referenced in
12 the financial media and in investment advisory publications, as well as the continued
13 success of services such as Thomson Reuters and Value Line, implies that investors use
14 them as a basis for their expectations.

15 While the projections of securities analysts may be proven optimistic or pessimistic
16 in hindsight, this is irrelevant in assessing the expected growth that investors have
17 incorporated into current stock prices, and any bias in analysts' forecasts – whether
18 pessimistic or optimistic – is irrelevant if investors share analysts' views. Earnings growth
19 projections of security analysts provide the most frequently referenced guide to investors'
20 views and are widely accepted in applying the DCF model. As explained in *New*
21 *Regulatory Finance*:

22 Because of the dominance of institutional investors and their influence on
23 individual investors, analysts' forecasts of long-run growth rates provide a
24 sound basis for estimating required returns. Financial analysts exert a
25 strong influence on the expectations of many investors who do not possess
26 the resources to make their own forecasts, that is, they are a cause of *g*
27 [growth]. The accuracy of these forecasts in the sense of whether they turn

1 out to be correct is not an issue here, as long as they reflect widely held
2 expectations.⁶⁰

3 **Q. HAVE REGULATORS ALSO RECOGNIZED THAT ANALYSTS' GROWTH**
4 **RATE ESTIMATES ARE AN IMPORTANT AND MEANINGFUL GUIDE TO**
5 **INVESTORS' EXPECTATIONS?**

6 A. Yes. The Kentucky Public Service Commission has indicated its preference for relying on
7 analysts' projections in establishing investors' expectations:

8 KU's argument concerning the appropriateness of using investors'
9 expectations in performing a DCF analysis is more persuasive than the AG's
10 argument that analysts' projections should be rejected in favor of historical
11 results. The Commission agrees that analysts' projections of growth will be
12 relatively more compelling in forming investors' forward-looking
13 expectations than relying on historical performance, especially given the
14 current state of the economy.⁶¹

15 Similarly, the FERC has expressed a clear preference for projected EPS growth
16 rates in applying the DCF model to estimate the cost of equity for both electric and natural
17 gas pipeline utilities:

18 Opinion No. 414-A held that the IBES five-year growth forecasts for each
19 company in the proxy group are the best available evidence of the short-
20 term growth rates expected by the investment community. It cited evidence
21 that (1) those forecasts are provided to IBES by professional security
22 analysts, (2) IBES reports the forecast for each firm as a service to investors,
23 and (3) the IBES reports are well known in the investment community and
24 used by investors. The Commission has also rejected the suggestion that the
25 IBES analysts are biased and stated that "in fact the analysts have a
26 significant incentive to make their analyses as accurate as possible to meet
27 the needs of their clients since those investors will not utilize brokerage
28 firms whose analysts repeatedly overstate the growth potential of
29 companies."⁶²

30 The Public Utility Regulatory Authority of Connecticut has also noted that "there
31 is not growth in DPS without growth in EPS," and concluded that securities analysts'

⁶⁰ Roger A. Morin, *New Regulatory Finance, Pub. Util. Reports, Inc.* (2006) at 298 (emphasis added).

⁶¹ *Kentucky Utilities Co.*, Case No. 2009-00548 (Ky PSC Jul. 30, 2010) at 30-31.

⁶² *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 at P 121 (2009) (footnote omitted).

1 growth projections have a greater influence over investors' expectations and stock prices.⁶³

2 In addition, the Regulatory Commission of Alaska ("RCA") has previously determined that
3 analysts' EPS growth rates provide a superior basis on which to estimate investors'
4 expectations:

5 We also find persuasive the testimony . . . that projected EPS returns are
6 more indicative of investor expectations of dividend growth than historical
7 growth data because persons making the forecasts already consider the
8 historical numbers in their analyses.⁶⁴

9 The RCA has concluded that arguments against exclusive reliance on analysts' EPS
10 growth rates to apply the DCF model "are not convincing."⁶⁵

11 **Q. WHAT ARE SECURITY ANALYSTS CURRENTLY PROJECTING IN THE WAY**
12 **OF GROWTH FOR THE FIRMS IN THE ELECTRIC GROUP?**

13 A. The earnings growth projections for each of the firms in the Electric Group reported by
14 Value Line, IBES,⁶⁶ and Zacks Investment Research ("Zacks") are displayed on page 2 of
15 Exhibit AMM-4 (Corrected).

16 **Q. HOW ELSE ARE INVESTORS' EXPECTATIONS OF FUTURE GROWTH**
17 **PROSPECTS OFTEN ESTIMATED WHEN APPLYING THE CONSTANT**
18 **GROWTH DCF MODEL?**

19 A. In constant growth theory, growth in book equity will be equal to the product of the
20 earnings retention ratio (one minus the dividend payout ratio) and the earned rate of return
21 on book equity. Furthermore, if the earned rate of return and the payout ratio are constant
22 over time, growth in earnings and dividends will be equal to growth in book value. Despite

⁶³ Public Utility Regulatory Authority of Connecticut, *Decision*, Docket No. 13-02-20 (Sept. 24, 2013).

⁶⁴ Regulatory Commission of Alaska, U-07-76(8) at 65, n. 258.

⁶⁵ Regulatory Commission of Alaska, U-08-157(10) at 36.

⁶⁶ Formerly I/B/E/S International, Inc., IBES growth rates are now compiled and published by Refinitiv and made available at, for instance, <https://finance.yahoo.com>.

1 the fact that these conditions are never met in practice, this "sustainable growth" approach
2 may provide a rough guide for evaluating a firm's growth prospects and is frequently
3 proposed in regulatory proceedings.

4 The sustainable growth rate is calculated by the formula, $g = br + sv$, where "b" is
5 the expected retention ratio, "r" is the expected earned return on equity, "s" is the percent
6 of common equity expected to be issued annually as new common stock, and "v" is the
7 equity accretion rate. Under DCF theory, the "sv" factor is a component of the growth rate
8 designed to capture the impact of issuing new common stock at a price above, or below,
9 book value. The sustainable, "br+sv" growth rates for each firm in the Electric Group are
10 summarized on page 2 of Exhibit AMM-4 (Corrected), with the underlying details being
11 presented in Exhibit AMM-5.⁶⁷

12 **Q. ARE THERE SIGNIFICANT SHORTCOMINGS ASSOCIATED WITH THE**
13 **"BR+SV" GROWTH RATE?**

14 A. Yes. I do not give it much weight for two reasons. First, in order to calculate the sustainable
15 growth rate, it is necessary to develop estimates of investors' expectations for four separate
16 variables; namely, "b", "r", "s", and "v." Given the inherent difficulty in forecasting each
17 parameter and the difficulty of estimating the expectations of investors, the potential for
18 measurement error is significantly increased when using four variables, as opposed to
19 referencing a direct projection for EPS growth. Second, empirical research in the finance
20 literature indicates that sustainable growth rates are not as significantly correlated to
21 measures of value, such as share prices, as are analysts' EPS growth forecasts.⁶⁸ The
22 "sustainable growth" approach is included for completeness, but evidence indicates that
23 analysts' forecasts provide a superior and more direct guide to investors' growth

⁶⁷ Because Value Line reports end-of-year book values, an adjustment factor is incorporated to compute an average rate of return over the year, which is consistent with the theory underlying this approach.

⁶⁸ Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 307.

1 expectations. Accordingly, I give less weight to cost of equity estimates based on $br+sv$
2 growth rates in evaluating the results of the DCF model.

3 **Q. WHAT COST OF COMMON EQUITY ESTIMATES ARE IMPLIED FOR THE**
4 **ELECTRIC GROUP USING THE DCF MODEL?**

5 A. After combining the dividend yields and respective growth projections for each utility, the
6 resulting cost of common equity estimates are shown on page 3 of Exhibit AMM-4
7 (Corrected).

8 **Q. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL,**
9 **IS IT APPROPRIATE TO ELIMINATE ILLOGICAL ESTIMATES AT THE**
10 **EXTREME LOW OR HIGH END OF THE RANGE?**

11 A. Yes. In applying quantitative methods to estimate the cost of equity, it is essential that the
12 resulting values pass fundamental tests of reasonableness and economic logic.
13 Accordingly, DCF estimates that are implausibly low or high should be eliminated when
14 evaluating the results of this method.

15 **Q. HOW DO YOU EVALUATE DCF ESTIMATES AT THE LOW END OF THE**
16 **RANGE?**

17 A. I base my evaluation of DCF estimates at the low end of the range on the fundamental risk-
18 return tradeoff, which holds that investors will take on more risk only if they expect to earn
19 a higher rate of return to compensate them for the greater uncertainty. Because common
20 stocks lack the protections associated with an investment in long-term bonds, a utility's
21 common stock imposes far greater risks on investors. As a result, the rate of return that
22 investors require from a utility's common stock is considerably higher than the yield offered
23 by senior, long-term debt. Consistent with this principle, DCF results that are not
24 sufficiently higher than the yield available on less risky utility bonds must be eliminated.

Q. HAVE SIMILAR TESTS BEEN APPLIED BY REGULATORS?

A. Yes. The FERC has noted that adjustments are justified where applications of the DCF approach produce illogical results. The FERC evaluates DCF results against observable yields on long-term public utility debt and has recognized that it is appropriate to eliminate estimates that do not sufficiently exceed this threshold.⁶⁹ The FERC affirmed that:

The purpose of the low-end outlier test is to exclude from the proxy group those companies whose ROE estimates are below the average bond yield or are above the average bond yield but are sufficiently low that an investor would consider the stock to yield essentially the same return as debt. In public utility ROE cases, the Commission has used 100 basis points above the cost of debt as an approximation of this threshold, but has also considered the distribution of proxy group companies to inform its decision on which companies are outliers. As the Presiding Judge explained, this is a flexible test.⁷⁰

More recently, FERC has established a new test which is based on adding 20 percent of the CAPM market risk premium to the current triple-B bond yield.⁷¹

Q. WHAT INTEREST RATE BENCHMARK DO YOU CONSIDER IN EVALUATING THE DCF RESULTS FOR DP&L?

A. Utility bonds rated "Baa" represent the lowest ratings grade for which Moody's publishes an index of average yields, and the closest available approximation for the risks of common stock, which are significantly greater than those of long-term debt. Monthly yields for Baa utility bonds reported by Moody's averaged 3.63% during the six-months ending July 2020. As documented earlier, current forecasts anticipate higher long-term rates over the near-

⁶⁹ See, e.g., *Southern California Edison Co.*, 131 FERC ¶ 61,020 at P 55 (2010) ("SoCal Edison").

⁷⁰ *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 122 (2014).

⁷¹ See, e.g., *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-A, 171 FERC ¶ 61,154 at P 161 (2020). While I do not agree with FERC's reference to 20% of the CAPM market risk premium as a basis for establishing the low-end threshold, FERC's methodology correctly recognizes that risk premiums widen as bond yields fall.

term. As shown in Table AMM-3 below, forecasts of IHS Markit and the EIA imply an average Baa bond yield of approximately 4.8% over the period 2021-2025:

**TABLE AMM-3
IMPLIED BAA UTILITY BOND YIELD**

	<u>Baa Yield</u> <u>2021-25</u>
Projected Aa Utility Yield	
IHS Global Insight (a)	3.65%
EIA (b)	<u>4.60%</u>
Average	4.12%
Current Baa - AA Yield Spread (c)	<u>0.72%</u>
Implied Baa Utility Yield	4.84%

**Q. WHAT ELSE SHOULD BE CONSIDERED IN EVALUATING DCF ESTIMATES
AT THE LOW END OF THE RANGE?**

A. While a 100 basis point spread over public utility bond yields is a starting place in evaluating low-end values, reference to a static test ignores the implications of the inverse relationship between equity risk premiums and bond yields. As discussed earlier, the premium that investors demand to bear the higher risks of common stock is not constant. As demonstrated empirically in the application of the risk premium method,⁷² equity risk premiums expand when interest rates fall, and vice versa.

For example, based on a review of its precedent for evaluating low-end values, the FERC established a 100 basis point risk premium over Moody's bond yield averages as a threshold to eliminate DCF results in *SoCal Edison*, citing prior decisions in *Atlantic Path 15*,⁷³ *Startrans*,⁷⁴ and *Pioneer*⁷⁵ in support of this policy.⁷⁶ Because bond yields declined significantly between the time of those findings and the study period in this case, the

⁷² Exhibit AMM-8, page 4.

⁷³ *Atl. Path 15, LLC*, 122 FERC ¶ 61,135 (2008) ("*Atlantic Path 15*").

⁷⁴ *Startrans IO, LLC*, 122 FERC ¶ 61,306 (2008) ("*Startrans*").

⁷⁵ *Pioneer Transmission, LLC*, 126 FERC ¶ 61,281 (2009) ("*Pioneer*").

⁷⁶ *SoCal Edison* at P 54.

1 inverse relationship implies a significant increase in the equity risk premium that investors
2 require to accept the higher uncertainties associated with an investment in utility common
3 stocks versus bonds. As shown on page 4 of Exhibit AMM-4 (Corrected), recognizing the
4 inverse relationship between equity risk premiums and bond yields would indicate a current
5 low-end threshold in the range of approximately 6.0% to 6.6%. Meanwhile, FERC's more
6 recent methodology based on the CAPM market risk premium indicates a low-end
7 threshold of 5.6%. The impact of widening equity risk premiums should be considered in
8 evaluating low-end cost of equity estimates.

9 **Q. WHAT DO YOU CONCLUDE REGARDING THE REASONABLENESS OF DCF**
10 **VALUES AT THE LOW END OF THE RANGE OF RESULTS?**

11 A. As highlighted on page 3 of Exhibit AMM-4 (Corrected), after considering this test and the
12 distribution of individual estimates, I eliminate low-end DCF estimates ranging from 0.6%
13 to 6.3%. Based on my professional experience and the risk-return tradeoff principle that is
14 fundamental to finance, it is inconceivable that investors are not requiring a substantially
15 higher rate of return for holding common stock. As a result, consistent with the threshold
16 established by utility bond yields, the values below the threshold provide little guidance as
17 to the returns investors require from utility common stocks and should be excluded.

18 **Q. DO YOU ALSO RECOMMEND EXCLUDING ESTIMATES AT THE HIGH END**
19 **OF THE RANGE OF DCF RESULTS?**

20 A. While I typically recommend the exclusion of high-end estimates that are clearly
21 implausible, in this case, no such values exist. The upper end of the DCF range for the
22 Electric Group is set by a cost of equity estimate of 13.6%. While a 13.6% cost of equity
23 estimate may exceed the majority of the remaining values, low-end DCF estimates in the
24 6% and 7% range are assuredly far below investors' required rate of return. Taken together
25 and considered along with the balance of the results, the remaining values provide a

reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

Q. WHAT COST OF COMMON EQUITY ESTIMATES ARE IMPLIED BY YOUR DCF RESULTS FOR THE ELECTRIC GROUP?

A. As shown on page 3 of Exhibit AMM-4 (Corrected) and summarized in Table AMM-4 below, after eliminating illogical values, application of the constant growth DCF model results in the following cost of equity estimates:

**TABLE AMM-4
DCF RESULTS – ELECTRIC GROUP**

<u>Growth Rate</u>	<u>Average</u>	<u>Midpoint</u>
Value Line	8.9%	10.0%
IBES	9.6%	10.2%
Zacks	9.0%	10.0%
br + sv	8.7%	10.1%

C. Capital Asset Pricing Model

Q. PLEASE DESCRIBE THE CAPM.

A. The CAPM is a theory of market equilibrium that measures risk using the beta coefficient. Assuming investors are fully diversified, the relevant risk of an individual asset (e.g., common stock) is its volatility relative to the market as a whole, with beta reflecting the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. The CAPM is mathematically expressed as:

1
$$R_j = R_f + \beta_j(R_m - R_f)$$

2 where: R_j = required rate of return for stock j;
3 R_f = risk-free rate;
4 R_m = expected return on the market portfolio; and,
5 β_j = beta, or systematic risk, for stock j.

6 Under the CAPM formula above, a stock's required return is a function of the risk-
7 free rate (R_f), plus a risk premium that is scaled to reflect the relative volatility of a firm's
8 stock price, as measured by beta (β). Like the DCF model, the CAPM is an *ex-ante*, or
9 forward-looking model based on expectations of the future. As a result, in order to produce
10 a meaningful estimate of investors' required rate of return, the CAPM must be applied using
11 estimates that reflect the expectations of actual investors in the market, not with backward-
12 looking, historical data.

13 **Q. HOW DO YOU APPLY THE CAPM TO ESTIMATE THE COST OF COMMON**
14 **EQUITY?**

15 A. Application of the CAPM to the Electric Group based on a forward-looking estimate for
16 investors' required rate of return from common stocks is presented in Exhibit AMM-6
17 (Corrected). In order to capture the expectations of today's investors in current capital
18 markets, the expected market rate of return is estimated by conducting a DCF analysis on
19 the dividend paying firms in the S&P 500.

20 I obtain the dividend yield for each company from Value Line. The growth rate is
21 equal to the average of the EPS growth projections for each firm published by IBES, Value
22 Line, and Zacks. In order to address potential concerns regarding the veracity and accuracy
23 of the growth estimates, I removed negative values and all estimates greater than 20%.
24 Each company's dividend yield and growth rate are then weighted by the company's
25 proportionate share of total market value.

1 Based on the weighted average of the projections for the individual firms, these
2 estimates imply an average growth rate over the next five years of 8.9%. Combining this
3 average growth rate with a year-ahead dividend yield of 2.5% results in a current cost of
4 common equity estimate for the market as a whole (R_m) of 11.4%. Subtracting a 1.5% risk-
5 free rate based on the average yield on 30-year Treasury bonds for the six-months ending
6 July 2020 produces a market equity risk premium of 9.9%.

7 **Q. WHAT IS THE SOURCE OF THE BETA VALUES YOU USED TO APPLY THE**
8 **CAPM?**

9 A. I rely on the beta values reported by Value Line, which in my experience is the most widely
10 referenced source for beta in regulatory proceedings. As noted in *New Regulatory Finance*:

11 Value Line is the largest and most widely circulated independent
12 investment advisory service, and influences the expectations of a large
13 number of institutional and individual investors. ... Value Line betas are
14 computed on a theoretically sound basis using a broadly based market
15 index, and they are adjusted for the regression tendency of betas to
16 converge to 1.00.⁷⁷

17 **Q. WHAT ELSE SHOULD BE CONSIDERED IN APPLYING THE CAPM?**

18 A. Financial research indicates that the CAPM does not fully account for observed differences
19 in rates of return attributable to firm size. Accordingly, a modification is required to
20 account for this size effect. As explained by Morningstar:

21 One of the most remarkable discoveries of modern finance is that of a
22 relationship between company size and return. ... The relationship
23 between company size and return cuts across the entire size spectrum; it is
24 not restricted to the smallest stocks. ... This size-rated phenomenon has
25 prompted a revision to the CAPM, which includes a size premium.⁷⁸

26 According to the CAPM, the expected return on a security should consist of the
27 riskless rate, plus a premium to compensate for the systematic risk of the particular

⁷⁷ Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 71.

⁷⁸ Morningstar, *Ibbotson SBBI 2015 Classic Yearbook* at pp. 99, 108.

1 security. The degree of systematic risk is represented by the beta coefficient. The need for
2 the size adjustment arises because differences in investors' required rates of return that are
3 related to firm size are not fully captured by beta. To account for this, researchers have
4 developed size premiums that need to be added to the theoretical CAPM cost of equity
5 estimates to account for the level of a firm's market capitalization in determining the CAPM
6 cost of equity.⁷⁹ Accordingly, my CAPM analyses also incorporates an adjustment to
7 recognize the impact of size distinctions, as measured by the average market capitalization
8 for the Electric Group.

9 **Q. ARE YOU RECOMMENDING THAT THE COMMISSION AWARD A PREMIUM**
10 **TO THE ROE BECAUSE OF DP&L'S RELATIVE SIZE?**

11 A. No. I am not proposing to apply a general size risk premium in evaluating a fair and
12 reasonable ROE for the Company and my recommendation does not include any
13 adjustment related to the relative size of DP&L. Rather, the size adjustment is specific to
14 the CAPM and merely corrects for an observed inability of the beta measure to fully reflect
15 the risks perceived by investors for the firms in the Electric Group. As the FERC has
16 recognized, "[t]his type of size adjustment is a generally accepted approach to CAPM
17 analyses."⁸⁰

⁷⁹ Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, *Stocks, Bonds, Bills and Inflation*, these size premia are now developed by Duff & Phelps and presented in its *Valuation Handbook – Guide to Cost of Capital*.

⁸⁰ Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).

1 **Q. WHAT IS THE IMPLIED ROE FOR THE ELECTRIC GROUP USING THE CAPM**
2 **APPROACH?**

3 A. As shown on page 1 of Exhibit AMM-6 (Corrected), after adjusting for the impact of firm
4 size the CAPM approach implies an average and midpoint cost of equity estimates of
5 10.8% and 10.9%, respectively, for the Electric Group.

6 **Q. DO YOU ALSO APPLY THE CAPM USING FORECASTED BOND YIELDS?**

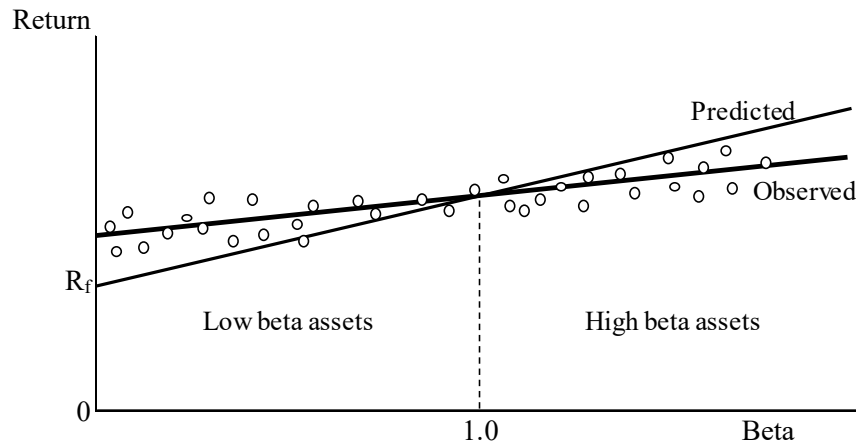
7 A. Yes. As discussed earlier, there is general consensus that interest rates will increase over
8 the period when the rates established in this proceeding will be in effect. Accordingly, in
9 addition to the use of current bond yields, I also apply the CAPM based on the forecasted
10 long-term Treasury bond yields developed based on projections published by Value Line,
11 IHS Global Insight and Blue Chip. As shown on page 2 of Exhibit AMM-6 (Corrected),
12 incorporating a forecasted Treasury bond yield for 2021-2025 implies an average cost of
13 equity estimate of 10.9% for the Electric Group after adjusting for the impact of relative
14 size, with a midpoint of 11.0%.

D. Empirical Capital Asset Pricing Model

15 **Q. HOW DOES THE ECAPM APPROACH DIFFER FROM TRADITIONAL**
16 **APPLICATIONS OF THE CAPM?**

17 A. Empirical tests of the CAPM have shown that low-beta securities earn returns somewhat
18 higher than the CAPM would predict, and high-beta securities earn less than predicted. In
19 other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to
20 beta, with low-beta stocks tending to have higher returns and high-beta stocks tending to
21 have lower returns than predicted by the CAPM. This is illustrated graphically in the figure
22 below:

FIGURE AMM-3
CAPM – PREDICTED VS. OBSERVED RETURNS



Because the betas of utility stocks, including those in the Electric Group, are generally less than 1.0, this implies that cost of equity estimates based on the traditional CAPM would understate the cost of equity. This empirical finding is widely reported in the finance literature, as summarized in *New Regulatory Finance*:

As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical relationships.⁸¹

As discussed in *New Regulatory Finance*,⁸² based on a review of the empirical evidence, the expected return on a security is related to its risk by the ECAPM, which is represented by the following formula:

$$R_j = R_f + 0.25(R_m - R_f) + 0.75[\beta_j(R_m - R_f)]$$

Like the CAPM formula presented earlier, the ECAPM represents a stock's required return as a function of the risk-free rate (R_f), plus a risk premium. In the formula above,

⁸¹ Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 189.

⁸² *Id.* at 190.

1 this risk premium is composed of two parts: (1) the market risk premium ($R_m - R_f$) weighted
2 by a factor of 25%, and (2) a company-specific risk premium based on the stocks relative
3 volatility $[(\beta)(R_m - R_f)]$ weighted by 75%. This ECAPM equation, and its associated
4 weighting factors, recognizes the observed relationship between standard CAPM estimates
5 and the cost of capital documented in the financial research, and corrects for the understated
6 returns that would otherwise be produced for low beta stocks.

7 **Q. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF VALUE LINE**
8 **BETAS?**

9 A. Yes. Value Line beta values are adjusted for the observed tendency of beta to converge
10 toward the mean value of 1.00 over time.⁸³ The purpose of this adjustment is to refine beta
11 values determined using historical data to better match forward-looking estimates of beta,
12 which are the relevant parameter in applying the CAPM or ECAPM models. Meanwhile,
13 the ECAPM does not involve any adjustment to beta whatsoever. Rather, it represents a
14 formal recognition of findings in the financial literature that the observed risk-return
15 tradeoff illustrated in Figure AMM-3 is flatter than predicted by the CAPM. In other
16 words, even if a firm's beta value is estimated with perfect precision, the CAPM would still
17 understate the return for low-beta stocks and overstate the return for high-beta stocks. The
18 ECAPM and the use of adjusted betas represent two separate and distinct issues in
19 estimating returns.

20 **Q. HAVE OTHER REGULATORS RELIED ON THE ECAPM?**

21 A. Yes. The ECAPM approach has been relied on by the Staff of the Maryland Public Service
22 Commission ("MDPSC"). For example, MDPSC Staff Witness Julie McKenna noted that
23 "the ECAPM model adjusts for the tendency of the CAPM model to underestimate returns

⁸³ See, e.g., Marshall E. Blume, *Betas and Their Regression Tendencies*, Journal of Finance, Vol. 30, No. 3 (Jun. 1975) at 785-795.

1 for low Beta stocks," and concluded that, "I believe under current economic conditions that
2 the ECAPM gives a more realistic measure of the ROE than the CAPM model does."⁸⁴
3 The staff of the Colorado Public Utilities Commission has recognized that, "[t]he ECAPM
4 is an empirical method that attempts to enhance the CAPM analysis by flattening the risk-
5 return relationship,"⁸⁵ and relied on the exact same standard ECAPM equation presented
6 above.⁸⁶ The New York Public Service Commission also routinely incorporates the results
7 of the ECAPM approach—which it refers to as the "zero-beta CAPM"—in determining
8 allowed ROEs.⁸⁷ The Regulatory Commission of Alaska has also relied on the ECAPM,
9 noting that:

10 Tesoro averaged the results it obtained from CAPM and ECAPM while at
11 the same time providing empirical testimony that the ECAPM results are
12 more accurate then [sic] traditional CAPM results. The reasonable investor
13 would be aware of these empirical results. Therefore, we adjust Tesoro's
14 recommendation to reflect only the ECAPM result.⁸⁸

15 The Wyoming Office of Consumer Advocate, an independent division of the
16 Wyoming Public Service Commission, has also relied on this same ECAPM formula in
17 estimating the cost of equity for a utility, as have witnesses for the Office of Arkansas
18 Attorney General.⁸⁹ More recently, the Montana Public Service Commission determined
19 that "[t]he evidence . . . has convinced the Commission that the Empirical Capital Asset
20 Pricing Model ("ECAPM") should be the primary method for estimating . . . the cost of
21 equity" for a utility under its jurisdiction.⁹⁰

⁸⁴ *Direct Testimony and Exhibits of Julie McKenna*, Maryland PSC Case No. 9299 (Oct. 12, 2012) at 9.

⁸⁵ Proceeding No. 13AL-0067G, *Answer Testimony and Schedules of Scott England* (July 31, 2013) at 47.

⁸⁶ *Id.* at 48.

⁸⁷ See, e.g., *Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan*, CASE 17-E-0459 (Jun. 14, 2018) at 38.

⁸⁸ Regulatory Commission of Alaska, Order No. P-97-004(151) (Nov. 27, 2002) at 145.

⁸⁹ Docket No. 30011-97-GR-17, *Pre-Filed Direct Testimony of Anthony J. Ornelas* (May 1, 2018) at 52-53; Docket No. 17-071-U, *Direct Testimony of Marlon F. Griffing, PH.D.* (May 29, 2018) at 33-35.

⁹⁰ Montana Public Service Commission, Docket No. D2017.9.80, Order No. 7575c (Sep. 26, 2018) at P 114.

1 **Q. WHAT COST OF EQUITY ESTIMATES ARE INDICATED BY THE ECAPM?**

2 A. My applications of the ECAPM are based on the same forward-looking market rate of
3 return, risk-free rates, and beta values discussed earlier in connections with the CAPM. As
4 shown on page 1 of Exhibit AMM-7 (Corrected), applying the forward-looking ECAPM
5 approach to the firms in the Electric Group results in an average cost of equity estimate of
6 11.1% after incorporating the size adjustment corresponding to the market capitalization
7 of the individual utilities. The midpoint of the size adjusted ECAPM range is also 11.1%.

8 As shown on page 2 of Exhibit AMM-7 (Corrected), incorporating a forecasted
9 Treasury bond yield for 2021-2025 implies an average and midpoint cost of equity for the
10 Electric Group of 11.2% and 11.1%, after adjusting for the impact of relative size

E. Utility Risk Premium

11 **Q. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.**

12 A. The risk premium method of estimating investors' required return extends to common
13 stocks the risk-return tradeoff observed with bonds. The cost of equity is estimated by first
14 determining the additional return investors require to forgo the relative safety of bonds and
15 to bear the greater risks associated with common stock, and by then adding this equity risk
16 premium to the current yield on bonds. Like the DCF model, the risk premium method is
17 capital market oriented. However, unlike DCF models, which indirectly impute the cost
18 of equity, risk premium methods directly estimate investors' required rate of return by
19 adding an equity risk premium to observable bond yields.

20 **Q. IS THE RISK PREMIUM APPROACH A WIDELY ACCEPTED METHOD FOR**
21 **ESTIMATING THE COST OF EQUITY?**

22 A. Yes. The risk premium approach is based on the fundamental risk-return principle that is
23 central to finance, which holds that investors will require a premium in the form of a higher

1 return in order to assume additional risk. This method is routinely referenced by the
2 investment community and in academia and regulatory proceedings, and provides an
3 important tool in estimating a fair ROE for DP&L.

4 **Q. HOW DO YOU IMPLEMENT THE RISK PREMIUM METHOD?**

5 A. Estimates of equity risk premiums for utilities are based on surveys of previously
6 authorized ROEs. Authorized ROEs presumably reflect regulatory commissions' best
7 estimates of the cost of equity, however determined, at the time they issued their final order.
8 Such ROEs should represent a balanced and impartial outcome that considers the need to
9 maintain a utility's financial integrity and ability to attract capital. Moreover, allowed
10 returns are an important consideration for investors and have the potential to influence
11 other observable investment parameters, including credit ratings and borrowing costs.
12 Thus, when considered in the context of a complete and rigorous analysis, this data
13 provides a logical and frequently referenced basis for estimating equity risk premiums for
14 regulated utilities.

15 **Q. IS IT CIRCULAR TO CONSIDER RISK PREMIUMS BASED ON AUTHORIZED**
16 **RETURNS IN ASSESSING A FAIR ROE FOR DP&L?**

17 A. No. In establishing authorized ROEs, regulators typically consider the results of alternative
18 market-based approaches. Because allowed risk premiums consider objective market data
19 (e.g., stock prices dividends, beta, and interest rates), and are not based strictly on past
20 actions of other regulators, this mitigates concerns over any potential for circularity.

21 **Q. HOW DO YOU CALCULATE THE EQUITY RISK PREMIUMS BASED ON**
22 **ALLOWED ROES?**

23 A. The ROEs authorized for electric utilities by regulatory commissions across the U.S. are
24 compiled by Regulatory Research Associates and published in its Regulatory Focus report.

1 On page 3 of Exhibit AMM-8, the average yield on public utility bonds is subtracted from
2 the average allowed ROE for electric utilities to calculate equity risk premiums for each
3 year between 1974 and 2019.⁹¹ As shown there, over this period these equity risk premiums
4 for electric utilities average 3.76%, and the yield on public utility bonds average 8.10%.

5 **Q. IS THERE ANY CAPITAL MARKET RELATIONSHIP THAT MUST BE**
6 **CONSIDERED WHEN IMPLEMENTING THE RISK PREMIUM METHOD?**

7 A. Yes. As discussed earlier, the magnitude of equity risk premiums is not constant and
8 financial research has documented that equity risk premiums tend to move inversely with
9 interest rates.⁹² In other words, when interest rate levels are relatively high, equity risk
10 premiums narrow, and when interest rates are relatively low, equity risk premiums widen.
11 The implication of this inverse relationship is that the cost of equity does not move as much
12 as, or in lockstep with, interest rates. Accordingly, for a 1% increase or decrease in interest
13 rates, the cost of equity may only rise or fall some fraction of 1%. Therefore, when
14 implementing the risk premium method, adjustments may be required to incorporate this
15 inverse relationship if current interest rate levels have diverged from the average interest
16 rate level represented in the data set.

17 Current bond yields are lower than those prevailing over the risk premium study
18 periods. Given that equity risk premiums move inversely with interest rates, these lower
19 bond yields also imply an increase in the equity risk premium that investors require to
20 accept the higher uncertainties associated with an investment in utility common stocks
21 versus bonds. In other words, higher required equity risk premiums offset the impact of

⁹¹ My analysis encompasses the entire period for which published data is available.

⁹² Other regulators have also recognized that the cost of equity does not move in tandem with interest rates. *See, e.g.,* California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan Rider Schedule FRP-7; *Coakley v. Bangor Hydro-Elec. Co.*, 147 FERC ¶ 61,234 at P 147 (2014).

declining interest rates on the ROE. This relationship is illustrated in the figure on page 4 of Exhibit AMM-8.

Q. WHAT COST OF EQUITY IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF ALLOWED ROES?

A. Based on the regression output between the interest rates and equity risk premiums displayed on page 4 of Exhibit AMM-8, the equity risk premium for electric utilities increased (decreased) approximately 42 basis points for each percentage point decrease (increase) in the yield on average public utility bonds. As illustrated on page 1 of Exhibit AMM-8, with an average yield on public utility bonds for the six-months ending July 2020 of 3.23%, this implies a current equity risk premium of 5.81% for electric utilities. Adding this equity risk premium to the average yield on triple-B utility bonds of 3.63% implies a current cost of equity of 9.44%.

Q. WHAT RISK PREMIUM COST OF EQUITY ESTIMATE IS PRODUCED AFTER INCORPORATING FORECASTED BOND YIELDS?

A. As shown on page 2 of Exhibit AMM-8, incorporating a forecasted yield for 2021-2025 and adjusting for changes in interest rates since the study period implies an equity risk premium of 5.43% for electric utilities, which is less than the current equity risk premium. This lower equity risk premium is consistent with the inverse relationship I described above. Adding this equity risk premium to the implied average yield on Baa public utility bonds for 2021-2025 of 4.84% results in an implied cost of equity of 10.27%.

F. Expected Earnings Approach

1 **Q. WHAT OTHER ANALYSES DO YOU CONDUCT TO EVALUATE A FAIR ROE**
2 **FOR DP&L?**

3 A. I also evaluate the ROE using the expected earnings method. Reference to rates of return
4 available from alternative investments of comparable risk can provide an important
5 benchmark in assessing the return necessary to assure confidence in the financial integrity
6 of a firm and its ability to attract capital. This expected earnings approach is consistent
7 with the economic underpinnings for a fair and reasonable rate of return established by the
8 U.S. Supreme Court in Bluefield and Hope. Moreover, it avoids the complexities and
9 limitations of capital market methods, such as the DCF and CAPM methodologies, and
10 instead focuses on the returns earned on book equity, which are readily available to
11 investors.

12 **Q. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS**
13 **APPROACH?**

14 A. The simple, but powerful concept underlying the expected earnings approach is that
15 investors compare each investment alternative with the next best opportunity. If the utility
16 is unable to offer a return similar to that available from other opportunities of comparable
17 risk, investors will become unwilling to supply the capital on reasonable terms. For
18 existing investors, denying the utility an opportunity to earn what is available from other
19 similar risk alternatives prevents them from earning their opportunity cost of capital. Such
20 an outcome would violate the Hope and Bluefield standards and undermine the utility's
21 access to capital on reasonable terms.

1 **Q. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY**
2 **IMPLEMENTED?**

3 A. The traditional comparable earnings test identifies a group of companies that are believed
4 to be comparable in risk to the utility. The actual earnings of those companies on the book
5 value of their investment are then compared to the allowed return of the utility. While the
6 traditional comparable earnings test is implemented using historical data taken from the
7 accounting records, it is also common to use projections of returns on book investment,
8 such as those published by recognized investment advisory publications (e.g., Value Line).
9 Because these returns on book value equity are analogous to the allowed return on a utility's
10 rate base, this measure of opportunity costs results in a direct, "apples to apples"
11 comparison.

12 Moreover, regulators do not set the returns that investors earn in the capital markets,
13 which are a function of dividend payments and fluctuations in common stock prices- both
14 of which are outside their control. Regulators can only establish the allowed ROE, which
15 is applied to the book value of a utility's investment in rate base, as determined from its
16 accounting records. This is directly analogous to the expected earnings approach, which
17 measures the return that investors expect the utility to earn on book value. As a result, the
18 expected earnings approach provides a meaningful guide to ensure that the allowed ROE
19 is similar to what other utilities of comparable risk will earn on invested capital. This
20 expected earnings test does not require theoretical models to indirectly infer investors'
21 perceptions from stock prices or other market data. As long as the proxy companies are
22 similar in risk, their expected earned returns on invested capital provide a direct benchmark
23 for investors' opportunity costs that is independent of fluctuating stock prices, market-to-
24 book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical
25 model of investor behavior.

1 **Q. WHAT ROE IS INDICATED FOR DP&L BASED ON THE EXPECTED**
2 **EARNINGS APPROACH?**

3 A. For the firms in the Electric Group, the year-end returns on common equity projected by
4 Value Line over its forecast horizon are shown in Exhibit AMM-9. As I explained earlier
5 in my discussion of the br+sv growth rates used in applying the DCF model, Value Line's
6 returns on common equity are calculated using year-end equity balances, which understates
7 the average return earned over the year.⁹³ Accordingly, these year-end values are converted
8 to average returns using the same adjustment factor discussed earlier and developed in
9 Exhibit AMM-5. As shown in Exhibit AMM-9, after excluding illogical values, Value
10 Line's projections for the Electric Group suggest an average ROE of approximately 10.3%,
11 with a midpoint value of 10.8%.

G. Flotation Costs

12 **Q. WHAT OTHER CONSIDERATIONS ARE RELEVANT IN SETTING THE**
13 **RETURN ON EQUITY FOR A UTILITY?**

14 A. The common equity used to finance the investment in utility assets is provided from either
15 the sale of stock in the capital markets or from retained earnings not paid out as dividends.
16 When equity is raised through the sale of common stock, there are costs associated with
17 "floating" the new equity securities. These flotation costs include services such as legal,
18 accounting, and printing, as well as the fees and discounts paid to compensate brokers for
19 selling the stock to the public. Also, some argue that the "market pressure" from the
20 additional supply of common stock and other market factors may further reduce the amount
21 of funds a utility nets when it issues common equity. While DP&L has no publicly traded
22 stock and does not incur flotation costs directly, equity capital is provided by investors

⁹³ For example, to compute the annual return on a passbook savings account with a beginning balance of \$1,000 and an ending balance of \$5,000, the interest income would be divided by the average balance of \$3,000. Using the \$5,000 balance at the end of the year would understate the actual return.

1 through AES's sale of common shares. Thus, these expenses are also relevant when
2 evaluating the fair and reasonable ROE for a wholly-owned subsidiary, such as the
3 Company.

4 **Q. IS THERE AN ESTABLISHED MECHANISM FOR A UTILITY TO RECOGNIZE**
5 **EQUITY ISSUANCE COSTS?**

6 A. No. While debt flotation costs are recorded on the books of the utility, amortized over the
7 life of the issue, and thus increase the effective cost of debt capital, there is no similar
8 accounting treatment to ensure that equity flotation costs are recorded and ultimately
9 recognized. No rate of return is authorized on flotation costs necessarily incurred to obtain
10 a portion of the equity capital used to finance plant. In other words, equity flotation costs
11 are not included in a utility's rate base because neither that portion of the gross proceeds
12 from the sale of common stock used to pay flotation costs is available to invest in plant and
13 equipment, nor are flotation costs capitalized as an intangible asset. Unless some provision
14 is made to recognize these issuance costs, a utility's revenue requirements will not fully
15 reflect all of the costs incurred for the use of investors' funds. Because there is no
16 accounting convention to accumulate the flotation costs associated with equity issues, they
17 must be accounted for indirectly, with an upward adjustment to the cost of equity being the
18 most appropriate mechanism.

19 **Q. IS THERE ACADEMIC EVIDENCE THAT SUPPORTS A FLOTATION COST**
20 **ADJUSTMENT?**

21 A. The financial literature and evidence in this case provides a sound theoretical and practical
22 basis to include consideration of flotation costs for DP&L. An adjustment for flotation
23 costs associated with past equity issues is appropriate, even when the utility is not
24 contemplating any new sales of common stock. The need for a flotation cost adjustment
25 to compensate for past equity issues has been recognized in the financial literature. In a

1 Public Utilities Fortnightly article, for example, Brigham, Aberwald, and Gapenski
2 demonstrated that even if no further stock issues are contemplated, a flotation cost
3 adjustment in all future years is required to keep shareholders whole, and that the flotation
4 cost adjustment must consider total equity, including retained earnings.⁹⁴ Similarly, New
5 Regulatory Finance contains the following discussion:

6 Another controversy is whether the flotation cost allowance should still be
7 applied when the utility is not contemplating an imminent common stock
8 issue. Some argue that flotation costs are real and should be recognized in
9 calculating the fair rate of return on equity, but only at the time when the
10 expenses are incurred. In other words, the flotation cost allowance should
11 not continue indefinitely, but should be made in the year in which the sale
12 of securities occurs, with no need for continuing compensation in future
13 years. This argument implies that the company has already been
14 compensated for these costs and/or the initial contributed capital was
15 obtained freely, devoid of any flotation costs, which is an unlikely
16 assumption, and certainly not applicable to most utilities. ... The flotation
17 cost adjustment cannot be strictly forward-looking unless all past flotation
18 costs associated with past issues have been recovered.⁹⁵

19 **Q. CAN YOU ILLUSTRATE WHY INVESTORS WILL NOT HAVE THE**
20 **OPPORTUNITY TO EARN THEIR REQUIRED ROE UNLESS A FLOTATION**
21 **COST ADJUSTMENT IS INCLUDED?**

22 A. Yes. Assume a utility sells \$10 worth of common stock at the beginning of year 1. If the
23 utility incurs flotation costs of \$0.48 (5% of the net proceeds), then only \$9.52 is available
24 to invest in rate base. Assume that common shareholders' required rate of return is 10.5%,
25 the expected dividend in year 1 is \$0.50 (i.e., a dividend yield of 5%), and that growth is
26 expected to be 5.5% annually. As developed in Table AMM-5 below, if the allowed rate of
27 return on common equity is only equal to the utility's 10.5% "bare bones" cost of equity,

⁹⁴ E. F. Brigham, D. A. Aberwald, and L. C. Gapenski, *Common Equity Flotation Costs and Rate Making*, Pub. Util. Fortnightly (May 2, 1985).

⁹⁵ Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 335.

common stockholders will not earn their required rate of return on their \$10 investment, since growth will really be only 5.25%, instead of 5.5%:

**TABLE AMM-5
NO FLOTATION COST ADJUSTMENT**

<u>Year</u>	<u>Common Stock</u>	<u>Retained Earnings</u>	<u>Total Equity</u>	<u>Market Price</u>	<u>M/B Ratio</u>	<u>Allowed ROE</u>	<u>EPS</u>	<u>DPS</u>	<u>Payout Ratio</u>
1	\$ 9.52	\$ -	\$ 9.52	\$10.00	1.050	10.50%	\$ 1.00	\$ 0.50	50.0%
2	\$ 9.52	\$ 0.50	\$ 10.02	\$10.52	1.050	10.50%	\$ 1.05	\$ 0.53	50.0%
3	\$ 9.52	\$ 0.53	<u>\$ 10.55</u>	<u>\$11.08</u>	1.050	10.50%	<u>\$ 1.11</u>	<u>\$ 0.55</u>	50.0%
Growth			5.25%	5.25%			5.25%	5.25%	

The reason that investors never really earn 10.5% on their investment in the above example is that the \$0.48 in flotation costs initially incurred to raise the common stock is not treated like debt issuance costs (*i.e.*, amortized into interest expense and therefore increasing the embedded cost of debt), nor is it included as an asset in rate base.

Including a flotation cost adjustment allows investors to be fully compensated for the impact of these costs. One commonly referenced method for calculating the flotation cost adjustment is to multiply the dividend yield by a flotation cost percentage. Thus, with a 5% dividend yield and a 5% flotation cost percentage, the flotation cost adjustment in the above example would be approximately 25 basis points. As shown in Table AMM-6 below, by allowing a rate of return on common equity of 10.75% (a 10.5% cost of equity plus a 25 basis point flotation cost adjustment), investors earn their 10.5% required rate of return, since actual growth is now equal to 5.5%:

**TABLE AMM-6
INCLUDING FLOTATION COST ADJUSTMENT**

<u>Year</u>	<u>Common Stock</u>	<u>Retained Earnings</u>	<u>Total Equity</u>	<u>Market Price</u>	<u>M/B Ratio</u>	<u>Allowed ROE</u>	<u>EPS</u>	<u>DPS</u>	<u>Payout Ratio</u>
1	\$ 9.52	\$ -	\$ 9.52	\$10.00	1.050	10.75%	\$ 1.02	\$ 0.50	48.9%
2	\$ 9.52	\$ 0.52	\$ 10.04	\$10.55	1.050	10.75%	\$ 1.08	\$ 0.53	48.9%
3	\$ 9.52	\$ 0.55	<u>\$ 10.60</u>	<u>\$11.13</u>	1.050	10.75%	<u>\$ 1.14</u>	<u>\$ 0.56</u>	48.9%
Growth			5.50%	5.50%			5.50%	5.50%	

1 The only way for investors to be fully compensated for issuance costs is to include
2 an ongoing adjustment to account for past flotation costs when setting the return on
3 common equity. This is the case regardless of whether or not the utility is expected to issue
4 additional shares of common stock in the future.

5 **Q. WHAT IS THE MAGNITUDE OF THE ADJUSTMENT TO THE "BARE BONES"**
6 **COST OF EQUITY TO ACCOUNT FOR ISSUANCE COSTS?**

7 A. The most common method used to account for flotation costs in regulatory proceedings is
8 to apply an average flotation-cost percentage to a utility's dividend yield. In Exhibit AMM-
9 10, I present a survey of the most recent open-market common stock issues for each
10 company in Value Line's electric and gas utility industries. For all companies in the electric
11 and gas industries, flotation costs averaged approximately 2.9%. Applying this 2.9%
12 expense percentage to the Electric Group dividend yield of 3.9% produces a flotation cost
13 adjustment on the order of 10 basis points.

14 **Q. HAVE OTHER REGULATORS RECOGNIZED FLOTATION COSTS IN**
15 **EVALUATING A FAIR AND REASONABLE ROE?**

16 A. Yes. For example, in Docket No. UE-991606 the Washington Utilities and Transportation
17 Commission concluded that a flotation cost adjustment of 25 basis points should be
18 included in the allowed return on equity:

19 The Commission also agrees with both Dr. Avera and Dr. Lurito that a 25
20 basis point markup for flotation costs should be made. This amount
21 compensates the Company for costs incurred from past issues of common
22 stock. Flotation costs incurred in connection with a sale of common stock
23 are not included in a utility's rate base because the portion of gross proceeds
24 that is used to pay these costs is not available to invest in plant and
25 equipment.⁹⁶

⁹⁶ *Third Supplemental Order*, WUTC Docket No. UE-991606, *et al.* (September 2000) at 95.

1 In Case No. INT-G-16-02 the staff of the Idaho Public Utilities Commission
2 supported the use of the same flotation cost methodology that I recommend above,
3 concluding:

4 [I]s the standard equation for flotation cost adjustments and is referred to as
5 the "conventional" approach. Its use in regulatory proceedings is
6 widespread, and the formula is outlined in several corporate finance
7 textbooks.⁹⁷

8 More recently, the Wyoming Office of Consumer Advocate, an independent
9 division of the Wyoming Public Service Commission, recommended a 10 basis point
10 flotation cost adjustment for a wholly-owned utility that, like DP&L, does not issue
11 common stock directly.⁹⁸ Similarly, the South Dakota Public Utilities Commission has
12 recognized the impact of issuance costs, concluding that, "recovery of reasonable flotation
13 costs is appropriate."⁹⁹ Another example of a regulator that approves common stock
14 issuance costs is the Mississippi Public Service Commission, which routinely includes a
15 flotation cost adjustment in its Rate Stabilization Adjustment Rider formula.¹⁰⁰ The Public
16 Utilities Regulatory Authority of Connecticut,¹⁰¹ the Minnesota Public Utilities
17 Commission,¹⁰² and the Virginia State Corporation Commission¹⁰³ have also recognized
18 that flotation costs are a legitimate expense worthy of consideration in setting a fair and
19 reasonable ROE.

⁹⁷ Case No. INT-G-16-02, *Direct Testimony of Mark Rogers* (Dec. 16, 2016) at 18.

⁹⁸ Docket No. 30011-97-GR-17, *Pre-Filed Direct Testimony of Anthony J. Ornelas* (May 1, 2018) at 52-53.

⁹⁹ *Northern States Power Co*, EL11-019, Final Decision and Order at P 22 (2012).

¹⁰⁰ See, e.g., Entergy Mississippi Formula Rate Plan FRP-7,

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiyqcfQuLLtAhXHSsAKHd4QB7sQFjAAegQIAxAC&url=https%3A%2F%2Fwww.entergy-mississippi.com%2Fuserfiles%2Fcontent%2Fprice%2Ftariffs%2Feml_frp.pdf&usg=AOvVaw0LXIS0Z-AWjUIIu3YUiGD1 (last visited Oct. 15, 2020).

¹⁰¹ See, e.g., Docket No. 14-05-06, Decision (Dec. 17, 2014) at 133-134.

¹⁰² See, e.g., Docket No. E001/GR-10-276, Findings of Fact, Conclusions, and Order at 9.

¹⁰³ Roanoke Gas Company, Case No. PUR-2018-00013, *Final Order*, (Jan. 24, 2020) at 6.

VI. NON-UTILITY ROE BENCHMARK

1 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?**

2 A. This section presents the results of my DCF analysis applied to a group of low-risk firms
3 in the competitive sector, which I refer to as the "Non-Utility Group." This analysis is not
4 directly considered in arriving at my recommended ROE range of reasonableness;
5 however, it is my opinion that this is a relevant consideration in evaluating a fair and
6 reasonable ROE for the Company.

7 **Q. DO UTILITIES HAVE TO COMPETE WITH NON-REGULATED FIRMS FOR**
8 **CAPITAL?**

9 A. Yes. The cost of capital is an opportunity cost based on the returns that investors could
10 realize by putting their money in other alternatives. Clearly, the total capital invested in
11 utility stocks is only the tip of the iceberg of total common stock investment, and there are
12 a plethora of other enterprises available to investors beyond those in the utility industry.
13 Utilities must compete for capital, not just against firms in their own industry, but with
14 other investment opportunities of comparable risk. Indeed, modern portfolio theory is built
15 on the assumption that rational investors will hold a diverse portfolio of stocks, not just
16 companies in a single industry.

17 **Q. IS IT CONSISTENT WITH THE *BLUEFIELD* AND *HOPE* CASES TO CONSIDER**
18 **INVESTORS' REQUIRED ROE FOR NON-UTILITY COMPANIES?**

19 A. Yes. The cost of equity capital in the competitive sector of the economy forms the very
20 underpinning for utility ROEs because regulation purports to serve as a substitute for the
21 actions of competitive markets. The Supreme Court has recognized that it is the degree of
22 risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a
23 utility. The Bluefield case refers to "business undertakings attended with comparable risks

1 and uncertainties." It does not restrict consideration to other utilities. Similarly, the Hope
2 case states:

3 By that standard the return to the equity owner should be commensurate
4 with returns on investments in other enterprises having corresponding
5 risks.¹⁰⁴

6 As in the *Bluefield* decision, there is nothing to restrict "other enterprises" solely to
7 the utility industry.

8 **Q. DOES CONSIDERATION OF THE RESULTS FOR THE NON-UTILITY GROUP**
9 **HELP TO IMPROVE THE RELIABILITY OF DCF RESULTS?**

10 A. Yes. The estimates of growth from the DCF model depend on analysts' forecasts. It is
11 possible for utility growth rates to be distorted by short-term trends in the industry, or by
12 the industry falling into favor or disfavor by analysts. The result of such distortions would
13 be to bias the DCF estimates for utilities. Because the Non-Utility Group includes low risk
14 companies from more than one industry, it helps to insulate against any possible distortion
15 that may be present in results for a particular sector.

16 **Q. WHAT CRITERIA DO YOU APPLY TO DEVELOP THE NON-UTILITY GROUP?**

17 A. In order to ensure that my comparable risk proxy group is composed of conservative, low-
18 risk companies that investors would regard as comparable to utilities, I selected those
19 United States companies followed by Value Line that:

- 20 1) Pay common dividends.
- 21 2) Have a Safety Rank of "1" or "2".
- 22 3) Have a Financial Strength Rating of "B++" or greater.
- 23 4) Have a beta of 1.00 or less.
- 24 5) Have investment grade credit ratings from S&P and Moody's.

¹⁰⁴ Federal Power Comm'n v. Hope Natural Gas Co. 320 U.S. 391, (1944).

**Q. HOW DO YOU EVALUATE THE RISKS OF THE NON-UTILITY GROUP
RELATIVE TO THE PROXY GROUP OF ELECTRIC UTILITIES?**

A. My evaluation of relative risk considers four objective, published benchmarks that are widely relied on in the investment community. Credit ratings are assigned by independent rating agencies for the purpose of providing investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D (in default). Other symbols (e.g., "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes all of the factors normally considered important in assessing a firm's relative credit standing, corporate credit ratings provide a broad, objective measure of overall investment risk that is readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings are also frequently used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

While credit ratings provide the most widely referenced benchmark for investment risks, other quality rankings published by investment advisory services also provide relative assessments of risks that are considered by investors in forming their expectations for common stocks. Value Line's primary risk indicator is its Safety Rank, which ranges from "1" (Safest) to "5" (Riskiest). This overall risk measure is intended to capture the total risk of a stock, and incorporates elements of stock price stability and financial strength. Given that Value Line is perhaps the most widely available source of investment advisory information, its Safety Rank provides useful guidance regarding the risk perceptions of investors.

The Financial Strength Rating is designed as a guide to overall financial strength and creditworthiness, with the key inputs including financial leverage, business volatility measures, and company size. Value Line's Financial Strength Ratings range from "A++" (strongest) down to "C" (weakest) in nine steps. These objective, published indicators

incorporate consideration of a broad spectrum of risks, including financial and business position, relative size, and exposure to firm-specific factors.

Finally, beta measures a utility's stock price volatility relative to the market as a whole, and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory, and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions.

Q. HOW DO THE OVERALL RISKS OF THIS NON-UTILITY GROUP COMPARE WITH THE ELECTRIC GROUP?

A. Table AMM-7 compares the Non-Utility Group with the Electric Group across these four key risk measures:

**TABLE AMM-7
COMPARISON OF RISK INDICATORS**

Proxy Group	S&P Corporate Rating	Moody's Long-term Rating	Value Line		
			Safety Rank	Financial Strength	Beta
Non-Utility Group	A	A2	1	A+	0.83
Electric Group	BBB	Baa2	2	B++	0.88

As shown above, the risk indicators for the Non-Utility Group generally suggest less risk than for the Electric Group.

The companies that make up the Non-Utility Group are representative of the pinnacle of corporate America. These firms, which include household names such as Coca-Cola, Procter & Gamble, and Walmart, have long corporate histories, well-established track records, and exceedingly conservative risk profiles. Many of these companies pay

dividends on par with utilities, with the average dividend yield for the group of 2.4%.¹⁰⁵ Moreover, because of their significance and name recognition, these companies receive intense scrutiny by the investment community, which increases confidence that published growth estimates are representative of the consensus expectations reflected in common stock prices.

Q. WHAT ARE THE RESULTS OF YOUR DCF ANALYSIS FOR THE NON-UTILITY GROUP?

A. I apply the DCF model to the Non-Utility Group using analysts' EPS growth projections, as described earlier for the Electric Group, with the results being presented on page 3 of Exhibit AMM-11 (Corrected). As summarized in Table AMM-8 (Corrected), below, application of the constant growth DCF model results in the following cost of equity estimates:

TABLE AMM-8 (CORRECTED)
DCF RESULTS – NON-UTILITY GROUP

<u>Growth Rate</u>	<u>Average</u>	<u>Midpoint</u>
Value Line	10.4%	10.4%
IBES	9.3%	10.0%
Zacks	9.9%	10.9%

As discussed earlier, reference to the Non-Utility Group is consistent with established regulatory principles. Required returns for utilities should be in line with those of non-utility firms of comparable risk operating under the constraints of free competition. Because the actual cost of equity is unobservable, and DCF results inherently incorporate a degree of error, cost of equity estimates for the Non-Utility Group provide an important benchmark in evaluating a fair and reasonable ROE for DP&L.

¹⁰⁵ Exhibit AMM-11 (Corrected), page 1.

VII. CAPITAL STRUCTURE

1 **Q. IS AN EVALUATION OF THE CAPITAL STRUCTURE MAINTAINED BY A**
2 **UTILITY RELEVANT IN ASSESSING ITS RETURN ON EQUITY?**

3 A. Yes. Other things equal, a higher debt ratio and lower common equity ratio, translates into
4 increased financial risk for all investors. A greater amount of debt means more investors
5 have a senior claim on available cash flow, thereby reducing the certainty that each will
6 receive his contractual payments. This increases the risks to which lenders are exposed,
7 and they require correspondingly higher rates of interest. From common shareholders'
8 standpoint, a higher debt ratio means that there are proportionately more investors ahead
9 of them, thereby increasing the uncertainty as to the amount of cash flow that will remain.

10 **Q. WHAT COMMON EQUITY RATIO IS IMPLICIT IN DP&L'S CAPITAL**
11 **STRUCTURE?**

12 A. The capital structure used to compute the overall rate of return for DP&L includes 53.87%
13 common equity.

14 **Q. HOW DOES THIS COMPARE TO THE AVERAGE EQUITY RATIOS**
15 **MAINTAINED BY THE ELECTRIC GROUP?**

16 A. As shown on page 1 of Exhibit AMM-12, common equity ratios for the individual firms in
17 the Electric Group range from a low of 25.9% to a high of 67.7% at year-end 2019, and
18 averaged 46.6%. Meanwhile, the three- to five-year forecasts published by Value Line
19 result in an average common equity ratio of 47.8% for the Electric Group, with the
20 individual equity ratios ranging from 31.5% to 59.0%.

1 **Q. WHAT CAPITALIZATION RATIOS ARE MAINTAINED BY OTHER UTILITY**
2 **OPERATING COMPANIES?**

3 A. Pages 2 and 3 of Exhibit AMM-12 displays capital structure data at year-end 2019 for the
4 group of electric utility operating companies owned by the firms in the Electric Group used
5 to estimate the cost of equity. As shown there, common equity ratios for these utilities
6 range from 46.2% to 77.1% and average 53.4%.

7 **Q. WHAT OTHER FACTORS DO INVESTORS CONSIDER IN THEIR**
8 **ASSESSMENT OF A COMPANY'S CAPITAL STRUCTURE?**

9 A. Utilities, including DP&L, are facing significant capital investment plans. Coupled with
10 the potential for turmoil in capital markets, this warrants a stronger balance sheet to deal
11 with an uncertain environment. A conservative financial profile, in the form of a reasonable
12 common equity ratio, is consistent with the need to accommodate these uncertainties and
13 maintain the continuous access to capital under reasonable terms that is required to fund
14 operations and necessary system investment, even during times of adverse capital market
15 conditions. This is even more imperative for DP&L due to its weakened financial metrics,
16 which place downward pressure on the Company's credit standing.

17 **Q. DO ONGOING ECONOMIC AND CAPITAL MARKET UNCERTAINTIES ALSO**
18 **INFLUENCE THE APPROPRIATE CAPITAL STRUCTURE FOR DP&L?**

19 A. Yes. Financial flexibility plays a crucial role in ensuring the wherewithal to meet funding
20 needs, and utilities with higher financial leverage may be foreclosed or have limited access
21 to additional borrowing, especially during times of stress. As Moody's observed:

22 Utilities are among the largest debt issuers in the corporate universe and
23 typically require consistent access to capital markets to assure adequate
24 sources of funding and to maintain financial flexibility. During times of
25 distress and when capital markets are exceedingly volatile and tight,

1 liquidity becomes critically important because access to capital markets
2 may be difficult.¹⁰⁶

3 Confirming this view, S&P noted that "availability to the equity market remains
4 extraordinarily challenging" for utilities, and concluded that "lack of access to the equity
5 market" will also pose a risk to financial standing in the industry.¹⁰⁷ As a result, the
6 Company's capital structure must maintain adequate equity to preserve the flexibility
7 necessary to maintain continuous access to capital even during times of unfavorable market
8 conditions.

9 **Q. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO DP&L'S**
10 **PROPOSED CAPITAL STRUCTURE?**

11 A. Based on my evaluation, I conclude that DP&L's actual capital structure represents a
12 reasonable mix of capital sources from which to calculate the Company's overall rate of
13 return. The Company's ratemaking capital structure is consistent with the industry
14 benchmarks reflected in the capital structure ratios maintained by the Electric Group. It is
15 well within the range of individual results, consistent with the capitalization maintained by
16 other utility operating companies, and reflects the lower financial leverage necessary to
17 accommodate higher expected capital expenditures.

18 While industry averages provide one benchmark for comparison, each firm must
19 select its capitalization based on the risks and prospects it faces, as well as its specific needs
20 to access the capital markets. DP&L's proposed capital structure reflects the Company's
21 ongoing efforts to maintain its credit standing and support access to capital on reasonable
22 terms. The reasonableness of the Company's capital structure is reinforced by ongoing
23 uncertainties and the importance of maintaining the financial flexibility necessary to

¹⁰⁶ Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar. 26, 2020).

¹⁰⁷ S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative* (Apr. 2, 2020).

1 support continued system investment, even during times of adverse industry or market
2 conditions.

3 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

4 A. Yes.

5 1501113.1

EXHIBIT AMM-1

QUALIFICATIONS OF ADRIEN M. MCKENZIE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Adrien M. McKenzie. My business address is 3907 Red River St., Austin, Texas 78751.

Q. PLEASE STATE YOUR OCCUPATION.

A. I am a principal in FINCAP, Inc., a firm engaged primarily in financial, economic, and policy consulting in the field of public utility regulation.

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I received B.A. and M.B.A. degrees with a major in finance from The University of Texas at Austin, and hold the Chartered Financial Analyst (CFA®) designation. Since joining FINCAP in 1984, I have participated in consulting assignments involving a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation. I have extensive experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. I have personally sponsored direct and rebuttal testimony in over 140 proceedings filed with the Federal Energy Regulatory Commission ("FERC") and regulatory agencies in Alaska, Arkansas, Colorado, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming. My testimony addressed the establishment of risk-comparable proxy groups, the application of alternative quantitative methods, and the consideration of regulatory standards and

policy objectives in establishing a fair rate of return on equity for regulated electric, gas, and water utility operations. In connection with these assignments, my responsibilities have included critically evaluating the positions of other parties and preparation of rebuttal testimony, representing clients in settlement negotiations and hearings, and assisting in the preparation of legal briefs.

FINCAP was formed in 1979 as an economic and financial consulting firm serving clients in both the regulated and competitive sectors. FINCAP conducts assignments ranging from broad qualitative analyses and policy consulting to technical analyses and research. The firm's experience is in the areas of public utilities, valuation of closely-held businesses, and economic evaluations (e.g., damage and cost/benefit analyses). Prior to joining FINCAP, I was employed by an oil and gas firm and was responsible for operations and accounting. I am a member of the CFA Institute, the CFA Society of Austin. A resume containing the details of my qualifications and experience is attached below.

ADRIEN M. McKENZIE

FINCAP, INC.
Financial Concepts and Applications
Economic and Financial Counsel

3907 Red River Street
Austin, Texas 78751
(512) 923-2790
FAX (512) 458-4768
amm.fincap@outlook.com

Summary of Qualifications

Adrien McKenzie has an MBA in finance from the University of Texas at Austin and holds the Chartered Financial Analyst (CFA®) designation. He has over 30 years of experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. Assignments have included a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation.

Employment

President
FINCAP, Inc.
(June 1984 to June 1987)
(April 1988 to present)

Economic consulting firm specializing in regulated industries and valuation of closely-held businesses. Assignments have involved electric, gas, telecommunication, and water/sewer utilities, with clients including utilities, consumer groups, municipalities, regulatory agencies, and cogenerators. Areas of participation have included rate of return, revenue requirements, rate design, tariff analysis, avoided cost, forecasting, and negotiations. Develop cost of capital analyses using alternative market models for electric, gas, and telephone utilities. Prepare pre-filed direct and rebuttal testimony, participate in settlement negotiations, respond to interrogatories, evaluate opposition testimony, and assist in the areas of cross-examination and the preparations of legal briefs. Other assignments have involved preparation of technical reports, valuations, estimation of damages, industry studies, and various economic analyses in support of litigation.

Manager,
McKenzie Energy Company
(Jan. 1981 to May. 1984)

Responsible for operations and accounting for firm engaged in the management of working interests in oil and gas properties.

Education

M.B.A., Finance,
University of Texas at Austin
(Sep. 1982 to May. 1984)

Program included coursework in corporate finance, accounting, financial modeling, and statistics. Received Dean's Award for Academic Excellence and Good Neighbor Scholarship.

Professional Report: *The Impact of Construction Expenditures on Investor-Owned Electric Utilities*

B.B.A., Finance,
University of Texas at Austin
(Jan. 1981 to May 1982)

Electives included capital market theory, portfolio management, and international economics and finance. Elected to Beta Gamma Sigma business honor society. Dean's List 1981-1982.

Simon Fraser University,
Vancouver, Canada and University
of Hawaii at Manoa, Honolulu,
Hawaii
(Jan. 1979 to Dec 1980)

Coursework in accounting, finance, economics, and liberal arts.

Professional Associations

Received Chartered Financial Analyst (CFA®) designation in 1990.

Member – CFA Institute.

Bibliography

“A Profile of State Regulatory Commissions,” A Special Report by the Electricity Consumers Resource Council (ELCON), Summer 1991.

“The Impact of Regulatory Climate on Utility Capital Costs: An Alternative Test,” with Bruce H. Fairchild, *Public Utilities Fortnightly* (May 25, 1989).

Presentations

“ROE at FERC: Issues and Methods,” *Expert Briefing on Parallels in ROE Issues between AER, ERA, and FERC*, Jones Day (Sydney, Melbourne, and Perth, Australia) (April 15, 2014).

Cost of Capital Working Group eforum, Edison Electric Institute (April 24, 2012).

“Cost-of-Service Studies and Rate Design,” General Management of Electric Utilities (A Training Program for Electric Utility Managers from Developing Countries), Austin, Texas (October 1989 and November 1990 and 1991).

Representative Assignments

Mr. McKenzie has prepared and sponsored prefiled testimony submitted in over 140 regulatory proceedings. In addition to filings before regulatory agencies in Alaska, Arkansas, Colorado, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming, Mr. McKenzie has considerable expertise in preparing expert analyses and testimony before the Federal Energy Regulatory Commission (“FERC”) on the issue of rate of return on equity (“ROE”), and has broad experience in applying and evaluating the results of quantitative methods to estimate a fair ROE, including discounted cash flow approaches, the Capital Asset Pricing Model, risk premium methods, and other quantitative benchmarks. Other representative assignments have included developing cost of service and cost allocation studies, the application of econometric models to analyze the impact of anti-competitive behavior and estimate lost profits; development of explanatory models for nuclear plant capital costs in connection with prudency reviews; and the analysis of avoided cost pricing for cogenerated power.

ROE ANALYSES

Exhibit AMM-2

Page 1 of 1

SUMMARY OF RESULTS**CORRECTED**

Method	Average	Midpoint
<u>DCF</u>		
Value Line	8.9%	10.0%
IBES	9.6%	10.2%
Zacks	9.0%	10.0%
Internal br + sv	8.7%	10.1%
<u>CAPM</u>		
Current Bond Yield	10.8%	10.9%
Projected Bond Yield	10.9%	11.0%
<u>Empirical CAPM</u>		
Current Bond Yield	11.1%	11.1%
Projected Bond Yield	11.2%	11.1%
<u>Utility Risk Premium</u>		
Current Bond Yields	9.4%	
Projected Bond Yield	10.3%	
<u>Expected Earnings</u>	10.3%	10.8%

ROE Recommendation

<u>Proxy Group</u>			
Recommended Cost of Equity Range	9.4%	--	10.7%
Flotation Cost Adjustment			
Dividend Yield	3.9%		
Flotation Cost Percentage	2.9%		
Adjustment	0.1%		
Recommended ROE Range	9.5%	--	10.8%
<u>Recommended ROE</u>	10.5%		

REGULATORY MECHANISMS

Exhibit AMM-3

Page 1 of 5

ELECTRIC GROUP

Holding Company		Type of Adjustment Clause										
		Elec. Fuel/ Purch. Pwr	Conserv. Program Expense	Decoupling		Renew- ables Expense	Environ- mental Compliance	New Capital		Trans- mission Expense	Other*	Future Test Year
				Full	Partial			Gener- ation Capacity	Generic Infra- structure			
1	Algonquin Pwr & Util	✓	✓	--	✓	--	✓	--	✓	✓	✓	P
2	ALLETE	✓	✓	--	--	✓	✓	--	--	✓	✓	C
3	Ameren Corp.	✓	✓	--	✓	✓	✓	--	✓	✓	✓	O,P
4	Avangrid, Inc.	D	✓	✓	--	✓	--	--	--	✓	✓	C
5	Avista Corp.	✓	✓	✓	✓	✓	--	--	--	--	--	P
6	Black Hills Corp.	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	O
7	CMS Energy Corp.	✓	✓	--	--	✓	--	--	--	✓	--	C
8	Dominion Energy	✓	✓	--	--	✓	✓	✓	✓	✓	✓	--
9	DTE Energy Co.	✓	✓	--	--	✓	--	--	--	✓	--	C
10	Edison International	✓	--	✓	--	--	--	--	--	--	✓	C
11	Emera Inc.	✓	✓	--	--	--	✓	✓	--	--	✓	C
12	Entergy Corp.	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	O,P
13	Exelon Corp.	D	✓	✓	✓	✓	✓	--	✓	✓	✓	O,P
14	FirstEnergy Corp.	✓	✓	--	✓	✓	✓	--	✓	✓	✓	O,P
15	Hawaiian Elec.	✓	✓	✓	--	✓	--	✓	✓	--	✓	C
16	IDACORP, Inc.	✓	✓	✓	--	✓	--	--	--	--	--	--
17	NorthWestern Corp.	✓	✓	--	--	✓	--	--	--	--	✓	--
18	OGE Energy Corp.	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	P
19	Otter Tail Corp.	✓	✓	--	--	✓	✓	✓	✓	--	✓	C,O
20	PNM Resources	✓	✓	--	--	✓	✓	--	✓	✓	✓	O
21	Pub Sv Enterprise Grp.	D	✓	--	--	✓	--	--	✓	--	✓	P
22	Sempra Energy	✓	✓	✓	--	--	--	--	✓	✓	✓	C

Sources:

Exhibit AMM-3, pages 2-5, contain operating company data that are aggregated into the parent company data on this page.

Notes:

D - Delivery-only utility.

C - Fully-forecasted test years commonly used in the state listed for this operating company.

O - Fully-forecasted test years occasionally used in the state listed for this operating company.

P - Partially-forecasted test years commonly or occasionally used in the state listed for this operating company.

* Recover mechanisms for other expenses, such as taxes, franchise fees, bad debts, storm costs, pensions, societal benefits, vegetation management, and decommissioning.

ELECTRIC GROUP OPERATING COS.

HOLDING COMPANY/ Operating Company		Type of Adjustment Clause (a)										Future Test Year (b)	
		Elec. Fuel/ Purch. Pwr	Conserv. Program Expense	Decoupling		Renew- ables Expense	Environ- mental Compliance	New Capital		Trans- mission Expense	Other*		
				Full	Partial			Gener- ation Capacity	Generic Infra- structure				
1	ALGONQUIN PWR. & UTIL.												
	Empire District Electric	KS	✓	✓	--	--	--	✓	--	--	✓	✓	--
	Empire District Electric	MO	✓	--	--	--	--	✓	--	--	✓	✓	P
	Liberty Util. (Granite State Electric)	NH	D	--	--	✓	--	--	--	✓	--	--	--
2	ALLETE												
	Minnesota Power	MN	✓	✓	--	--	✓	✓	--	--	✓	✓	C
3	AMEREN CORP.												
	Ameren Illinois	IL	D	✓	--	--	✓	✓	--	--	✓	✓	O
	Union Electric	MO	✓	✓	--	✓	✓	✓	--	✓	✓	✓	P
4	AVANGRID												
	United Illuminating	CT	D	✓	✓	--	--	--	--	--	✓	--	C
	Central Maine Power	ME	D	--	✓	--	--	--	--	--	--	✓	C
	New York State Electric & Gas	NY	D	--	✓	--	✓	--	--	--	--	✓	C
	Rochester Gas & Electric	NY	D	--	✓	--	✓	--	--	--	--	✓	C
5	AVISTA CORP.												
	Alaska Electric Light & Power	AK	✓	--	--	--	--	--	--	--	--	--	--
	Avista Corp.	ID	✓	✓	✓	--	--	--	--	--	--	--	P
	Avista Corp.	WA	✓	✓	--	✓	✓	--	--	--	--	--	--
6	BLACK HILLS CORP.												
	Black Hills Colorado Electric	CO	✓	✓	--	--	✓	--	✓	✓	--	✓	--
	Black Hills Power	SD	✓	✓	--	✓	✓	✓	--	--	✓	✓	--
	Cheyenne Light Fuel & Power	WY	✓	✓	--	✓	✓	--	--	--	--	✓	O
7	CMS ENERGY												
	Consumers Energy	MI	✓	✓	--	--	✓	--	--	--	✓	--	C
8	DOMINION ENERGY												
	Virginia Electric & Power	NC	✓	✓	--	--	✓	✓	--	--	--	--	--
	Virginia Electric & Power	VA	✓	✓	--	--	✓	✓	✓	✓	✓	✓	--
	South Carolina Electric & Gas	SC	✓	✓	--	--	--	✓	✓	--	--	--	--

ELECTRIC GROUP OPERATING COS.

HOLDING COMPANY/ Operating Company		Type of Adjustment Clause (a)										Future Test Year (b)	
		Elec. Fuel/ Purch. Pwr	Conserv. Program Expense	Decoupling		Renew- ables Expense	Environ- mental Compliance	New Capital		Trans- mission Expense	Other*		
				Full	Partial			Gener- ation Capacity	Generic Infra- structure				
9	DTE ENERGY CO.												
	DTE Electric	MI	✓	✓	--	--	✓	--	--	--	✓	--	C
10	EDISON INTERNATIONAL												
	Southern California Edison	CA	✓	--	✓	--	--	--	--	--	--	✓	C
11	EMERA INC.												
	Tampa Electric	FL	✓	✓	--	--	--	✓	✓	--	--	✓	C
12	ENTERGY CORP.												
	Entergy Arkansas	AR	✓	✓	--	✓	✓	--	✓	✓	✓	✓	P
	Entergy New Orleans	LA	✓	✓	--	✓	--	✓	✓	--	✓	✓	O
	Entergy Louisiana	LA	✓	✓	--	✓	--	✓	✓	✓	✓	✓	O
	Entergy Mississippi	MS	✓	✓	--	✓	--	✓	--	--	✓	✓	O
	Entergy Texas	TX	✓	✓	--	--	--	--	--	✓	--	✓	--
13	EXELON CORP.												
	Delmarva Power & Light	DE	D	--	--	--	--	--	--	✓	✓	✓	P
	Potomac Electric Power	DC	D	--	--	✓	✓	--	--	✓	--	✓	P
	Commonwealth Edison	IL	D	✓	--	--	✓	✓	--	✓	✓	✓	O
	Baltimore Gas & Electric	MD	D	✓	✓	--	--	--	--	--	--	✓	P
	Delmarva Power & Light	MD	D	✓	✓	--	--	--	--	--	--	--	P
	Potomac Electric Power	MD	D	✓	✓	--	--	--	--	--	--	✓	P
	Atlantic City Electric	NJ	D	✓	--	--	✓	--	--	✓	--	✓	P
	PECO Energy	PA	D	✓	--	--	--	--	--	✓	--	✓	O

ELECTRIC GROUP OPERATING COS.

HOLDING COMPANY/ Operating Company		Type of Adjustment Clause (a)										Future Test Year (b)
		Elec. Fuel/ Purch. Pwr	Conserv. Program Expense	Decoupling		Renew- ables Expense	Environ- mental Compliance	New Capital		Trans- mission Expense	Other*	
				Full	Partial			Gener- ation Capacity	Generic Infra- structure			
14 FIRSTENERGY CORP.												
Potomac Edison	MD	D	✓	--	--	--	--	--	✓	--	✓	P
Jersey Central Power & Light	NJ	D	✓	--	--	✓	✓	--	✓	--	✓	P
Cleve. Elec. Illum./Ohio Ed./Toledo Ed.	OH	D	✓	--	✓	✓	--	--	✓	✓	✓	P
Metropolitan Edison	PA	D	✓	--	--	--	--	--	✓	✓	✓	O
Pennsylvania Electric	PA	D	✓	--	--	--	--	--	✓	✓	✓	O
Pennsylvania Power	PA	D	✓	--	--	--	--	--	✓	--	✓	O
West Penn Power	PA	D	✓	--	--	--	--	--	✓	--	✓	O
Monongahela Power	WV	✓	✓	--	--	--	--	--	✓	--	✓	--
Potomac Edison	WV	✓	✓	--	--	--	--	--	✓	--	✓	--
15 HAWAIIAN ELEC.												
Hawaiian Electric	HI	✓	✓	✓	--	✓	--	✓	✓	--	✓	C
Hawaii Electric Light	HI	✓	✓	✓	--	✓	--	✓	✓	--	✓	C
Maui Electric	HI	✓	✓	✓	--	✓	--	✓	✓	--	✓	C
16 IDACORP												
Idaho Power	ID	✓	✓	✓	--	--	--	--	--	--	--	P
Idaho Power	OR	✓	✓	--	--	✓	--	--	--	--	--	C
17 NORTHWESTERN CORP.												
NorthWestern Corp.	MT	✓	✓	--	--	✓	--	--	--	--	✓	--
NorthWestern Corp.	SD	✓	✓	--	--	--	--	--	--	--	--	--
18 OGE ENERGY CORP.												
Oklahoma Gas & Electric	AR	✓	✓	--	✓	✓	✓	✓	--	✓	✓	P
Oklahoma Gas & Electric	OK	✓	✓	--	✓	✓	✓	--	✓	✓	✓	--
19 OTTER TAIL CORP.												
Otter Tail Power	MN	✓	✓	--	--	✓	✓	--	--	✓	--	C
Otter Tail Power	ND	✓	--	--	--	--	✓	✓	✓	--	✓	O
Otter Tail Power Corp.	SD	✓	✓	--	--	✓	✓	✓	✓	--	--	--
20 PNM RESOURCES												
Public Service Co. of New Mexico	NM	✓	✓	--	--	✓	✓	--	✓	--	✓	O
Texas-New Mexico Power	TX	D	✓	--	--	--	--	--	✓	✓	✓	--

ELECTRIC GROUP OPERATING COS.

HOLDING COMPANY/ Operating Company		Type of Adjustment Clause (a)										Future Test Year (b)	
		Elec. Fuel/ Purch. Pwr	Conserv. Program Expense	Decoupling		Renew- ables Expense	Environ- mental Compliance	New Capital		Trans- mission Expense	Other*		
				Full	Partial			Gener- ation Capacity	Generic Infra- structure				
21	PUB SV ENTERPRISE GRP												
	Public Service Electric & Gas	NJ	D	✓	--	--	✓	--	--	✓	--	✓	P
22	SEMPRA ENERGY												
	San Diego Gas & Electric	CA	✓	--	✓	--	--	--	--	--	--	✓	C
	Oncor Electric Delivery	TX	D	✓	--	--	--	--	--	✓	✓	--	--

Sources:

(a) S&P Global, Market Intelligence, RRA Regulatory Focus, "Adjustment Clauses-A State-by-State Overview," Nov. 12, 2019.

(b) Edison Electric Institute, "Alternative Regulation for Emerging Utility Challenges: 2015 Update," Nov. 11, 2015.

Notes:

D - Delivery-only utility.

C - Fully-forecasted test years commonly used in the state listed for this operating company.

O - Fully-forecasted test years occasionally used in the state listed for this operating company.

P - Partially-forecasted test years commonly or occasionally used in the state listed for this operating company.

* Recover mechanisms for other expenses, such as taxes, franchise fees, bad debts, storm costs, pensions, societal benefits, vegetation management, and decommissioning.

DCF MODEL - ELECTRIC GROUP**Exhibit AMM-4****Page 1 of 4****DIVIDEND YIELD****CORRECTED**

		(a)	(b)	
	Company	Price	Dividends	Yield
1	Algonquin Pwr & Util	\$ 13.45	\$ 0.62	4.6%
2	ALLETE	\$ 58.51	\$ 2.53	4.3%
3	Ameren Corp.	\$ 78.14	\$ 2.06	2.6%
4	Avangrid, Inc.	\$ 47.05	\$ 1.76	3.7%
5	Avista Corp.	\$ 36.91	\$ 1.64	4.4%
6	Black Hills Corp.	\$ 59.14	\$ 2.23	3.8%
7	CMS Energy Corp.	\$ 61.71	\$ 1.69	2.7%
8	Dominion Energy	\$ 78.56	\$ 2.82	3.6%
9	DTE Energy Co.	\$ 112.70	\$ 4.27	3.8%
10	Edison International	\$ 55.05	\$ 2.60	4.7%
11	Emera Inc.	\$ 54.76	\$ 2.45	4.5%
12	Entergy Corp.	\$ 100.50	\$ 3.78	3.8%
13	Exelon Corp.	\$ 38.04	\$ 1.57	4.1%
14	FirstEnergy Corp.	\$ 34.30	\$ 1.59	4.6%
15	Hawaiian Elec.	\$ 50.16	\$ 1.32	2.6%
16	IDACORP, Inc.	\$ 91.17	\$ 2.83	3.1%
17	NorthWestern Corp.	\$ 55.03	\$ 2.45	4.5%
18	OGE Energy Corp.	\$ 32.15	\$ 1.64	5.1%
19	Otter Tail Corp.	\$ 39.09	\$ 1.52	3.9%
20	PNM Resources	\$ 41.01	\$ 1.26	3.1%
21	Pub Sv Enterprise Grp.	\$ 52.82	\$ 2.00	3.8%
22	Sempra Energy	\$ 124.28	\$ 4.34	3.5%
	Average			3.9%

(a) Average of closing prices for 30 trading days ended Aug. 12, 2020.

(b) The Value Line Investment Survey, Summary & Index (Aug. 14, 2020).

GROWTH RATES**CORRECTED**

		(a)	(b)	(c)	(d)
		Earnings Growth			br+sv
	Company	V Line	IBES	Zacks	Growth
1	Algonquin Pwr & Util	n/a	5.7%	8.3%	n/a
2	ALLETE	5.5%	7.0%	n/a	3.6%
3	Ameren Corp.	6.0%	5.9%	6.8%	6.3%
4	Avangrid, Inc.	4.0%	4.9%	5.5%	1.4%
5	Avista Corp.	1.0%	5.9%	5.2%	3.0%
6	Black Hills Corp.	3.5%	4.7%	5.8%	3.8%
7	CMS Energy Corp.	7.5%	7.1%	7.0%	7.0%
8	Dominion Energy	3.0%	2.7%	3.5%	4.4%
9	DTE Energy Co.	5.0%	6.0%	5.7%	5.0%
10	Edison International	n/a	1.4%	3.3%	5.6%
11	Emera Inc.	6.0%	5.9%	n/a	3.8%
12	Entergy Corp.	3.0%	6.0%	5.8%	5.2%
13	Exelon Corp.	5.0%	-3.6%	4.0%	4.1%
14	FirstEnergy Corp.	8.5%	-2.4%	n/a	9.0%
15	Hawaiian Elec.	1.5%	3.3%	1.7%	2.9%
16	IDACORP, Inc.	3.5%	2.6%	2.6%	3.4%
17	NorthWestern Corp.	1.5%	3.7%	3.4%	2.7%
18	OGE Energy Corp.	3.0%	2.4%	3.7%	2.6%
19	Otter Tail Corp.	3.5%	9.0%	n/a	3.9%
20	PNM Resources	6.0%	5.0%	4.9%	6.0%
21	Pub Sv Enterprise Grp.	5.0%	1.4%	3.5%	5.2%
22	Sempra Energy	10.0%	6.3%	7.4%	7.3%

(a) The Value Line Investment Survey (Jun. 12, Jul. 24 and Aug. 14, 2020).

(b) www.finance.yahoo.com (retrieved Aug. 11, 2020).

(c) www.zacks.com (retrieved Aug. 11, 2020).

(d) See Exhibit AMM-5.

COST OF EQUITY ESTIMATES

CORRECTED

		(a)	(a)	(a)	(a)
		Earnings Growth			br+sv
	Company	V Line	IBES	Zacks	Growth
1	Algonquin Pwr & Util	n/a	10.3%	12.9%	n/a
2	ALLETE	9.8%	11.3%	n/a	8.0%
3	Ameren Corp.	8.6%	8.5%	9.4%	8.9%
4	Avangrid, Inc.	7.7%	8.6%	9.3%	5.1%
5	Avista Corp.	5.4%	10.3%	9.6%	7.5%
6	Black Hills Corp.	7.3%	8.5%	9.5%	7.6%
7	CMS Energy Corp.	10.2%	9.8%	9.7%	9.8%
8	Dominion Energy	6.6%	6.3%	7.1%	8.0%
9	DTE Energy Co.	8.8%	9.8%	9.5%	8.8%
10	Edison International	n/a	6.1%	8.1%	10.3%
11	Emera Inc.	10.5%	10.3%	n/a	8.3%
12	Entergy Corp.	6.8%	9.7%	9.5%	8.9%
13	Exelon Corp.	9.1%	0.6%	8.1%	8.3%
14	FirstEnergy Corp.	13.1%	2.2%	n/a	13.6%
15	Hawaiian Elec.	4.1%	5.9%	4.3%	5.5%
16	IDACORP, Inc.	6.6%	5.7%	5.7%	6.5%
17	NorthWestern Corp.	6.0%	8.2%	7.8%	7.2%
18	OGE Energy Corp.	8.1%	7.5%	8.8%	7.7%
19	Otter Tail Corp.	7.4%	12.9%	n/a	7.8%
20	PNM Resources	9.1%	8.0%	7.9%	9.1%
21	Pub Sv Enterprise Grp.	8.8%	5.2%	7.2%	9.0%
22	Sempra Energy	13.5%	9.8%	10.9%	10.8%
	Average (b)	8.9%	9.6%	9.0%	8.7%
	Midpoint (b) (c)	10.0%	10.2%	10.0%	10.1%

(a) Sum of dividend yield (Exhibit AMM-4, p. 1) and respective growth rate (Exhibit AMM-4, p.

(b) Excludes highlighted figures.

(c) Average of low and high values.

LOW-END THRESHOLD ADJUSTMENT

CORRECTED

Atlantic Path 15 / Startrans / So. Cal Edison

	<u>Baa Yield</u>
Jun-07	6.54%
Jul-07	6.49%
Aug-07	6.51%
Sep-07	6.45%
Oct-07	6.36%
Nov-07	6.27%

Pioneer Transmission

	<u>Baa Yield</u>
Apr-08	6.81%
May-08	6.79%
Jun-08	6.93%
Jul-08	6.97%
Aug-08	6.98%
Sep-08	7.15%

	<u>Current</u>	<u>Projected</u>
Historical Baa Bond Yield	6.69% (a)	6.69% (a)
Current Baa Bond Yield	3.63% (b)	4.84% (c)
Change in Bond Yield	-3.06%	-1.85%
Risk Premium/Interest Rate Relationship	-0.42103 (d)	-0.42103 (d)
Adjustment to Low-end Threshold	1.29%	0.78%

Current Baa Bond Yield	3.63%	4.84%
Original Threshold	1.00%	1.00%
Adjustment	1.29%	0.78%
Adjusted Low-end Threshold	5.92%	6.62%

Low-end Test -- FERC Opinion No. 569-A

Current Baa Bond Yield	3.63%
CAPM Market Risk Premium (e)	9.89%
Risk Premium Factor (f)	20.00%
Adjustment to Low-end Threshold	1.98%
Adjusted Low-end Threshold	5.61%

(a) Average Baa utility bond yield for 6-mo. periods ending Nov. 2007 and Sep. 2008.

(b) Average Baa utility bond yield for 6-months ended Jul. 2020.

(c) Average Baa utility bond yield for 2021-25 based on data from IHS Markit, Long-Term Macro Forecast - Baseline (May 28, 2020); Energy Information Administration, Annual Energy Outlook 2020 (Jan. 29, 2020), Moody's Investors Service at www.credittrends.com.

(d) Exhibit AMM-8, page 4.

(e) Exhibit AMM-6, page 1.

(f) *Assoc. of Bus. Advocating Tariff Equity*, Opinion No. 569-A, 171 FERC ¶ 61,154 (2020).

BR+SV GROWTH RATE

Exhibit AMM-5

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ELECTRIC GROUP

		(a)	(a)	(a)			(b)	(c)		(d)	(e)		
		2024			Adjustment						"sv" Factor		
	<u>Company</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>b</u>	<u>r</u>	<u>Factor</u>	<u>Adjusted r</u>	<u>br</u>	<u>s</u>	<u>v</u>	<u>sv</u>	<u>br + sv</u>
1	Algonquin Pwr & Util	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2	ALLETE	\$4.50	\$2.90	\$51.75	35.6%	8.7%	1.0228	8.9%	3.2%	0.0145	0.3323	0.48%	3.6%
3	Ameren Corp.	\$4.50	\$2.45	\$43.50	45.6%	10.3%	1.0393	10.8%	4.9%	0.0360	0.3786	1.36%	6.3%
4	Avangrid, Inc.	\$2.50	\$1.80	\$51.75	28.0%	4.8%	1.0048	4.9%	1.4%	(0.0000)	(0.2176)	0.00%	1.4%
5	Avista Corp.	\$2.50	\$1.90	\$31.75	24.0%	7.9%	1.0182	8.0%	1.9%	0.0277	0.3952	1.10%	3.0%
6	Black Hills Corp.	\$4.25	\$2.75	\$46.75	35.3%	9.1%	1.0232	9.3%	3.3%	0.0134	0.3968	0.53%	3.8%
7	CMS Energy Corp.	\$3.50	\$2.15	\$25.50	38.6%	13.7%	1.0417	14.3%	5.5%	0.0262	0.5750	1.50%	7.0%
8	Dominion Energy	\$4.25	\$3.00	\$39.00	29.4%	10.9%	1.0158	11.1%	3.3%	0.0227	0.4968	1.13%	4.4%
9	DTE Energy Co.	\$8.25	\$5.20	\$77.75	37.0%	10.6%	1.0311	10.9%	4.0%	0.0225	0.4241	0.95%	5.0%
10	Edison International	\$5.25	\$3.00	\$46.50	42.9%	11.3%	1.0285	11.6%	5.0%	0.0150	0.4188	0.63%	5.6%
11	Emera Inc.	\$4.00	\$2.76	\$45.00	31.0%	8.9%	1.0258	9.1%	2.8%	0.0251	0.3793	0.95%	3.8%
12	Entergy Corp.	\$7.00	\$4.55	\$62.75	35.0%	11.2%	1.0265	11.5%	4.0%	0.0241	0.4771	1.15%	5.2%
13	Exelon Corp.	\$3.50	\$1.90	\$40.25	45.7%	8.7%	1.0220	8.9%	4.1%	0.0043	0.1950	0.08%	4.1%
14	FirstEnergy Corp.	\$3.25	\$1.90	\$20.50	41.5%	15.9%	1.0535	16.7%	6.9%	0.0345	0.5900	2.04%	9.0%
15	Hawaiian Elec.	\$2.00	\$1.40	\$24.50	30.0%	8.2%	1.0203	8.3%	2.5%	0.0130	0.3000	0.39%	2.9%
16	IDACORP, Inc.	\$5.50	\$3.55	\$58.00	35.5%	9.5%	1.0167	9.6%	3.4%	(0.0001)	0.4200	-0.01%	3.4%
17	NorthWestern Corp.	\$3.75	\$2.80	\$45.75	25.3%	8.2%	1.0169	8.3%	2.1%	0.0162	0.3900	0.63%	2.7%
18	OGE Energy Corp.	\$2.50	\$1.95	\$21.00	22.0%	11.9%	1.0015	11.9%	2.6%	(0.0002)	0.5579	-0.01%	2.6%
19	Otter Tail Corp.	\$2.50	\$1.80	\$23.25	28.0%	10.8%	1.0227	11.0%	3.1%	0.0149	0.5571	0.83%	3.9%
20	PNM Resources	\$2.75	\$1.50	\$29.25	45.5%	9.4%	1.0468	9.8%	4.5%	0.0450	0.3500	1.57%	6.0%
21	Pub Sv Enterprise Grp.	\$4.25	\$2.30	\$38.50	45.9%	11.0%	1.0249	11.3%	5.2%	0.0006	0.3583	0.02%	5.2%
22	Sempra Energy	\$9.50	\$5.60	\$88.75	41.1%	10.7%	1.0533	11.3%	4.6%	0.0578	0.4621	2.67%	7.3%

ELECTRIC GROUP

	(a)	(a)	(f)	(a)	(a)	(f)	(g)	(a)	(a)		(h)	(a)	(a)	(g)
	2019			2024			Chg	2024				Common Shares		
Company	Eq Ratio	Tot Cap	Com Eq	Eq Ratio	Tot Cap	Com Eq	Equity	High	Low	Avg.	M/B	2019	2024	Growth
1 Algonquin Pwr & Util	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
2 ALLETE	61.4%	\$3,633	\$2,231	59.0%	\$4,750	\$2,803	4.7%	\$90.0	\$65.0	\$77.5	1.498	51.70	54.25	0.97%
3 Ameren Corp.	47.1%	\$17,116	\$8,062	50.0%	\$23,900	\$11,950	8.2%	\$80.0	\$60.0	\$70.0	1.609	246.20	275.00	2.24%
4 Avangrid, Inc.	69.4%	\$21,953	\$15,235	57.5%	\$27,800	\$15,985	1.0%	\$50.0	\$35.0	\$42.5	0.821	309.01	309.00	0.00%
5 Avista Corp.	50.6%	\$3,835	\$1,940	49.0%	\$4,750	\$2,328	3.7%	\$60.0	\$45.0	\$52.5	1.654	67.18	73.00	1.68%
6 Black Hills Corp.	42.9%	\$5,502	\$2,360	48.0%	\$6,200	\$2,976	4.7%	\$90.0	\$65.0	\$77.5	1.658	61.48	64.00	0.81%
7 CMS Energy Corp.	29.4%	\$17,082	\$5,022	31.5%	\$24,200	\$7,623	8.7%	\$70.0	\$50.0	\$60.0	2.353	283.86	300.00	1.11%
8 Dominion Energy	45.0%	\$65,818	\$29,618	50.0%	\$69,400	\$34,700	3.2%	\$90.0	\$65.0	\$77.5	1.987	838.00	887.00	1.14%
9 DTE Energy Co.	42.3%	\$27,607	\$11,678	41.5%	\$38,400	\$15,936	6.4%	\$155.0	\$115.0	\$135.0	1.736	192.21	205.00	1.30%
10 Edison International	39.9%	\$33,360	\$13,311	37.5%	\$47,200	\$17,700	5.9%	\$95.0	\$65.0	\$80.0	1.720	361.99	378.00	0.87%
11 Emera Inc.	38.5%	\$22,245	\$8,566	44.9%	\$24,685	\$11,085	5.3%	\$85.0	\$60.0	\$72.5	1.611	242.48	262.00	1.56%
12 Entergy Corp.	37.1%	\$27,557	\$10,224	41.0%	\$32,500	\$13,325	5.4%	\$140.0	\$100.0	\$120.0	1.912	199.15	212.00	1.26%
13 Exelon Corp.	50.4%	\$63,943	\$32,227	50.0%	\$80,300	\$40,150	4.5%	\$60.0	\$40.0	\$50.0	1.242	973.00	990.00	0.35%
14 FirstEnergy Corp.	26.2%	\$26,593	\$6,967	34.0%	\$35,000	\$11,900	11.3%	\$60.0	\$40.0	\$50.0	2.439	540.65	580.00	1.42%
15 Hawaiian Elec.	54.6%	\$4,177	\$2,281	51.5%	\$5,425	\$2,794	4.1%	\$40.0	\$30.0	\$35.0	1.429	108.97	114.00	0.91%
16 IDACORP, Inc.	58.7%	\$4,201	\$2,466	53.5%	\$5,450	\$2,916	3.4%	\$115.0	\$85.0	\$100.0	1.724	50.42	50.40	-0.01%
17 NorthWestern Corp.	47.5%	\$4,290	\$2,038	50.0%	\$4,825	\$2,413	3.4%	\$85.0	\$65.0	\$75.0	1.639	50.45	53.00	0.99%
18 OGE Energy Corp.	56.4%	\$7,335	\$4,137	51.5%	\$8,150	\$4,197	0.3%	\$55.0	\$40.0	\$47.5	2.262	200.10	200.00	-0.01%
19 Otter Tail Corp.	53.1%	\$1,471	\$781	53.0%	\$1,850	\$981	4.7%	\$60.0	\$45.0	\$52.5	2.258	40.16	41.50	0.66%
20 PNM Resources	39.9%	\$4,208	\$1,679	49.0%	\$5,475	\$2,683	9.8%	\$55.0	\$35.0	\$45.0	1.538	79.65	92.00	2.92%
21 Pub Sv Enterprise Grp.	52.3%	\$28,832	\$15,079	50.0%	\$38,700	\$19,350	5.1%	\$65.0	\$55.0	\$60.0	1.558	504.00	505.00	0.04%
22 Sempra Energy	43.4%	\$40,734	\$17,679	51.5%	\$58,500	\$30,128	11.3%	\$190.0	\$140.0	\$165.0	1.859	291.71	340.00	3.11%

(a) The Value Line Investment Survey (Jun. 12, Jul. 24 and Aug. 14, 2020).

(b) Computed using the formula $2 * (1 + 5\text{-Yr. Change in Equity}) / (2 + 5\text{ Yr. Change in Equity})$.

(c) Product of average year-end "r" for 2024 and Adjustment Factor.

(d) Product of change in common shares outstanding and M/B Ratio.

(e) Computed as $1 - B/M$ Ratio.

(f) Product of total capital and equity ratio.

(g) Five-year rate of change in common equity.

(h) Average of High and Low expected market prices divided by 2024 BVPS.

ELECTRIC GROUP

		(a)	(b)	(c)	(d)	(d)	(e)				
		Market Return (R_m)									
		Div	Proj.	Cost of	Risk-Free	Risk		Unadjusted	Market	Size	CAPM
	Company	Yield	Growth	Equity	Rate	Premium	Beta	K_e	Cap	Adjustment	Result
1	Algonquin Pwr & Util	2.5%	8.9%	11.4%	1.5%	9.9%	0.90	10.4%	\$6,893	0.73%	11.1%
2	ALLETE	2.5%	8.9%	11.4%	1.5%	9.9%	0.85	9.9%	\$3,100	1.10%	11.0%
3	Ameren Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.80	9.4%	\$18,000	0.50%	9.9%
4	Avangrid, Inc.	2.5%	8.9%	11.4%	1.5%	9.9%	0.80	9.4%	\$15,000	0.50%	9.9%
5	Avista Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.90	10.4%	\$2,400	1.34%	11.7%
6	Black Hills Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.95	10.9%	\$3,800	1.10%	12.0%
7	CMS Energy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.80	9.4%	\$17,000	0.50%	9.9%
8	Dominion Energy	2.5%	8.9%	11.4%	1.5%	9.9%	0.80	9.4%	\$67,000	-0.28%	9.1%
9	DTE Energy Co.	2.5%	8.9%	11.4%	1.5%	9.9%	0.90	10.4%	\$21,000	0.50%	10.9%
10	Edison International	2.5%	8.9%	11.4%	1.5%	9.9%	0.90	10.4%	\$20,000	0.50%	10.9%
11	Emera Inc.	2.5%	8.9%	11.4%	1.5%	9.9%	0.75	8.9%	\$13,500	0.50%	9.4%
12	Entergy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.95	10.9%	\$21,000	0.50%	11.4%
13	Exelon Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.95	10.9%	\$37,000	-0.28%	10.6%
14	FirstEnergy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.85	9.9%	\$16,000	0.50%	10.4%
15	Hawaiian Elec.	2.5%	8.9%	11.4%	1.5%	9.9%	0.80	9.4%	\$4,000	1.10%	10.5%
16	IDACORP, Inc.	2.5%	8.9%	11.4%	1.5%	9.9%	0.80	9.4%	\$4,600	0.79%	10.2%
17	NorthWestern Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.90	10.4%	\$2,700	1.10%	11.5%
18	OGE Energy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	1.05	11.9%	\$6,400	0.79%	12.7%
19	Otter Tail Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.85	9.9%	\$1,700	1.34%	11.2%
20	PNM Resources	2.5%	8.9%	11.4%	1.5%	9.9%	0.95	10.9%	\$3,100	1.10%	12.0%
21	Pub Sv Enterprise Grp.	2.5%	8.9%	11.4%	1.5%	9.9%	0.90	10.4%	\$28,000	0.50%	10.9%
22	Sempra Energy	2.5%	8.9%	11.4%	1.5%	9.9%	0.95	10.9%	\$35,000	-0.28%	10.6%
Average (f)											10.8%
Midpoint (f) (g)											10.9%

- (a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Jul. 3, 2020).
- (b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from <http://finance.yahoo.com> (retrieved Jul. 3, 2020), www.valueline.com (retrieved Jul. 3, 2020), and www.zacks.com (retrieved Jul. 3, 2020). Eliminated growth rates that were negative or greater than 20%.
- (c) Average yield on 30-year Treasury bonds for the six-months ending Jul. 2020 based on data from <http://www.fred.stlouisfed.org>.
- (d) The Value Line Investment Survey, Summary & Index (Aug. 14, 2020).
- (e) Duff & Phelps, 2020 CRSP Deciles Size Study -- Supplementary Data Exhibits, Cost of Capital Navigator.
- (f) Excludes highlighted figures.
- (g) Average of low and high values.

CAPM - PROJECTED BOND YIELD

Exhibit AMM-6

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CORRECTED

ELECTRIC GROUP

		(a)	(b)	(c)	(d)	(d)	(e)				
		Market Return (R _m)									
		Div	Proj.	Cost of	Risk-Free	Risk	Unadjusted	Market	Size	CAPM	
Company		Yield	Growth	Equity	Rate	Premium	Beta	K _e	Cap	Adjustment	Result
1	Algonquin Pwr & Util	2.5%	8.9%	11.4%	2.2%	9.2%	0.90	10.5%	\$6,893	0.73%	11.2%
2	ALLETE	2.5%	8.9%	11.4%	2.2%	9.2%	0.85	10.0%	\$3,100	1.10%	11.1%
3	Ameren Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.80	9.6%	\$18,000	0.50%	10.1%
4	Avangrid, Inc.	2.5%	8.9%	11.4%	2.2%	9.2%	0.80	9.6%	\$15,000	0.50%	10.1%
5	Avista Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.90	10.5%	\$2,400	1.34%	11.8%
6	Black Hills Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.95	10.9%	\$3,800	1.10%	12.0%
7	CMS Energy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.80	9.6%	\$17,000	0.50%	10.1%
8	Dominion Energy	2.5%	8.9%	11.4%	2.2%	9.2%	0.80	9.6%	\$67,000	-0.28%	9.3%
9	DTE Energy Co.	2.5%	8.9%	11.4%	2.2%	9.2%	0.90	10.5%	\$21,000	0.50%	11.0%
10	Edison International	2.5%	8.9%	11.4%	2.2%	9.2%	0.90	10.5%	\$20,000	0.50%	11.0%
11	Emera Inc.	2.5%	8.9%	11.4%	2.2%	9.2%	0.75	9.1%	\$13,500	0.50%	9.6%
12	Entergy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.95	10.9%	\$21,000	0.50%	11.4%
13	Exelon Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.95	10.9%	\$37,000	-0.28%	10.7%
14	FirstEnergy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.85	10.0%	\$16,000	0.50%	10.5%
15	Hawaiian Elec.	2.5%	8.9%	11.4%	2.2%	9.2%	0.80	9.6%	\$4,000	1.10%	10.7%
16	IDACORP, Inc.	2.5%	8.9%	11.4%	2.2%	9.2%	0.80	9.6%	\$4,600	0.79%	10.3%
17	NorthWestern Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.90	10.5%	\$2,700	1.10%	11.6%
18	OGE Energy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	1.05	11.8%	\$6,400	0.79%	12.6%
19	Otter Tail Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.85	10.0%	\$1,700	1.34%	11.4%
20	PNM Resources	2.5%	8.9%	11.4%	2.2%	9.2%	0.95	10.9%	\$3,100	1.10%	12.0%
21	Pub Sv Enterprise Grp.	2.5%	8.9%	11.4%	2.2%	9.2%	0.90	10.5%	\$28,000	0.50%	11.0%
22	Sempra Energy	2.5%	8.9%	11.4%	2.2%	9.2%	0.95	10.9%	\$35,000	-0.28%	10.7%
Average (f)											10.9%
Midpoint (f) (g)											11.0%

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Jul. 3, 2020).

(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from <http://finance.yahoo.com> (retrieved Jul. 3, 2020), www.valueline.com (retrieved Jul. 3, 2020), and www.zacks.com (retrieved Jul. 3, 2020). Eliminated growth rates that were negative or greater than 20%.

(c) Average yield on 30-year Treasury bonds for 2021-25 based on data from the Value Line Investment Survey, Forecast for the U.S. Economy (May 29, 2020); IHS Markit, Long-Term Macro Forecast - Baseline (May 28, 2020); & Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2020).

(d) The Value Line Investment Survey, Summary & Index (Aug. 14, 2020).

(e) Duff & Phelps, 2020 CRSP Deciles Size Study -- Supplementary Data Exhibits, Cost of Capital Navigator.

(f) Excludes highlighted figures.

(g) Average of low and high values.

EMPIRICAL CAPM - CURRENT BOND YIELD

Exhibit AMM-7

Page 1 of 2

CORRECTED

ELECTRIC GROUP

	(a)	(b)	(c)	(d)	(e)	(d)	(e)	(f)									
	Market Return (R _m)																
Company	Div Yield	Proj. Growth	Cost of Equity	Risk-Free Rate	Risk Premium	Unadjusted Weight	RP ¹	Beta	Adjusted Weight	RP ²	Total RP	Unadjusted K _e	Market Cap	Size Adjustment	ECAPM Result		
1 Algonquin Pwr & Util	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.90	75%	6.7%	9.1%	10.6%	\$6,893	0.73%	11.4%		
2 ALLETE	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.85	75%	6.3%	8.8%	10.3%	\$3,100	1.10%	11.4%		
3 Ameren Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.80	75%	5.9%	8.4%	9.9%	\$18,000	0.50%	10.4%		
4 Avangrid, Inc.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.80	75%	5.9%	8.4%	9.9%	\$15,000	0.50%	10.4%		
5 Avista Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.90	75%	6.7%	9.1%	10.6%	\$2,400	1.34%	12.0%		
6 Black Hills Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.95	75%	7.0%	9.5%	11.0%	\$3,800	1.10%	12.1%		
7 CMS Energy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.80	75%	5.9%	8.4%	9.9%	\$17,000	0.50%	10.4%		
8 Dominion Energy	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.80	75%	5.9%	8.4%	9.9%	\$67,000	-0.28%	9.6%		
9 DTE Energy Co.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.90	75%	6.7%	9.1%	10.6%	\$21,000	0.50%	11.1%		
10 Edison International	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.90	75%	6.7%	9.1%	10.6%	\$20,000	0.50%	11.1%		
11 Emera Inc.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.75	75%	5.6%	8.0%	9.5%	\$13,500	0.50%	10.0%		
12 Entergy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.95	75%	7.0%	9.5%	11.0%	\$21,000	0.50%	11.5%		
13 Exelon Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.95	75%	7.0%	9.5%	11.0%	\$37,000	-0.28%	10.7%		
14 FirstEnergy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.85	75%	6.3%	8.8%	10.3%	\$16,000	0.50%	10.8%		
15 Hawaiian Elec.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.80	75%	5.9%	8.4%	9.9%	\$4,000	1.10%	11.0%		
16 IDACORP, Inc.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.80	75%	5.9%	8.4%	9.9%	\$4,600	0.79%	10.7%		
17 NorthWestern Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.90	75%	6.7%	9.1%	10.6%	\$2,700	1.10%	11.7%		
18 OGE Energy Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	1.05	75%	7.8%	10.3%	11.8%	\$6,400	0.79%	12.6%		
19 Otter Tail Corp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.85	75%	6.3%	8.8%	10.3%	\$1,700	1.34%	11.6%		
20 PNM Resources	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.95	75%	7.0%	9.5%	11.0%	\$3,100	1.10%	12.1%		
21 Pub Sv Enterprise Grp.	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.90	75%	6.7%	9.1%	10.6%	\$28,000	0.50%	11.1%		
22 Sempra Energy	2.5%	8.9%	11.4%	1.5%	9.9%	25%	2.5%	0.95	75%	7.0%	9.5%	11.0%	\$35,000	-0.28%	10.7%		
Average (f)															11.1%		
Midpoint (f) (g)															11.1%		

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Jul. 3, 2020).

(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from <http://finance.yahoo.com> (retrieved Jul. 3, 2020), www.valueline.com (retrieved Jul. 3, 2020), and www.zacks.com (retrieved Jul. 3, 2020). Eliminated growth rates that were negative or greater than 20%.

(c) Average yield on 30-year Treasury bonds for the six-months ending Jul. 2020 based on data from <http://www.fred.stlouisfed.org>.

(d) Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 190.

(e) The Value Line Investment Survey, Summary & Index (Aug. 14, 2020).

(f) Duff & Phelps, 2020 CRSP Deciles Size Study -- Supplementary Data Exhibits, Cost of Capital Navigator.

(g) Excludes highlighted figures.

(g) Average of low and high values.

EMPIRICAL CAPM - PROJECTED BOND YIELD

Exhibit AMM-7

Page 2 of 2

CORRECTED

ELECTRIC GROUP

		(a)	(b)	(c)	(d)	(e)	(d)		(e)	(f)						
		Market Return (R _m)														
		Div	Proj.	Cost of	Risk-Free	Risk	Unadjusted RP	Beta	Adjusted RP		Unadjusted	Market	Size	ECAPM		
	Company	Yield	Growth	Equity	Rate	Premium	Weight	RP ¹	Beta	Weight	RP ²	Total RP	K _e	Cap	Adjustment	Result
1	Algonquin Pwr & Util	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	10.7%	\$6,893	0.73%	11.4%
2	ALLETE	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.85	75%	5.9%	8.2%	10.4%	\$3,100	1.10%	11.5%
3	Ameren Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	10.0%	\$18,000	0.50%	10.5%
4	Avangrid, Inc.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	10.0%	\$15,000	0.50%	10.5%
5	Avista Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	10.7%	\$2,400	1.34%	12.0%
6	Black Hills Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.95	75%	6.5%	8.8%	11.0%	\$3,800	1.10%	12.1%
7	CMS Energy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	10.0%	\$17,000	0.50%	10.5%
8	Dominion Energy	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	10.0%	\$67,000	-0.28%	9.7%
9	DTE Energy Co.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	10.7%	\$21,000	0.50%	11.2%
10	Edison International	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	10.7%	\$20,000	0.50%	11.2%
11	Emera Inc.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.75	75%	5.2%	7.5%	9.7%	\$13,500	0.50%	10.2%
12	Entergy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.95	75%	6.5%	8.8%	11.0%	\$21,000	0.50%	11.5%
13	Exelon Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.95	75%	6.5%	8.8%	11.0%	\$37,000	-0.28%	10.8%
14	FirstEnergy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.85	75%	5.9%	8.2%	10.4%	\$16,000	0.50%	10.9%
15	Hawaiian Elec.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	10.0%	\$4,000	1.10%	11.1%
16	IDACORP, Inc.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	10.0%	\$4,600	0.79%	10.8%
17	NorthWestern Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	10.7%	\$2,700	1.10%	11.8%
18	OGE Energy Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	1.05	75%	7.2%	9.5%	11.7%	\$6,400	0.79%	12.5%
19	Otter Tail Corp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.85	75%	5.9%	8.2%	10.4%	\$1,700	1.34%	11.7%
20	PNM Resources	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.95	75%	6.5%	8.8%	11.0%	\$3,100	1.10%	12.1%
21	Pub Sv Enterprise Grp.	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	10.7%	\$28,000	0.50%	11.2%
22	Sempra Energy	2.5%	8.9%	11.4%	2.2%	9.2%	25%	2.3%	0.95	75%	6.5%	8.8%	11.0%	\$35,000	-0.28%	10.8%
Average (f)																11.2%
Midpoint (f) (g)																11.1%

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Jul. 3, 2020).

(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Jul. 3, 2020), www.valueline.com (retrieved Jul. 3, 2020), and www.zacks.com (retrieved Jul. 3, 2020). Eliminated growth rates that were negative or greater than 20%.

(c) Average yield on 30-year Treasury bonds for 2021-25 based on data from the Value Line Investment Survey, Forecast for the U.S. Economy (May 29, 2020); IHS Markit, Long-Term Macro Forecast - Baseline (May 28, 2020); & Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2020).

(d) Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 190.

(e) The Value Line Investment Survey, Summary & Index (Aug. 14, 2020).

(f) Duff & Phelps, 2020 CRSP Deciles Size Study -- Supplementary Data Exhibits, Cost of Capital Navigator.

(g) Excludes highlighted figures.

(g) Average of low and high values.

ELECTRIC UTILITY RISK PREMIUM

Exhibit AMM-8

Page 1 of 4

CURRENT BOND YIELD

<u>Current Equity Risk Premium</u>	
(a) Avg. Yield over Study Period	8.10%
(b) Average Utility Bond Yield	<u>3.23%</u>
Change in Bond Yield	-4.87%
(c) Risk Premium/Interest Rate Relationship	<u>-0.4210</u>
Adjustment to Average Risk Premium	2.05%
(a) Average Risk Premium over Study Period	<u>3.76%</u>
Adjusted Risk Premium	5.81%
<u>Implied Cost of Equity</u>	
(b) Baa Utility Bond Yield	3.63%
Adjusted Equity Risk Premium	<u>5.81%</u>
Risk Premium Cost of Equity	9.44%

- (a) Exhibit AMM-8, page 3.
- (b) Average bond yield on all utility bonds and 'Baa' subset for the six-months ending Jul. 2020 based on data from Moody's Investors Service at www.credittrends.com.
- (c) Exhibit AMM-8, page 4.

ELECTRIC UTILITY RISK PREMIUM

Exhibit AMM-8

Page 2 of 4

PROJECTED BOND YIELD

<u>Current Equity Risk Premium</u>	
(a) Avg. Yield over Study Period	8.10%
(b) Average Utility Bond Yield 2021-25	4.12%
Change in Bond Yield	-3.98%
(c) Risk Premium/Interest Rate Relationship	<u>-0.4210</u>
Adjustment to Average Risk Premium	1.67%
(a) Average Risk Premium over Study Period	<u>3.76%</u>
Adjusted Risk Premium	5.43%
<u>Implied Cost of Equity</u>	
(b) Baa Utility Bond Yield 2021-25	4.84%
Adjusted Equity Risk Premium	<u>5.43%</u>
Risk Premium Cost of Equity	10.27%

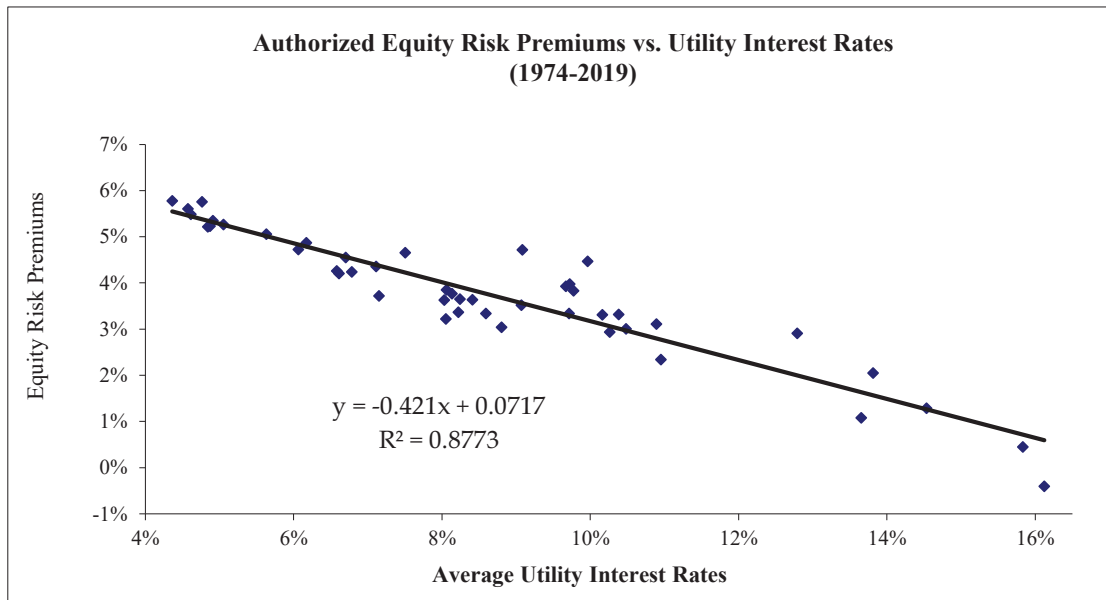
- (a) Exhibit AMM-8, page 3.
- (b) Yields on all utility bonds and 'A' subset based on data from IHS Markit, Long-Term Macro Forecast - Baseline (May 28, 2020); Energy Information Administration, Annual Energy Outlook 2020 (Jan. 29, 2020); & Moody's Investors Service at www.credittrends.com.
- (c) Exhibit AMM-8, page 4.

AUTHORIZED RETURNS

Year	(a) Allowed	(b) Average Utility	Risk
	ROE	Bond Yield	
1974	13.10%	9.27%	3.83%
1975	13.20%	9.88%	3.32%
1976	13.10%	9.17%	3.93%
1977	13.30%	8.58%	4.72%
1978	13.20%	9.22%	3.98%
1979	13.50%	10.39%	3.11%
1980	14.23%	13.15%	1.08%
1981	15.22%	15.62%	-0.40%
1982	15.78%	15.33%	0.45%
1983	15.36%	13.31%	2.05%
1984	15.32%	14.03%	1.29%
1985	15.20%	12.29%	2.91%
1986	13.93%	9.46%	4.47%
1987	12.99%	9.98%	3.01%
1988	12.79%	10.45%	2.34%
1989	12.97%	9.66%	3.31%
1990	12.70%	9.76%	2.94%
1991	12.55%	9.21%	3.34%
1992	12.09%	8.57%	3.52%
1993	11.41%	7.56%	3.85%
1994	11.34%	8.30%	3.04%
1995	11.55%	7.91%	3.64%
1996	11.39%	7.74%	3.65%
1997	11.40%	7.63%	3.77%
1998	11.66%	7.00%	4.66%
1999	10.77%	7.55%	3.22%
2000	11.43%	8.09%	3.34%
2001	11.09%	7.72%	3.37%
2002	11.16%	7.53%	3.63%
2003	10.97%	6.61%	4.36%
2004	10.75%	6.20%	4.55%
2005	10.54%	5.67%	4.87%
2006	10.34%	6.08%	4.26%
2007	10.32%	6.11%	4.21%
2008	10.37%	6.65%	3.72%
2009	10.52%	6.28%	4.24%
2010	10.29%	5.56%	4.73%
2011	10.19%	5.13%	5.06%
2012	10.02%	4.26%	5.76%
2013	9.82%	4.55%	5.27%
2014	9.76%	4.41%	5.35%
2015	9.60%	4.37%	5.23%
2016	9.60%	4.11%	5.49%
2017	9.68%	4.07%	5.61%
2018	9.56%	4.34%	5.22%
2019	9.64%	3.86%	5.78%
Average	11.86%	8.10%	3.76%

(a) Major Rate Case Decisions, *Regulatory Focus*, Regulatory Research Associates ("RRA"); *UtilityScope Regulatory Service*, Argus. Data for "general" rate cases (excluding limited-issue rider cases) beginning in 2006 (the first year such data presented by RRA).

(b) Moody's Investors Service.

REGRESSION RESULTS

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.93662977
R Square	0.87727532
Adjusted R Square	0.87448612
Standard Error	0.00478623
Observations	46

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.007205175	0.007205175	314.5260916	1.15178E-21
Residual	44	0.001007954	2.2908E-05		
Total	45	0.008213129			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.07173108	0.00204844	35.01742055	9.02999E-34	0.06760272	0.07585944	0.06760272	0.075859439
X Variable 1	-0.4210	0.023740031	-17.73488347	1.15178E-21	-0.46887158	-0.3731818	-0.46887158	-0.3731818

EXPECTED EARNINGS APPROACH

Exhibit AMM-9

Page 1 of 1

UTILITY GROUP

	(a)	(b)	(c)
<u>Company</u>	<u>Expected Return on Common Equity</u>	<u>Adjustment Factor</u>	<u>Adjusted Return on Common Equity</u>
1 Algonquin Pwr & Util	n/a	n/a	n/a
2 ALLETE	8.0%	1.0228	8.2%
3 Ameren Corp.	10.0%	1.0393	10.4%
4 Avangrid, Inc.	5.0%	1.0048	5.0%
5 Avista Corp.	7.5%	1.0182	7.6%
6 Black Hills Corp.	9.0%	1.0232	9.2%
7 CMS Energy Corp.	13.5%	1.0417	14.1%
8 Dominion Energy	11.0%	1.0158	11.2%
9 DTE Energy Co.	10.5%	1.0311	10.8%
10 Edison International	11.0%	1.0285	11.3%
11 Emera Inc.	10.0%	1.0258	10.3%
12 Entergy Corp.	11.0%	1.0265	11.3%
13 Exelon Corp.	9.0%	1.0220	9.2%
14 FirstEnergy Corp.	15.5%	1.0535	16.3%
15 Hawaiian Elec.	8.5%	1.0203	8.7%
16 IDACORP, Inc.	9.5%	1.0167	9.7%
17 NorthWestern Corp.	8.5%	1.0169	8.6%
18 OGE Energy Corp.	12.5%	1.0015	12.5%
19 Otter Tail Corp.	11.0%	1.0227	11.2%
20 PNM Resources	9.5%	1.0468	9.9%
21 Pub Sv Enterprise Grp.	11.0%	1.0249	11.3%
22 Sempra Energy	10.5%	1.0533	11.1%
Average (d)	10.1%		10.3%
Midpoint (d, e)	10.5%		10.8%

(a) The Value Line Investment Survey (Jun. 12, Jul. 24 and Aug. 14, 2020).

(b) Adjustment to convert year-end return to an average rate of return from Exhibit AMM-5.

(c) (a) x (b).

(d) Excludes highlighted figures.

(e) Average of low and high values.

VALUE LINE ELECTRIC INDUSTRY

No.	Sym	Company	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Date	Shares Issued	Offering Price	Underwriting Discount (per share)	Underwriting Discount	Offering Expense	Total Flotation Costs	Gross Proceeds Before Flot. Costs	Flotation Cost (%)
1	ALE	ALLETE	2/27/2014	3,220,000	\$49.75	\$1.74125	\$5,606,825	\$450,000	\$6,056,825	\$160,195,000	3.781%
2	LNT	Alliant Energy	11/14/2019	3,717,502	\$52.63	\$0.39500	\$1,468,413	\$500,000	\$1,968,413	\$195,652,130	1.006%
3	AEE	Ameren Corp.	8/5/2019	7,549,205	\$74.30	\$0.12000	\$905,905	\$750,000	\$1,655,905	\$560,905,932	0.295%
4	AEP	American Elec Pwr	4/2/2009	69,000,000	\$24.50	\$0.73500	\$50,715,000	\$400,000	\$51,115,000	\$1,690,500,000	3.024%
5	AGR	Avangrid, Inc.					N/A				
6	AVA	Avista Corp.	12/13/2006	3,162,500	\$25.05	\$0.48000	\$1,518,000	\$300,000	\$1,818,000	\$79,220,625	2.295%
7	BKH	Black Hills Corp.	11/19/2015	6,325,000	\$40.25	\$1.40875	\$8,910,344	\$1,200,000	\$10,110,344	\$254,581,250	3.971%
8	CNP	CenterPoint Energy	9/27/2018	60,550,459	\$27.25	\$0.75000	\$45,412,844	\$1,000,000	\$46,412,844	\$1,650,000,008	2.813%
9	CMS	CMS Energy Corp.	3/31/2005	23,000,000	\$12.25	\$0.42880	\$9,862,400	\$325,000	\$10,187,400	\$281,750,000	3.616%
10	ED	Consolidated Edison (a)	5/7/2019	5,800,000	\$84.83	\$0.59000	\$3,422,000	\$400,000	\$3,822,000	\$492,014,000	0.777%
11	D	Dominion Energy (a)	3/29/2018	20,000,000	\$67.33	\$1.89420	\$37,884,000	\$450,000	\$38,334,000	\$1,346,516,000	2.847%
12	DTE	DTE Energy Co.	10/29/2019	2,400,000	\$126.00	\$3.15000	\$7,560,000	\$300,000	\$7,860,000	\$302,400,000	2.599%
13	DUK	Duke Energy Corp. (a)	11/18/2019	25,000,000	\$85.99	\$2.66000	\$66,500,000	\$592,000	\$67,092,000	\$2,149,750,000	3.121%
14	EIX	Edison International	7/30/2019	28,000,000	\$68.50	\$1.62688	\$45,552,500	\$725,000	\$46,277,500	\$1,918,000,000	2.413%
15	EE	El Paso Electric Co.					N/A				
16	ETR	Entergy Corp.	6/8/2018	13,289,037	\$75.25	\$0.80000	\$10,631,230	\$650,000	\$11,281,230	\$1,000,000,034	1.128%
17	EVRG	Eversource Energy					N/A				
18	ES	Eversource Energy	5/30/2019	15,600,000	\$71.48	\$1.69000	\$26,364,000	\$615,000	\$26,979,000	\$1,115,088,000	2.419%
19	EXC	Exelon Corp.	6/13/2014	57,500,000	\$35.00	\$1.05000	\$60,375,000	\$600,000	\$60,975,000	\$2,012,500,000	3.030%
20	FE	FirstEnergy Corp.	9/15/2003	32,200,000	\$30.00	\$0.97500	\$31,395,000	\$423,000	\$31,818,000	\$966,000,000	3.294%
21	FTS	Fortis Inc.					N/A				
22	HE	Hawaiian Elec.	3/20/2013	7,000,000	\$26.75	\$1.00312	\$7,021,840	\$450,000	\$7,471,840	\$187,250,000	3.990%
23	IDA	IDACORP, Inc.	12/10/2004	4,025,000	\$30.00	\$1.20000	\$4,830,000	\$300,000	\$5,130,000	\$120,750,000	4.248%
24	MGEE	MGE Energy	9/10/2004	1,265,000	\$31.85	\$1.03500	\$1,309,275	\$125,000	\$1,434,275	\$40,290,250	3.560%
25	NEE	NextEra Energy, Inc. (a)	11/3/2016	13,800,000	\$124.00	\$1.89000	\$26,082,000	\$750,000	\$26,832,000	\$1,711,200,000	1.568%
26	NWE	NorthWestern Corp. (a)	9/30/2015	1,100,000	\$51.81	\$1.33000	\$1,463,000	\$1,000,000	\$2,463,000	\$56,991,000	4.322%
27	OGE	OGE Energy Corp.	8/22/2003	5,324,074	\$21.60	\$0.79000	\$4,206,018	\$325,000	\$4,531,018	\$114,999,998	3.940%
28	OTTR	Otter Tail Corp.					N/A				
29	PNW	Pinnacle West Capital	4/9/2010	6,900,000	\$38.00	\$1.33000	\$9,177,000	\$190,000	\$9,367,000	\$262,200,000	3.572%
30	PNM	PNM Resources	1/7/2020	5,375,000	\$47.21	\$1.99000	\$10,696,250	\$750,000	\$11,446,250	\$253,753,750	4.511%
31	POR	Portland General Elec.	6/13/2013	12,765,000	\$29.50	\$0.95875	\$12,238,444	\$600,000	\$12,838,444	\$376,567,500	3.409%
32	PPL	PPL Corp.	5/10/2018	55,000,000	\$27.00	\$0.29430	\$16,186,500	\$1,000,000	\$17,186,500	\$1,485,000,000	1.157%
33	PEG	Pub Sv Enterprise Grp.	10/2/2003	9,487,500	\$41.75	\$1.25250	\$11,883,094	\$350,000	\$12,233,094	\$396,103,125	3.088%
34	SRE	Sempra Energy	1/5/2018	26,869,158	\$107.00	\$1.92600	\$51,749,998	\$1,500,000	\$53,249,998	\$2,874,999,906	1.852%
35	SO	Southern Company (a)	8/18/2016	32,500,000	\$49.30	\$1.66000	\$53,950,000	\$557,000	\$54,507,000	\$1,602,250,000	3.402%
36	WEC	WEC Energy Group					N/A				
37	XEL	Xcel Energy Inc. (a)	10/30/2019	10,300,000	\$62.69	\$0.63000	\$6,489,000	\$650,000	\$7,139,000	\$645,707,000	1.106%
Average											2.779%
1	ATO	Atmos Energy Corp.	11/30/2018	7,008,087	\$92.75	\$0.97690	\$6,846,200	\$1,000,000	\$7,846,200	\$650,000,069	1.207%
2	CPK	Chesapeake Utilities	9/23/2016	960,488	\$62.26	\$2.33000	\$2,237,937	\$162,046	\$2,399,983	\$59,799,983	4.013%
3	NJR	New Jersey Resources	12/4/2019	5,700,000	\$41.25	\$1.23750	\$7,053,750	\$500,000	\$7,553,750	\$235,125,000	3.213%
4	NI	NiSource Inc.	5/3/2017	N/A	N/A	N/A	\$10,000,000	\$57,950	\$10,057,950	\$500,000,000	2.012%
5	NWN	Northwest Nat. Holding Co.	6/4/2019	1,250,000	\$67.00	\$2.17750	\$2,721,875	\$400,000	\$3,121,875	\$83,750,000	3.728%
6	OGS	ONE Gas, Inc.					N/A				
7	SJI	South Jersey Industries	4/20/2018	11,016,949	\$29.50	\$1.03250	\$11,375,000	\$700,000	\$12,075,000	\$324,999,996	3.715%
8	SWX	Southwest Gas	11/28/2018	3,100,000	\$75.50	\$2.54810	\$7,899,110	\$600,000	\$8,499,110	\$234,050,000	3.631%
9	SR	Spire Inc.	5/9/2018	2,000,000	\$63.05	\$2.10938	\$4,218,760	\$325,000	\$4,543,760	\$126,100,000	3.603%
Average											3.140%
Average - Electric & Gas											2.853%

Column Notes:

(1-4) SEC Form 424B for each company.

(5) Column (2) * Column (4)

(6) SEC Form 424B for each company.

(7) Column (5) + Column (6)

(8) Column (2) * Column (3)

(9) Column (7) / Column (8)

Note (a): Underwriting discount computed as the difference between the current market price and the price offered to the issuing company by the underwriters.

DCF MODEL - NON-UTILITY GROUP

Exhibit AMM-11

Page 1 of 3

DIVIDEND YIELD

CORRECTED

			(a)	(b)	
	<u>Company</u>	<u>Industry Group</u>	<u>Price</u>	<u>Dividends</u>	<u>Yield</u>
1	Air Products & Chem.	Chemical (Diversified)	\$ 279.99	\$ 5.36	1.9%
2	Amdocs Ltd.	IT Services	\$ 60.35	\$ 1.31	2.2%
3	Amgen	Biotechnology	\$ 249.97	\$ 6.70	2.7%
4	Amphenol Corp.	Electronics	\$ 102.55	\$ 1.00	1.0%
5	Apple Inc.	Computers/Peripherals	\$ 99.71	\$ 3.33	3.3%
6	AT&T Inc.	Telecom. Services	\$ 29.95	\$ 2.10	7.0%
7	Baxter Int'l Inc.	Med Supp Invasive	\$ 85.77	\$ 0.98	1.1%
8	Bristol-Myers Squibb	Drug	\$ 59.63	\$ 1.80	3.0%
9	Brown & Brown	Financial Svcs. (Div.)	\$ 43.78	\$ 0.34	0.8%
10	Brown-Forman 'B'	Beverage	\$ 67.17	\$ 0.72	1.1%
11	Church & Dwight	Household Products	\$ 87.10	\$ 0.96	1.1%
12	Cisco Systems	Telecom. Equipment	\$ 46.76	\$ 1.44	3.1%
13	Coca-Cola	Beverage	\$ 46.75	\$ 1.68	3.6%
14	Colgate-Palmolive	Household Products	\$ 75.05	\$ 1.76	2.3%
15	Comcast Corp.	Cable TV	\$ 42.01	\$ 0.92	2.2%
16	Commerce Bancshs.	Bank (Midwest)	\$ 57.59	\$ 1.08	1.9%
17	Costco Wholesale	Retail Store	\$ 326.79	\$ 2.80	0.9%
18	CVS Health	Pharmacy Services	\$ 64.04	\$ 2.00	3.1%
19	Danaher Corp.	Diversified Co.	\$ 194.45	\$ 0.72	0.4%
20	Gen'l Mills	Automotive	\$ 63.76	\$ 1.96	3.1%
21	Hormel Foods	Food Processing	\$ 49.83	\$ 1.00	2.0%
22	Intel Corp.	Hotel/Gaming	\$ 54.47	\$ 1.32	2.4%
23	Int'l Flavors & Frag.	Wireless Networking	\$ 126.91	\$ 3.12	2.5%
24	Johnson & Johnson	Med Supp Non-Invasive	\$ 146.64	\$ 4.04	2.8%
25	Kellogg	Food Processing	\$ 68.32	\$ 2.30	3.4%
26	Kimberly-Clark	Household Products	\$ 148.21	\$ 4.28	2.9%
27	Lilly (Eli)	Drug	\$ 160.42	\$ 2.96	1.8%
28	Lockheed Martin	Aerospace/Defense	\$ 372.94	\$ 10.00	2.7%
29	Marsh & McLennan	Financial Svcs. (Div.)	\$ 113.43	\$ 1.86	1.6%
30	McCormick & Co.	Food Processing	\$ 191.85	\$ 2.50	1.3%
31	McDonald's Corp.	Restaurant	\$ 194.21	\$ 5.00	2.6%
32	Merck & Co.	Drug	\$ 79.42	\$ 2.44	3.1%
33	Microsoft Corp.	Computer Software	\$ 208.27	\$ 2.04	1.0%
34	Northrop Grumman	Aerospace/Defense	\$ 313.42	\$ 5.80	1.9%
35	Oracle Corp.	Drug	\$ 55.82	\$ 0.96	1.7%
36	PepsiCo, Inc.	Beverage	\$ 135.44	\$ 4.09	3.0%
37	Pfizer, Inc.	Drug	\$ 36.77	\$ 1.52	4.1%
38	Procter & Gamble	Household Products	\$ 127.31	\$ 3.16	2.5%
39	Public Storage	R.E.I.T.	\$ 194.38	\$ 8.00	4.1%
40	Texas Instruments	Environmental	\$ 131.44	\$ 3.60	2.7%
41	Travelers Cos.	Insurance (Prop/Cas.)	\$ 116.31	\$ 3.40	2.9%
42	United Parcel Serv.	Air Transport	\$ 127.93	\$ 4.04	3.2%
43	Verizon Communic.	Telecom. Services	\$ 56.42	\$ 2.49	4.4%
44	Walmart Inc.	Retail Store	\$ 129.39	\$ 2.18	1.7%
45	Waste Management	Environmental	\$ 107.62	\$ 2.18	2.0%
	Average				2.4%

(a) Average of closing prices for 30 trading days ended Aug. 12, 2020.

(b) The Value Line Investment Survey, *Summary & Index* (Aug. 14, 2020).

GROWTH RATES**CORRECTED**

		(a)	(b)	(c)
		Earnings Growth		
	Company	V Line	IBES	Zacks
1	Air Products & Chem.	12.00%	10.33%	8.77%
2	Amdocs Ltd.	9.50%	4.00%	8.50%
3	Amgen	6.50%	6.87%	7.53%
4	Amphenol Corp.	9.00%	3.00%	7.51%
5	Apple Inc.	14.00%	12.46%	10.67%
6	AT&T Inc.	5.50%	0.29%	5.53%
7	Baxter Int'l Inc.	9.00%	10.00%	9.75%
8	Bristol-Myers Squibb	12.50%	21.95%	8.47%
9	Brown & Brown	10.50%	8.23%	n/a
10	Brown-Forman 'B'	11.00%	-0.60%	n/a
11	Church & Dwight	8.00%	9.48%	8.86%
12	Cisco Systems	7.00%	6.18%	5.40%
13	Coca-Cola	6.50%	2.94%	4.81%
14	Colgate-Palmolive	5.00%	5.91%	5.89%
15	Comcast Corp.	13.50%	4.95%	9.70%
16	Commerce Bancshs.	5.00%	-8.70%	n/a
17	Costco Wholesale	9.00%	7.06%	8.40%
18	CVS Health	6.00%	5.90%	6.35%
19	Danaher Corp.	15.00%	13.02%	11.64%
20	Gen'l Mills	3.00%	4.90%	7.50%
21	Hormel Foods	8.50%	4.20%	7.50%
22	Intel Corp.	7.00%	8.62%	7.50%
23	Int'l Flavors & Frag.	8.00%	1.90%	n/a
24	Johnson & Johnson	10.00%	5.08%	5.75%
25	Kellogg	3.00%	1.75%	6.00%
26	Kimberly-Clark	7.00%	6.20%	5.45%
27	Lilly (Eli)	10.00%	13.17%	15.65%
28	Lockheed Martin	8.50%	9.11%	6.93%
29	Marsh & McLennan	9.00%	5.82%	6.00%
30	McCormick & Co.	6.50%	5.00%	5.78%
31	McDonald's Corp.	7.50%	3.88%	7.68%
32	Merck & Co.	9.00%	6.72%	6.74%
33	Microsoft Corp.	15.00%	15.00%	13.71%
34	Northrop Grumman	10.50%	8.62%	n/a
35	Oracle Corp.	10.50%	9.04%	11.00%
36	PepsiCo, Inc.	6.00%	5.48%	5.61%
37	Pfizer, Inc.	8.50%	5.37%	4.29%
38	Procter & Gamble	8.50%	7.72%	7.41%
39	Public Storage	n/a	17.00%	3.42%
40	Texas Instruments	2.50%	10.00%	9.33%
41	Travelers Cos.	9.50%	4.19%	6.66%
42	United Parcel Serv.	6.00%	4.90%	7.77%
43	Verizon Communic.	4.00%	1.23%	3.41%
44	Walmart Inc.	7.50%	5.63%	5.63%
45	Waste Management	5.50%	-1.26%	6.29%

(a) The Value Line Investment Survey (various editions as of Aug. 14, 2020).

(b) www.finance.yahoo.com (retrieved Aug. 6, 2020).

(c) www.zacks.com (retrieved Aug. 6, 2019).

DCF COST OF EQUITY ESTIMATES

CORRECTED

	Company	(a)	(a)	(a)
		Earnings Growth		
		V Line	IBES	Zacks
1	Air Products & Chem.	13.9%	12.2%	10.7%
2	Amdocs Ltd.	11.7%	6.2%	10.7%
3	Amgen	9.2%	9.6%	10.2%
4	Amphenol Corp.	10.0%	4.0%	8.5%
5	Apple Inc.	17.3%	15.8%	14.0%
6	AT&T Inc.	12.5%	7.3%	12.5%
7	Baxter Int'l Inc.	10.1%	11.1%	10.9%
8	Bristol-Myers Squibb	15.5%	25.0%	11.5%
9	Brown & Brown	11.3%	9.0%	n/a
10	Brown-Forman 'B'	12.1%	0.5%	n/a
11	Church & Dwight	9.1%	10.6%	10.0%
12	Cisco Systems	10.1%	9.3%	8.5%
13	Coca-Cola	10.1%	6.5%	8.4%
14	Colgate-Palmolive	7.3%	8.3%	8.2%
15	Comcast Corp.	15.7%	7.1%	11.9%
16	Commerce Bancshs.	6.9%	-6.8%	n/a
17	Costco Wholesale	9.9%	7.9%	9.3%
18	CVS Health	9.1%	9.0%	9.5%
19	Danaher Corp.	15.4%	13.4%	12.0%
20	Gen'l Mills	6.1%	8.0%	10.6%
21	Hormel Foods	10.5%	6.2%	9.5%
22	Intel Corp.	9.4%	11.0%	9.9%
23	Int'l Flavors & Frag.	10.5%	4.4%	n/a
24	Johnson & Johnson	12.8%	7.8%	8.5%
25	Kellogg	6.4%	5.1%	9.4%
26	Kimberly-Clark	9.9%	9.1%	8.3%
27	Lilly (Eli)	11.8%	15.0%	17.5%
28	Lockheed Martin	11.2%	11.8%	9.6%
29	Marsh & McLennan	10.6%	7.5%	7.6%
30	McCormick & Co.	7.8%	6.3%	7.1%
31	McDonald's Corp.	10.1%	6.5%	10.3%
32	Merck & Co.	12.1%	9.8%	9.8%
33	Microsoft Corp.	16.0%	16.0%	14.7%
34	Northrop Grumman	12.4%	10.5%	n/a
35	Oracle Corp.	12.2%	10.8%	12.7%
36	PepsiCo, Inc.	9.0%	8.5%	8.6%
37	Pfizer, Inc.	12.6%	9.5%	8.4%
38	Procter & Gamble	11.0%	10.2%	9.9%
39	Public Storage	n/a	21.1%	7.5%
40	Texas Instruments	5.2%	12.7%	12.1%
41	Travelers Cos.	12.4%	7.1%	9.6%
42	United Parcel Serv.	9.2%	8.1%	10.9%
43	Verizon Communic.	8.4%	5.6%	7.8%
44	Walmart Inc.	9.2%	7.3%	7.3%
45	Waste Management	7.5%	0.8%	8.3%
Average (b)		10.4%	9.3%	9.9%
Midpoint (b,c)		10.4%	10.0%	10.9%

(a) Sum of dividend yield (p. 1) and respective growth rate (p. 2).

(b) Excludes highlighted figures.

(c) Average of low and high values.

ELECTRIC GROUP

Company	At Year-end 2019 (a)			Value Line Projected (b)		
	Debt	Preferred	Common Equity	Debt	Preferred	Common Equity
1 Algonquin Pwr & Util	47.2%	2.2%	50.6%	n/a	n/a	n/a
2 ALLETE	40.9%	0.0%	59.1%	41.0%	0.0%	59.0%
3 Ameren Corp.	53.3%	0.0%	46.7%	49.5%	0.5%	50.0%
4 Avangrid, Inc.	32.3%	0.0%	67.7%	42.5%	0.0%	57.5%
5 Avista Corp.	49.4%	0.0%	50.6%	51.0%	0.0%	49.0%
6 Black Hills Corp.	56.1%	0.0%	43.9%	52.0%	0.0%	48.0%
7 CMS Energy Corp.	72.2%	0.0%	27.8%	68.5%	0.0%	31.5%
8 Dominion Energy	52.1%	0.0%	47.9%	49.0%	1.0%	50.0%
9 DTE Energy Co.	58.4%	0.0%	41.6%	58.5%	0.0%	41.5%
10 Edison International	54.2%	0.0%	45.8%	58.0%	4.5%	37.5%
11 Emera Inc.	64.8%	4.2%	30.9%	55.1%	0.0%	44.9%
12 Entergy Corp.	63.0%	0.8%	36.2%	58.5%	0.5%	41.0%
13 Exelon Corp.	51.3%	0.0%	48.7%	50.0%	0.0%	50.0%
14 FirstEnergy Corp.	74.1%	0.0%	25.9%	66.0%	0.0%	34.0%
15 Hawaiian Elec.	47.3%	0.8%	51.9%	48.0%	0.5%	51.5%
16 IDACORP, Inc.	42.6%	0.0%	57.4%	46.5%	0.0%	53.5%
17 NorthWestern Corp.	52.5%	0.0%	47.5%	50.0%	0.0%	50.0%
18 OGE Energy Corp.	43.6%	0.0%	56.4%	48.5%	0.0%	51.5%
19 Otter Tail Corp.	46.9%	0.0%	53.1%	47.0%	0.0%	53.0%
20 PNM Resources	63.2%	0.2%	36.6%	50.5%	0.5%	49.0%
21 Pub Sv Enterprise Grp.	50.0%	0.0%	50.0%	50.0%	0.0%	50.0%
22 Sempra Energy	50.6%	0.0%	49.4%	48.5%	0.0%	51.5%
Average	53.0%	0.4%	46.6%	51.8%	0.4%	47.8%
Average - Ex. High and Low	53.0%	0.2%	46.6%	51.5%	0.2%	48.1%

(a) Most recent SEC Form 10-K reports.

(b) The Value Line Investment Survey (Jun. 12, Jul. 24 and Aug. 14, 2020).

ELECTRIC GROUP OPERATING SUBSIDIARIES

Operating Company	At Year-End 2019 (a)		
	Debt	Preferred	Common Equity
ALGONQUIN PWR. & UTIL.			
Empire District Electric Co.	46.0%	0.0%	54.0%
Liberty Utilities (Granite State Elec.)	22.9%	0.0%	77.1%
ALLETE			
ALLETE, Inc. (Minnesota Power)	40.4%	0.0%	59.6%
AMEREN CORP.			
Ameren Illinois Co.	46.4%	0.8%	52.8%
Union Electric Co.	49.1%	0.9%	50.0%
AVANGRID			
Central Maine Pwr	37.5%	0.0%	62.5%
NY State E&G	51.1%	0.0%	48.9%
Rochester G&E	48.8%	0.0%	51.2%
United Illuminating	42.4%	0.0%	57.6%
AVISTA CORP.			
Avista Corp.	49.2%	0.0%	50.8%
Alaska Electric Light & Power	40.2%	0.0%	59.8%
BLACK HILLS CORP.			
Black Hills Power	43.2%	0.0%	56.8%
Cheyenne Light Fuel & Power	51.7%	0.0%	48.3%
Black Hills/Colorado Electric Utility Co	27.0%	0.0%	73.0%
CMS ENERGY			
Consumers Energy Co.	48.7%	0.2%	51.1%
DOMINION ENERGY			
Virginia Electric & Power	46.9%	0.0%	53.1%
Dominion Energy South Carolina	48.2%	0.0%	51.8%
DTE ENERGY CO.			
DTE Electric Co.	50.0%	0.0%	50.0%
EDISON INTERNATIONAL			
Southern California Edison Co.	46.0%	6.8%	47.2%
EMERA INC.			
Emera Maine	42.8%	0.0%	57.1%
Tampa Electric Co.	44.7%	0.0%	55.3%
ENTERGY CORP.			
Entergy Arkansas Inc.	52.9%	0.0%	47.1%
Entergy Louisiana LLC	53.3%	0.0%	46.7%
Entergy Mississippi Inc.	51.1%	0.0%	48.9%
Entergy New Orleans Inc.	52.9%	0.0%	47.1%
Entergy Texas Inc.	51.7%	0.9%	47.4%

ELECTRIC GROUP OPERATING SUBSIDIARIES

Operating Company	At Year-End 2019 (a)		
	Debt	Preferred	Common Equity
EXELON CORP.			
Delmarva Power and Light	49.8%	0.0%	50.2%
Baltimore Gas & Electric Co.	47.0%	0.0%	53.0%
Commonwealth Edison Co.	44.9%	0.0%	55.1%
PECO Energy Co.	46.2%	0.0%	53.8%
Potomac Electric Power Co.	49.6%	0.0%	50.4%
Atlantic City Electric Co.	51.0%	0.0%	49.0%
FIRSTENERGY CORP.			
Cleve. Elec. Illum./Ohio Ed./Toledo Ed.	40.2%	0.0%	59.8%
Jersey Central Power & Light Co.	31.7%	0.0%	68.3%
Metropolitan Edison Co.	52.0%	0.0%	48.0%
Monongahela Power Co.	53.6%	0.0%	46.4%
Pennsylvania Electric Co.	49.6%	0.0%	50.4%
The Potomac Edison Co.	45.7%	0.0%	54.3%
West Penn Power Co.	52.3%	0.0%	47.7%
Pennsylvania Power	51.2%	0.0%	48.8%
HAWAIIAN ELEC.			
Hawaiian Electric Co.	41.8%	1.0%	57.2%
IDACORP			
Idaho Power Co.	44.7%	0.0%	55.3%
NORTHWESTERN CORP.			
NorthWestern Corporation	52.4%	0.0%	47.6%
OGE ENERGY CORP.			
Oklahoma G&E	44.9%	0.0%	55.1%
OTTER TAIL CORP.			
Otter Tail Power Co.	48.9%	0.0%	51.1%
PNM RESOURCES			
Public Service Company of New Mexico	53.4%	0.4%	46.2%
Texas-New Mexico Power Co.	47.1%	0.0%	52.9%
PUB SV ENTERPRISE GRP			
Pub Service Electric & Gas Co.	45.2%	0.0%	54.8%
SEMPRA ENERGY			
San Diego Gas & Electric	47.3%	0.0%	52.7%
Oncor Electric Delivery	43.4%	0.0%	56.6%
Minimum	22.9%	0.0%	46.2%
Maximum	53.6%	6.8%	77.1%
Average	46.4%	0.2%	53.4%

(a) Data from year-end 2019 Company 10-Ks and FERC Form 1 reports.

EXHIBIT B

**BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO**

THE DAYTON POWER AND LIGHT COMPANY

**CASE NOS. 20-1651-EL-AIR
20-1652-EL-AAM
20-1653-EL-ATA**

**CORRECTED DIRECT TESTIMONY
ADRIEN M. MCKENZIE, CFA**

**ON BEHALF OF
THE DAYTON POWER AND LIGHT COMPANY**

- ☐ **MANAGEMENT POLICIES, PRACTICES, AND ORGANIZATION**
- ☐ **OPERATING INCOME**
- ☐ **RATE BASE**
- ☐ **ALLOCATIONS**
- ☒ **RATE OF RETURN**
- ☐ **RATES AND TARIFFS**
- ☐ **OTHER**

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

CORRECTED DIRECT TESTIMONY OF
ADRIEN M. MCKENZIE, CFA

ON BEHALF OF
THE DAYTON POWER AND LIGHT COMPANY

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BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

CORRECTED DIRECT TESTIMONY OF
ADRIEN M. MCKENZIE, CFA

ON BEHALF OF
THE DAYTON POWER AND LIGHT COMPANY

EXHIBITS TO DIRECT TESTIMONY

<u>Exhibit</u>	<u>Description</u>
AMM-1	Qualifications of Adrien M. McKenzie
AMM-2	ROE Analyses <u>(Corrected)</u>
AMM-3	Regulatory Mechanisms
AMM-4	DCF Model – Electric Group <u>(Corrected)</u>
AMM-5	BR+SV Growth Rate
AMM-6	CAPM <u>(Corrected)</u>
AMM-7	Empirical CAPM <u>(Corrected)</u>
AMM-8	Electric Utility Risk Premium
AMM-9	Expected Earnings Approach
AMM-10	Flotation Cost Study
AMM-11	DCF Model – Non-Utility Group <u>(Corrected)</u>
AMM-12	Capital Structure

I. INTRODUCTION

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Adrien M. McKenzie, and my business address is 3907 Red River, Austin,
3 Texas 78751.

4 Q. IN WHAT CAPACITY ARE YOU EMPLOYED?

5 A. I am President of Financial Concepts and Applications, Inc. ("FINCAP"), a firm engaged
6 in financial, economic, and policy consulting to business and government.

7 Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

8 A. A description of my background and qualifications, including a resume containing the
9 details of my experience, is attached as Exhibit AMM-1.

10 Q. FOR WHOM ARE YOU TESTIFYING IN THIS CASE?

11 A. I am testifying on behalf of The Dayton Power & Light Company ("DP&L" or "the
12 Company").

A. **Overview**

13 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

14 A. The purpose of my testimony is to present to the Public Utilities Commission of Ohio
15 ("PUCO") my independent assessment of the fair rate of return on equity ("ROE") for
16 DP&L. In addition, I also examine the reasonableness of the Company's capital structure,
17 considering both the specific risks faced by the Company and other industry guidelines.

18 Q. ARE YOU SPONSORING ANY EXHIBITS?

19 A. Yes. I am sponsoring the following exhibits:

- Exhibit AMM-1 Qualifications of Adrien M. McKenzie
- Exhibit AMM-2 ROE Analyses (Corrected)
- Exhibit AMM-3 Regulatory Mechanisms
- Exhibit AMM-4 DCF Model – Electric Group (Corrected)
- Exhibit AMM-5 BR+SV Growth Rate
- Exhibit AMM-6 CAPM (Corrected)
- Exhibit AMM-7 Empirical CAPM (Corrected)
- Exhibit AMM-8 Electric Utility Risk Premium
- Exhibit AMM-9 Expected Earnings Approach
- Exhibit AMM-10 Flotation Cost Study
- Exhibit AMM-11 DCF Model – Non-Utility Group (Corrected)
- Exhibit AMM-12 Capital Structure

Q. PLEASE SUMMARIZE THE INFORMATION AND MATERIALS YOU RELIED ON TO SUPPORT THE OPINIONS AND CONCLUSION CONTAINED IN YOUR TESTIMONY.

A. To prepare my testimony, I rely on information from a variety of sources that would normally be relied upon by a person in my capacity. In connection with this filing, I considered and relied on corporate disclosures, publicly available financial reports and filings, and other published information relating to the Company. I also reviewed information relating generally to capital market conditions and specifically to investor perceptions, requirements, and expectations for utilities. These sources, coupled with my experience in the fields of finance and utility regulation, have given me a working

1 knowledge of the issues relevant to investors' required return for DP&L, and they form the
2 basis of my analyses and conclusions.

3 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

4 A. First, I summarize my conclusions and recommendations, giving special attention to the
5 importance of financial strength and the implications of regulatory mechanisms and other
6 risk factors. I also comment on the reasonableness of the Company's proposed capital
7 structure.

8 Next, I review DP&L's operations and finances. I then examine current conditions
9 in the capital markets and their implications in evaluating a fair and reasonable ROE for
10 the Company. With this as a background, I conduct well-accepted quantitative analyses to
11 estimate the current cost of equity for a reference group of comparable-risk electric utilities.
12 These include the discounted cash flow ("DCF") model, the Capital Asset Pricing Model
13 ("CAPM"), the empirical form of Capital Asset Pricing Model ("ECAPM"), an equity risk
14 premium approach based on allowed ROEs, and reference to expected earned rates of
15 return for electric utilities, which are all methods that are commonly relied on in regulatory
16 proceedings. In addition, I discuss the issue of stock flotation expenses and the
17 implications of these legitimate costs on the estimation of a reasonable ROE for the
18 Company.

19 Based on the cost of equity estimates indicated by my analyses, I evaluate a fair
20 ROE for DP&L. My ROE evaluation takes into account the specific risks for its
21 jurisdictional utility operations in Ohio and the Company's requirements for financial
22 strength, as well as flotation costs, which are properly considered in setting a fair and
23 reasonable ROE. Finally, consistent with the fact that utilities must compete for capital
24 with firms outside their own industry, I corroborate my utility quantitative analyses by
25 applying the DCF model to a group of low-risk non-utility firms.

1 Q. WHAT IS YOUR RECOMMENDED ROE FOR DP&L?

2 A. Based on the results of my analyses, and considering recent dislocations in the capital
3 markets and the economic requirements necessary to support continuous access to capital,
4 I recommend an ROE of 10.5% for DP&L.

II. RETURN ON EQUITY FOR DP&L

5 Q. WHAT IS THE PURPOSE OF THIS SECTION?

6 A. This section presents my conclusions regarding the fair ROE applicable to DP&L's electric
7 utility operations. I also describe the relationship between ROE and preservation of a
8 utility's financial integrity and the ability to attract capital. In addition, I discuss the impact
9 of regulatory mechanisms.

A. Importance of Financial Strength

10 Q. WHAT IS THE ROLE OF THE ROE IN SETTING A UTILITY'S RATES?

11 A. A utility's ROE is the cost of attracting and retaining common equity investment in the
12 utility's physical plant and assets. This investment is necessary to finance the asset base
13 needed to provide utility service. Investors commit capital only if they expect to earn a
14 return on their investment commensurate with returns available from alternative
15 investments with comparable risks. Moreover, a fair and reasonable ROE is integral in
16 meeting sound regulatory economics and the standards set forth by the U.S. Supreme
17 Court. The Bluefield case set the standard against which just and reasonable rates are
18 measured:

19 A public utility is entitled to such rates as will permit it to earn a return on
20 the value of the property which it employs for the convenience of the public
21 equal to that generally being made at the same time and in the same general
22 part of the country on investments in other business undertakings which are
23 attended by corresponding risks and uncertainties. . . . The return should be
24 reasonable, sufficient to assure confidence in the financial soundness of the

1 utility, and should be adequate, under efficient and economical
2 management, to maintain and support its credit and enable it to raise money
3 necessary for the proper discharge of its public duties.¹

4 The *Hope* case expanded on the guidelines as to a reasonable ROE, reemphasizing
5 the findings in *Bluefield* and establishing that the rate-setting process must produce an end-
6 result that allows the utility a reasonable opportunity to cover its capital costs. The Court
7 stated:

8 From the investor or company point of view it is important that there be
9 enough revenue not only for operating expenses but also for the capital costs
10 of the business. These include service on the debt and dividends on the
11 stock. . . . By that standard, the return to the equity owner should be
12 commensurate with returns on investments in other enterprises having
13 corresponding risks. That return, moreover, should be sufficient to assure
14 confidence in the financial integrity of the enterprise, so as to maintain
15 credit and attract capital.²

16 In summary, the Supreme Court's findings in *Hope* and *Bluefield* established that a
17 just and reasonable ROE must be sufficient to: 1) fairly compensate the utility's investors,
18 2) enable the utility to offer a return adequate to attract new capital on reasonable terms,
19 and 3) maintain the utility's financial integrity. These standards should allow the utility to
20 fulfill its obligation to provide reliable service while meeting the needs of customers
21 through necessary system replacement and expansion, but the Supreme Court's
22 requirements can be met only if the utility has a reasonable opportunity to actually earn its
23 allowed ROE.

24 While the *Hope* and *Bluefield* decisions did not establish a particular method to be
25 followed in fixing rates (or in determining the allowed ROE),³ these and subsequent cases
26 enshrined the importance of an end result that meets the opportunity cost standard of
27 finance. Under this doctrine, the required return is established by investors in the capital

¹ *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923) ("*Bluefield*")

² *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*")

³ *Id.* at 602 (finding, "the Commission was not bound to the use of any single formula or combination of formulae in determining rates" and, "[I]t is not theory but the impact of the rate order which counts")

1 markets based on expected returns available from comparable risk investments. Coupled
2 with modern financial theory, which has led to the development of formal risk-return
3 models (e.g., DCF and CAPM), practical application of the *Bluefield* and *Hope* standards
4 involves the independent, case-by-case consideration of capital market data in order to
5 evaluate an ROE that will produce a balanced and fair end result for investors and
6 customers.

7 **Q. THROUGHOUT YOUR TESTIMONY, YOU REFER REPEATEDLY TO THE**
8 **CONCEPTS OF "FINANCIAL STRENGTH," "FINANCIAL INTEGRITY," AND**
9 **"FINANCIAL FLEXIBILITY." WOULD YOU BRIEFLY DESCRIBE WHAT YOU**
10 **MEAN BY THESE TERMS?**

11 A. These terms are generally synonymous, and refer to the utility's ability to attract and retain
12 the capital that is necessary to provide service at reasonable cost, consistent with the
13 Supreme Court standards. DP&L's plans call for a continuation of capital investments in
14 the distribution system and technology to preserve and enhance service reliability for its
15 customers. The Company must generate adequate cash flow from operations to fund these
16 requirements and for repayment of maturing debt, together with access to capital from
17 external sources under reasonable terms, on a sustainable basis.

18 Rating agencies and potential debt investors tend to place significant emphasis on
19 maintaining strong financial metrics and credit ratings that support access to debt capital
20 markets under reasonable terms. This emphasis on financial metrics and credit ratings is
21 shared by equity investors who also focus on cash flows, capital structure and liquidity,
22 much like debt investors. Investors understand the important role that a supportive
23 regulatory environment plays in establishing a sound financial profile that will permit the
24 utility access to debt and equity capital markets on reasonable terms in both favorable
25 financial markets and during times of potential disruption and crisis.

1 Q. WHAT PART DOES REGULATION PLAY IN ENSURING THAT DP&L HAS
2 ACCESS TO CAPITAL UNDER REASONABLE TERMS AND ON A
3 SUSTAINABLE BASIS?

4 A. Regulatory signals are a major driver of investors' risk assessment for utilities. Investors
5 recognize that constructive regulation is a key ingredient in supporting utility credit ratings
6 and financial integrity, particularly during times of adverse conditions. Security analysts
7 study commission orders and regulatory policy statements to advise investors about where
8 to put their money. As Moody's Investors Service ("Moody's") noted, "the regulatory
9 environment and how the utility adapts to that environment are the most important credit
10 considerations."⁴ Similarly, S&P Global Ratings ("S&P") observed that, "[r]egulatory
11 advantage is the most heavily weighted factor when S&P Global Ratings analyzes a
12 regulated utility's business risk profile."⁵ The Value Line Investment Survey ("Value Line")
13 summarizes these sentiments:

14 As we often point out, the most important factor in any utility's success,
15 whether it provides electricity, gas, or water, is the regulatory climate in
16 which it operates. Harsh regulatory conditions can make it nearly
17 impossible for the best run utilities to earn a reasonable return on their
18 investment.⁶

19 In addition, the ROE set by regulators impacts investor confidence in not only the
20 jurisdictional utility, but also in the ultimate parent company that is the entity that issues
21 common stock.

⁴ Moody's Investors Service, *Regulated Electric and Gas Utilities*, Rating Methodology (Jun 23, 2017)

⁵ S&P Global Ratings, *Assessing U.S. Investors-Owned Utility Regulatory Environments*, RatingsExpress (Aug 10, 2016)

⁶ Value Line Investment Survey, *Water Utility Industry* (Jan 13, 2017) at p 1780

1 Q. DO CUSTOMERS BENEFIT BY ENHANCING THE UTILITY'S FINANCIAL
2 FLEXIBILITY?

3 A. Yes. Providing an ROE that is sufficient to maintain DP&L's ability to attract capital under
4 reasonable terms, even in times of financial and market stress, is not only consistent with
5 the economic requirements embodied in the U.S. Supreme Court's Hope and Bluefield
6 decisions, but also in customers' best interests. Customers enjoy the benefits that come
7 from ensuring that the utility has the financial wherewithal to take whatever actions are
8 required to ensure safe and reliable service.

B. DP&L's Relative Risks

9 Q. WHAT IS THE PREDICATE UNDERLYING AN EVALUATION OF A JUST AND
10 REASONABLE ROE?

11 A. Consistent with economic and legal standards, the desired end-result is an ROE that
12 compensates investors for assuming the risks of committing capital to support investment
13 in long-lived utility assets necessary to provide service. Even for a company with publicly
14 traded stock, the cost of equity can only be estimated. As a result, applying quantitative
15 models using observable market data only produces an estimate that inherently includes
16 some degree of observation or measurement error. Thus, the accepted approach to increase
17 confidence in the results is to apply these methods to a proxy group of publicly traded
18 companies that investors regard as risk comparable.

1 Q. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO DP&L AS OF THE DATE
2 CERTAIN?

3 A. As of the date certain, Moody's assigned to DP&L a long-term issuer rating of Baa2.⁷
4 While confirming this rating on December 20, 2019, Moody's also revised its outlook on
5 the Company's credit standing to "negative," warning investors of a potential downgrade
6 due to concerns over DP&L's deteriorating financial metrics.⁸ On November 26, 2019,
7 S&P downgraded DP&L's corporate credit rating from BBB- to BB,⁹ placing DP&L in the
8 same category as speculative grade or "junk" bonds.¹⁰ Similarly, in December 2019 Fitch
9 also moved to lower DP&L's issuer default rating from BBB to BBB-.¹¹ Like Moody's,
10 Fitch has assigned a "Negative" ratings outlook to the Company, indicating the possibility
11 of further deterioration in DP&L's credit standing.¹²

12 Q. HOW DOES DP&L'S RATING PROFILE COMPARE WITH THE ELECTRIC
13 UTILITY INDUSTRY MORE GENERALLY?

14 A. In its most recent annual outlook for regulated electric utilities, Moody's reported that
15 DP&L's Baa2 rating ranks the Company at the very bottom of the ratings range for other

⁷ Credit rating firms, such as Moody's and S&P, use designations consisting of upper- and lower-case letters "A" and "B" to identify a bond's credit quality rating. "AAA," "AA," "A," and "BBB" ratings are considered investment grade. Credit ratings for bonds below these designations ("BB," "B," "CCC," etc.) are considered speculative grade, and are commonly referred to as "junk bonds." The term "investment grade" refers to bonds with ratings in the "BBB" category and above.

⁸ Moody's Investors Service, *Moody's confirms DPL and Dayton Power and Light's ratings; outlook negative*, Rating Action (Dec. 20, 2019).

⁹ S&P Global Ratings, *DPL Inc. And Subsidiary Downgraded to 'BB'; Outlook Remains Negative*, RatingsDirect (Nov. 26, 2019).

¹⁰ After my analyses were prepared, on November 3, 2020, S&P announced that it was upgrading DP&L's corporate credit rating one notch from "BB" to BB+ and assigned an outlook of "developing," noting the potential for an upgrade or downgrade, depending on trends in financial measures. S&P Global Ratings, *DPL, Inc. And Subsidiary Dayton Power & Light Co. Ratings Raised On Upgrade Of Parent; Outlooks Remain Developing*, Research Update (Nov. 3, 2020). Given that DP&L's rating remains below the investment grade threshold of BBB-, this one-notch upgrade has no impact on my conclusions or recommendations.

¹¹ Fitch Ratings, Inc., *Fitch Downgrades DPL to "BB+" and DP&L to "BBB-"; Outlook Negative*, Press Release (Dec. 29, 2019).

¹² *Id.*

transmission and distribution operating companies,¹³ with only two of the forty-one rated companies having ratings as low as DP&L. Meanwhile, the BB rating assigned by S&P ranks DP&L below those of all but two of the other 246 North American electric, gas, and water utilities regularly compiled by S&P,¹⁴ indicating that investors would view the Company as being one of the riskiest investments in the regulated utilities sector. DP&L's BBB- rating from Fitch falls on the very bottom rung on the ladder of the investment-grade rating scale, and also indicates greater risk than the median issuer default ratings of BBB+ and A- for utility parent holding companies and operating companies, respectively, reported by Fitch.¹⁵

Q. WHAT IS THE SIGNIFICANCE OF "INVESTMENT GRADE" VERSUS "BELOW INVESTMENT GRADE"?

A. The term "investment grade" refers to a security having sufficient quality, or relatively low risk, to be suitable for certain investment purposes, with many investors being restricted by federal regulations or investment guidelines from the purchase of debt securities that do not have an investment grade rating. There is a precipitous increase in risk associated with moving from investment grade to below investment grade securities. Credit rating differences within the investment grade range tend to reflect relatively modest gradations among fairly secure investments. Meanwhile, moving to below investment grade implies an altogether different risk plateau – one where the firm is regarded as a speculative investment. Fitch observed that when credit market conditions are unsettled, "flight to

¹³ Moody's Investors Service, *Regulated electric and gas utilities—US; 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics*, Outlook (Nov 7, 2019). In contrast to the "stable" outlook assigned to Cleveland Electric Illuminating Company and Potomac Edison Company, however, as noted earlier, Moody's has assigned a "negative" outlook to DP&L.

¹⁴ S&P Global Ratings, *North American Electric, Gas, And Water Utilities—Strongest To Weakest, Issuer Ranking* (June 22, 2020). Only PG&E Corporation and Pacific Gas & Electric Company, which just emerged from bankruptcy, had lower ratings than DP&L.

¹⁵ Fitch Ratings, Inc., *Fitch Ratings 2020 Outlook: North American Utilities, Power & Gas* (Dec 4, 2019).

quality' is selective within the [utility] sector, favoring companies at higher rating levels."¹⁶

The negative impact of declining credit quality on a utility's capital costs and financial flexibility becomes more pronounced as debt ratings move down the scale from investment to non-investment grade. As the former Chairman of the New York State Public Service Commission noted in his role as spokesman for NARUC:

While there is a large difference between A and BBB, there is an even brighter line between Investment Grade (BBB-/Baa3 bond ratings by S&P/Moody's, and higher) and non-Investment Grade (Junk) (BB+/Ba1 and lower). The cost of issuing non-investment grade debt, assuming the market is receptive to it, has in some cases been hundreds of basis points over the yield on investment grade securities.¹⁷

As S&P observed with respect to the BB long-term issuer rating assigned to DP&L:

Obligors rated 'BB', 'B', 'CCC', and 'CC' are regarded as having significant speculative characteristics. 'BB' indicates the least degree of speculation and 'CC' the highest. While such obligors will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposure to adverse conditions.¹⁸

Q. IS THERE ANY DIRECT CAPITAL MARKET EVIDENCE REGARDING THE AMOUNT OF THE PREMIUM INVESTORS REQUIRE FROM A FIRM THAT IS RATED BELOW INVESTMENT GRADE?

A. Although rates of return on equity for below investment grade firms cannot be directly observed, the yields on long-term bonds provide direct evidence of the additional return that investors require to compensate for the risks associated with speculative grade credit ratings. While average yields for double-B utility bonds are not published, the yields on high-yield corporate bond indices are reported by the Federal Reserve Bank of St. Louis and summarized in the table below:

¹⁶ Fitch Ratings Ltd, *U.S. Utilities, Power, and Gas 2010 Outlook*, Global Power North America Special Report (Dec 4, 2009)

¹⁷ George Brown, *Credit and Capital Issues Affecting the Electric Power Industry*, Federal Energy Regulatory Commission Technical Conference (Jan 13, 2009)

¹⁸ S&P Global Ratings, *S&P Global Ratings Definitions* (Sep 18, 2019)

TABLE AMM-1
SPECULATIVE GRADE YIELD SPREADS

	<u>BBB</u>	<u>BB</u>
Feb.	2.90%	3.72%
Mar.	4.06%	6.40%
Apr.	3.96%	6.23%
May	3.32%	5.57%
Jun.	2.78%	4.78%
Jul. 2020	<u>2.48%</u>	<u>4.42%</u>
6-Mo. Average	3.25%	5.19%
Spread Over BBB	--	194

Source: ICE Benchmark Administration Limited
(IBA), ICE BofAML US Corporate Effective Yield;
<https://fred.stlouisfed.org>.

As shown above, the additional premium required by fixed-income investors to compensate for the risks associated with a speculative grade, BB corporate debt rating is approximately 190 basis points.

Q. DO BOND YIELD SPREADS FULLY CAPTURE THE IMPACT OF HEIGHTENED RISKS ON THE COST OF COMMON EQUITY?

A. No. The primary mission of credit rating agencies like Moody's, S&P, and Fitch is to provide debtholders with an accurate benchmark of the relative risks of default associated with long-term bonds and other debt securities. For example, in reporting its decision to assign a negative outlook to DP&L's credit standing, Moody's noted that its evaluation of risks relates only to "future credit risk of entities, credit commitments, or debt or debt-like securities."¹⁹ Moody's further clarified that it defines credit risk "as the risk that an entity will not meet its contractual, financial obligations as they come due and any estimated financial loss in the event of default or impairment. . . . Credit ratings do not address any

¹⁹ Moody's Investors Service, *Moody's confirms DPL and Dayton Power and Light's ratings; outlook negative*, Rating Action (Dec 20, 2019)

1 other risk . . .²⁰ Bondholders, who are the subset of investors most relevant to the credit
2 rating agencies, do not share in a utility's net income or profits. As a result, the focus of
3 rating agencies, such as Moody's, is on the sufficiency of cash flows to meet the contractual
4 obligations associated with outstanding debt securities. On the other hand, equity investors
5 are intensely focused on the ability of the utility to generate earnings, pay dividends, and
6 generate growth.

7 This difference in the characteristics and priorities between debt and equity
8 securities gives rise to the considerable distinction in the risks faced by debt holders and
9 equity investors. Long-term debt is senior to common equity capital in its claim on a
10 utility's net revenues and is, therefore, the least risky. Common shareholders are the last
11 in line and they share only in whatever net revenues remain after all other claimants have
12 been paid. As a result, the implications of DP&L's risk exposures are magnified for
13 common equity investors. Thus, investors would undoubtedly require an even wider
14 premium for bearing the higher risk associated with the more junior common stock of a
15 utility with DP&L's risk profile.

16 **Q. DO YOU CONSIDER THE IMPLICATIONS OF COST RECOVERY**
17 **MECHANISMS IN EVALUATING A FAIR ROE FOR DP&L?**

18 A. Yes. Adjustment mechanisms, cost trackers, and future test years have become
19 increasingly prevalent in the utility industry in recent years, along with alternatives to
20 traditional ratemaking such as formula rates. In response to the increasing risk sensitivity
21 of investors to uncertainty over fluctuations in costs and the importance of advancing other
22 public interest goals such as reliability, energy conservation, and safety, utilities and their
23 regulators have sought to mitigate some of the cost recovery uncertainty and align the
24 interest of utilities and their customers through a variety of adjustment mechanisms. Based

²⁰ *Id.* (emphasis added)

1 largely on the expanded use of ratemaking mechanisms to address operational risks and
2 investment recovery, Moody's upgraded most regulated utilities in January 2014.²¹ This
3 industry-wide upgrade is consistent with the view that investors perceive the impact of
4 regulatory mechanisms to have an across-the-board impact on risk perceptions for virtually
5 all utilities.

6 Reflective of this trend, companies in the electric utility industry operate under a
7 wide variety of cost adjustment mechanisms. These enhanced tools encompass revenue
8 decoupling and adjustment clauses designed to address capital investment outside of a
9 traditional rate case, as well as riders to recover environmental compliance costs, bad debt
10 expenses, certain taxes and fees, and post-retirement employee benefit costs. *RRA*
11 *Regulatory Focus* concluded in its most recent review of adjustment clauses that:

12 More recently and with greater frequency, commissions have approved
13 mechanisms that permit the costs associated with the construction of new
14 generation capacity or delivery infrastructure to be reflected in rates,
15 effectively including these items in rate base without a full rate case. In
16 some instances, these mechanisms may even provide the utilities a cash
17 return on construction work in progress.

18 . . . [C]ertain types of adjustment clauses are more prevalent than others.
19 For example, those that address electric and fuel and gas commodity
20 charges are in place in all jurisdictions. Also, about two-thirds of all utilities
21 have riders in place to recover costs related to energy efficiency programs,
22 and roughly half of the utilities utilize some type of decoupling
23 mechanism.²²

24 **Q. HAVE YOU SUMMARIZED THE VARIOUS REGULATORY MECHANISMS**
25 **AVAILABLE TO OTHER ELECTRIC UTILITIES?**

26 A. Yes. Reflective of industry trends, the other companies in the proxy group of electric
27 utilities that I used to estimate the cost of equity operate under a variety of regulatory

²¹ Moody's Investors Service, *US utility sector upgrades driven by stable and transparent regulatory frameworks*, Sector Comment (Feb 3, 2014)

²² S&P Global Market Intelligence, *Adjustment Clauses, A State-by-State Overview*, *RRA Regulatory Focus* (Nov 12, 2019)

1 adjustment mechanisms. As detailed on pages 2-3 of Exhibit AMM-3, 44 of the 62
2 operating utilities owned by the firms in the Electric Group benefit from capital cost
3 trackers that allow for recovery of new capital investment in generation facilities or other
4 infrastructure outside of a traditional rate case. In addition, almost half of all the operating
5 utilities²³ operate under a full or partial decoupling mechanism that accounts for various
6 factors affecting sales volumes and revenues and 44 operate in jurisdictions that allow for
7 some form of future test period. Other mechanisms automatically recover storm, pension,
8 and bad debt costs, along with various taxes and franchise fees.

9 **Q. HAVE RECENT EVENTS IN OHIO NEGATIVELY IMPACTED THE**
10 **COMPANY'S PROFILE OF REGULATORY MECHANISMS AND RISKS?**

11 A. Yes. Under the 2017 Electric Security Plan ("ESP 3"), the Company benefited from
12 decoupling, riders to address investment and modernization of the distribution system
13 ("DMR" and "DIR"), and other regulatory mechanisms. This plan was substantially
14 modified by the Commission in November 2019, and in December 2019, DP&L was
15 authorized to revert to its previous rate plan ("ESP 1"). While ESP 1 includes a Rate
16 Stabilization Charge ("RSC"), it eliminated the DMR, DIR, decoupling, and several other
17 adjustment mechanisms.

18 In response to modifications to ESP 3 in November 2019, Moody's placed the
19 Company on review for a downgrade, noting that "[t]he unexpected, immediate reduction
20 in revenue will negatively affect financial coverage metrics as both the parent and operating
21 utility, pressuring credit quality."²⁴ In explaining its decision to maintain a negative
22 outlook on DP&L's ratings, Moody's observed that:

²³ Of the 62 operating companies represented on pages 2-3 of Exhibit AMM-3, 27 of them have some form of decoupling mechanism

²⁴ Moody's Investors Service, *Rating Action: Moody's places the ratings of DPL and Dayton Power and Light on review for downgrade* (Nov 25, 2019)

1 The revision of the outlook to negative on both DPL and DP&L reflects the
2 lower cash flow provided by ESP-I compared to the previous ESP-III, the
3 termination of decoupling and other credit supportive riders, the less
4 consistent and more unpredictable nature of the Ohio regulatory
5 environment as it pertains to DP&L, and the ongoing pressure on both DPL
6 and DP&L's financial metrics as the group strives to modernize the utility's
7 electric grid and address significant debt maturities over the next two
8 years.²⁵

9 Similarly, S&P noted a "less-than-predictable regulatory framework in Ohio," and
10 concluded that "DP&L is prone to regulatory lag, and the PUCO has historically rendered
11 decisions that adversely affected the credit quality of DP&L and peer utilities in the state."²⁶

12 **Q. DOES DP&L'S ABILITY TO COLLECT THE RSC SET IT APART FROM OTHER**
13 **FIRMS OPERATING IN THE UTILITY INDUSTRY?**

14 A. No. As my testimony documents, a broad array of adjustment mechanisms is available to
15 the companies in my proxy group of electric utilities. Most of the companies also have
16 adjustment clauses to effectively recover certain capital expenditures, conservation
17 program impacts, renewable energy outlays, environmental compliance costs, decoupling,
18 and transmission-related charges. Thus, while investors would consider the RSC to be
19 supportive of the Company's financial integrity, this does not provide a basis to distinguish
20 the risks of DP&L from the utilities in my proxy group. In fact, while the average credit
21 ratings for my proxy group are lower than the industry average, DP&L's speculative grade
22 rating from S&P and the "Negative" outlook assigned by Moody's and Fitch indicate that
23 investors would view the Company's investment risks as considerably higher, even with
24 the RSC.

²⁵ Moody's Investors Service, *Rating Action: Moody's confirms DPL and Dayton Power and Light's ratings; negative outlook* (Dec 20, 2019)

²⁶ S&P Global Ratings, *Dayton Power & Light Co.*, RatingsDirect (Aug 21, 2020)

Q. WHAT OTHER CONSIDERATIONS ARE RELEVANT TO INVESTORS' ASSESSMENT OF DP&L?

A. Investors are also exposed to considerable uncertainty due to the propensity for legal review of the PUCO's decisions. Moody's has recognized that appeals to the Ohio Supreme Court are lengthy and can undermine regulatory certainty for the state's utilities.²⁷ As S&P Global Market Intelligence noted, "the tendency for commission rulings to come before the courts and for extensive litigation as appeals go through several layers of court review may add an untenable degree of uncertainty to the regulatory process."²⁸ In addition, DP&L may be exposed to the risk of a potential refund to customers if found to have significantly excessive earnings.

C. Recommended ROE

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSES.

A. In order to reflect the risks and prospects associated with DP&L's jurisdictional utility operations, my analyses focus on a proxy group of 22 other electric utilities with comparable investment risks. Because investors' required ROE is unobservable and no single method should be viewed in isolation, I apply the DCF, CAPM, ECAPM, and risk premium methods to estimate a fair ROE for DP&L, as well as referencing the expected earnings approach. As summarized in Exhibit AMM-2 (Corrected), considering these results, and giving less weight to extremes at the high and low ends of the range, I conclude that my analyses support a cost of equity in the 9.4% to 10.7% range, or 9.5% to 10.8%

²⁷ Moody's Investors Service, *Moody's affirms DPL and Dayton Power & Light ratings; changes outlooks to stable from positive*, Rating Action (Jun 27, 2019) (noting that "uncertainty has arisen after the Ohio Supreme Court last week ruled that the Public Utilities Commission of Ohio (PUCO) had improperly authorized the neighboring utility subsidiaries of FirstEnergy Corp (Baa3 stable) to collect DMR charges, ending their collection from ratepayers")

²⁸ S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar 25, 2020)

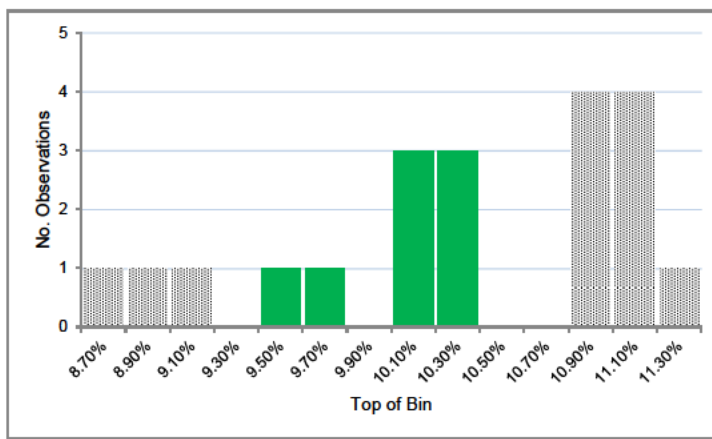
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after incorporating an adjustment to account for the impact of common equity flotation costs.

Q. HOW DOES YOUR RECOMMENDED ROE RANGE COMPARE TO THE DISTRIBUTION OF COST OF EQUITY ESTIMATES RESULTING FROM YOUR ANALYSES?

A. The results of my analyses are presented on Schedule AMM-2, and summarized in the frequency table shown in Figure AMM-1 (Corrected), below:

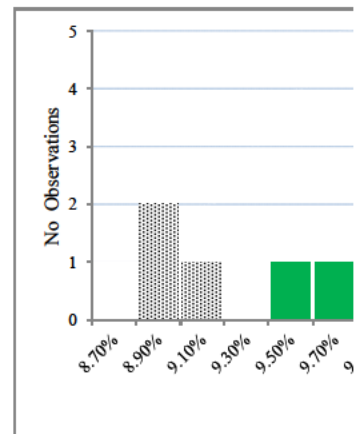
**FIGURE AMM-1 (CORRECTED)
DISTRIBUTION OF COST OF EQUITY ESTIMATES**



As illustrated above, my recommended cost of equity range of 9.4% to 10.7% (before flotation costs) captures the bulk of the individual cost of equity estimates making up the middle of the distribution, with three values falling below this range and nine results exceeding it.

Q. WHAT IS YOUR CONCLUSION REGARDING THE FAIR ROE FOR DP&L?

A. I recommend an ROE of 10.5% for DP&L's electric utility operations. In evaluating a fair ROE for the Company's electric utility operations, the Commission should consider the



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1 economic reality that DP&L's common equity investors face far greater risks than most
2 electric utilities. As my evidence demonstrates:

- 3 • DP&L's credit standing indicates that investors would view the Company as
4 having greater risks than other electric utilities, including those in my proxy
5 group.
- 6 • This conclusion is reinforced by the Company's relative lack of regulatory
7 adjustment mechanisms.
- 8 • Unlike most utilities in this country, DP&L may be exposed to the risk of a
9 potential refund to customers if found to have significantly excessive earnings.
- 10 • In light of this greater risk exposure, the ROE for DP&L must exceed the central
11 tendency result implied for the proxy group.
- 12 • Continued support for DP&L's financial integrity is imperative to ensure that the
13 Company can confront potential challenges associated with funding infrastructure
14 development necessary to meet the needs of its customers, even during times of
15 capital market turmoil.
- 16 • To consider these factors, I recommend an ROE for DP&L of 10.5%, which falls
17 approximately at the midpoint of the upper end of my recommended range, or 35
18 basis points above the 10.15% midpoint.
- 19 • The reasonableness of this increment of return is confirmed by the evidence of
20 speculative grade yield spreads, which imply a significantly higher return required
21 to compensate for the greater risks associated with DP&L.

22 **Q. WHAT DO THE DCF RESULTS FOR YOUR SELECT GROUP OF NON-UTILITY**
23 **FIRMS INDICATE WITH RESPECT TO YOUR EVALUATION?**

24 A. Average DCF estimates for a low-risk group of firms in the competitive sector of the
25 economy range from 9.3% to 10.4%, before consideration of flotation costs.²⁹ While I do
26 not base my recommendation directly on these results, considering the lower risks
27 associated with the Non-Utility Group, they confirm that a 10.5% ROE falls in a reasonable
28 range to maintain DP&L's financial integrity, provide a return commensurate with
29 investments of comparable risk, and support the Company's ability to attract capital.

²⁹ Exhibit AMM-11 (Corrected), page 3

III. FUNDAMENTAL ANALYSES

1 Q. WHAT IS THE PURPOSE OF THIS SECTION?

2 A. As a predicate to subsequent quantitative analyses, this section briefly reviews the
3 operations and finances of DP&L. In addition, it examines conditions in the capital
4 markets and the general economy. An understanding of the fundamental factors driving
5 the risks and prospects of electric utilities is essential in developing an informed opinion
6 of investors' expectations and requirements that are the basis of a fair rate of return.

A. Dayton Power & Light Company

7 Q. BRIEFLY DESCRIBE DP&L AND ITS ELECTRIC UTILITY OPERATIONS.

8 A. DP&L, a wholly-owned subsidiary of AES, is engaged in the transmission and distribution
9 of electric power to over 527,000 customer accounts, serving 1.25 million people in West
10 Central Ohio. At June 30, 2020, DP&L had total assets of approximately \$2.3 billion, and
11 in 2019 the Company's revenues were approximately \$735 million. The Company's
12 transmission and distribution facilities consist of approximately 19,600 miles of
13 transmission and distribution lines. DP&L is a member of PJM Interconnection, LLC
14 ("PJM"), a Federal Energy Regulatory Commission ("FERC")-approved transmission
15 organization, and provides regional transmission service pursuant to the PJM Open Access
16 Transmission Tariff.

17 Q. WHERE DOES DP&L OBTAIN THE CAPITAL USED TO FINANCE ITS
18 INVESTMENT IN ELECTRIC UTILITY PLANT?

19 A. As a wholly-owned subsidiary of AES, the Company obtains common equity capital solely
20 from its parent, whose common stock is publicly traded on the New York Stock Exchange.
21 In addition to capital supplied by AES, DP&L also issues debt securities directly under its
22 own name.

1 Q. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO THE COMPANY?

2 A. As discussed previously, in November, 2019 S&P downgraded DP&L's issuer credit rating
3 to "BB."³⁰ While Moody's currently assigns the Company a long-term issuer rating of
4 "Baa2" on December 20, 2019, Moody's revised the outlook for DP&L's ratings from
5 "stable" to "negative," warning investors of a potential downgrade.³¹ Meanwhile, Fitch
6 Ratings, Inc. ("Fitch") has assigned the Company a long-term issuer default rating of
7 "BBB-."

8 Q. DOES DP&L ANTICIPATE THE NEED FOR ADDITIONAL CAPITAL GOING
9 FORWARD?

10 A. Yes. DP&L will require capital investment to provide for necessary maintenance and
11 replacements of its utility infrastructure, as well as to fund investment in new facilities. As
12 shown in Schedule S-1, the Company expects to make significant capital expenditures over
13 the next five years.

B. Outlook for Capital Costs

14 Q. PLEASE SUMMARIZE CURRENT ECONOMIC AND CAPITAL MARKET
15 CONDITIONS?

16 A. In the second quarter of 2020, U.S. real GDP growth declined sharply at an annual rate of
17 -31.7%, following a decline of 0.5% in the prior quarter. The unemployment rate continued
18 to fall gradually to 8.4% in August of 2020, from its peak at 14.7% in April, which is
19 indicative of a frail but improving labor market and an economy that remains significantly
20 below full employment. Inflation, as evidenced by the Consumer Price Index, was low at

³⁰ As I noted earlier, on November 3, 2020, after my analyses were prepared, S&P announced that it was upgrading DP&L's corporate credit rating one notch from "BB" to BB+ " DP&L's rating remains below the investment grade threshold of BBB- and this one-notch upgrade has no impact on my conclusions or recommendations

³¹ Moody's Investors Service, *Moody's confirms DPL and Dayton Power and Light's ratings; negative outlook*, Rating Action (Dec 20, 2019)

1 around 1.3% in August 2020. Investors continue to face volatility as capital markets
2 respond to uncertainties surrounding the sharp decline in real economic output associated
3 with the COVID-19 pandemic and related state and federal shutdowns, as well as the
4 resulting economic stimulus packages that characterized the first half of 2020. This
5 underlying risk and unease has been felt worldwide as countries have struggled to manage
6 the pandemic. China's GDP showed a sharp contraction in the first quarter of 2020,
7 followed by tepid growth in the second quarter. The European Union evidenced sharp
8 declines in GDP during the first and second quarters of 2020. Economic activity has
9 remained weak in many emerging market economies, including Brazil and Mexico. The
10 global economic contraction comes on top of already heightened geopolitical tensions in
11 the Middle East, which in the past have led to ongoing concerns over possible disruptions
12 in crude oil supplies and attendant price volatility.

13 **Q. HOW HAVE COMMON EQUITY MARKETS BEEN IMPACTED BY COVID-19?**

14 A. The threat posed by the coronavirus pandemic has led to extreme volatility in capital
15 markets worldwide as investors dramatically revise their risk perceptions and return
16 requirements in the face of the severe disruptions to commerce and the economy.
17 Simultaneously, energy markets have been roiled by the threat to demand posed by a
18 worldwide economic slowdown and a breakdown of Russia's partnership with the
19 Organization of the Petroleum Exporting Countries. These simultaneous demand and
20 supply shocks have led to sharp declines in oil prices, which have further confounded
21 investors and destabilized the economic outlook and asset prices.

22 Despite the actions of the world's central banks to ease market strains and bolster
23 the economy, global financial markets have experienced precipitous declines in asset
24 values. On March 12, 2020, the Dow Jones Industrial Average ("DJIA") suffered its worst
25 decline since the 1987 "Black Monday" crash, falling by almost 10% in a single session,

1 and pushing the index into a bear market, defined as a 20% drop from a previous high. On
2 March 16, 2020, the DJIA experienced its greatest fall, point-wise, in history, ending the
3 day with a decline of 2,997 points. Similarly, between February 19 and March 23, 2020,
4 the S&P 500 lost more than 30% of its total value. The Chicago Board Options Exchange
5 Volatility Index (commonly known as the "VIX"), which is a key measure of expectations
6 of near-term volatility and market sentiment, rose to levels not seen since the 2008-2009
7 Financial Crisis.

8 **Q. HAVE UTILITIES AND THEIR INVESTORS FACED SIMILAR TURMOIL?**

9 A. Yes. As of March 23, 2020, the Dow Jones Utility Average ("DJUA") had fallen
10 approximately 36% from the previous high reached on February 18, 2020, demonstrating
11 the fact that regulated utilities and their investors are not immune from the impact of
12 financial market turmoil. As with the broader market, utility stock prices have recovered
13 from these lows, but as of August 2020 the DJUA remained 12% below its previous high.
14 While equity markets have recovered from the lows reached in March 2020, the
15 pronounced selloff and ongoing volatility evidence investors' trepidation to commit capital
16 and marks a significant upward revision in their perceptions of risk and required returns.

17 Concerns over weakening credit quality prompted S&P to revise its outlook for the
18 regulated utility industry from "stable" to "negative."³² As S&P explained:

19 Even before the current downturn and COVID-19, a confluence of factors,
20 including the adverse impacts of tax reform, historically high capital
21 spending, and associated increased debt, resulted in little cushion in ratings
22 for unexpected operating challenges.³³

³² S&P Global Ratings, *COVID-10: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (Apr 2, 2020)

³³ S&P Global Ratings, *North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic*, RatingsDirect (May 11, 2020)

1 While recognizing regulatory protections that should mitigate the impact of the
2 coronavirus pandemic, S&P noted that "the timing and extent of these protections adds
3 uncertainty to already stretched financial profiles."³⁴ S&P warned investors that pressure
4 on electric utility finances "sets the stage for downgrades."³⁵ As S&P concluded,
5 challenges posed by the coronavirus crisis "have the potential to significantly impact the
6 financial performance of the investor-owned utilities, increasing the overall level of
7 investor risk, and will have to be addressed by . . . regulators."³⁶

8 Meanwhile Moody's noted that utilities were forced to seek alternatives to volatile
9 commercial paper markets in order to fund operations, and emphasized the importance of
10 maintaining adequate liquidity in the sector to weather a prolonged period of financial
11 volatility and turbulent capital markets.³⁷ As Moody's concluded in its recent review of
12 PG&E's investment risks:

13 The coronavirus outbreak, weak global economic outlook and asset price
14 declines are creating a severe and extensive credit shock across many
15 sectors, regions and markets. The combined credit effects of these
16 developments are unprecedented.³⁸

17 **Q. WHAT ACTIONS HAS THE FEDERAL RESERVE TAKEN IN RESPONSE TO**
18 **THE THREAT TO THE ECONOMY POSED BY THE CORONAVIRUS**
19 **PANDEMIC?**

20 **A.** In early 2020, the Federal Reserve quickly lowered its policy rate to close to zero to support
21 economic activity, stabilize markets and bolster the flow of credit to households,
22 businesses, and communities. In March 2020, the Federal Reserve lowered the target range

³⁴ *Id.*

³⁵ *Id.*

³⁶ S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar 25, 2020)

³⁷ Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar 26, 2020)

³⁸ Moody's Investors Service, *Moody's assigns Baa3 rating to Pacific Gas & Electric's first mortgage bonds and B1 rating to PG&E Corp's senior secured debt; outlooks stable*, Rating Action (Jun 15, 2020)

1 for its benchmark federal funds rate by a total of 150 basis points, to the current range of
2 0% to 0.25%. The Federal Open Market Committee expects to maintain this target range
3 until it is confident that the economy has weathered recent events.

4 In addition, the Federal Reserve has announced a broad range of unprecedented
5 programs designed to support financial market liquidity and economic stability. The
6 quantitative easing measures initially adopted in response to the 2008 financial crisis were
7 reintroduced by directing the purchase of Treasury securities and agency mortgage-backed
8 securities "in the amounts needed to support the smooth functioning of markets,"³⁹ while
9 continuing to reinvest all principal payments from its existing holdings. In addition, the
10 Federal Reserve has also announced wide-ranging initiatives designed to support credit
11 markets and ensure liquidity, including credit facilities to support households, businesses,
12 and state and local governments, as well as the purchase of corporate bonds on the
13 secondary market.⁴⁰

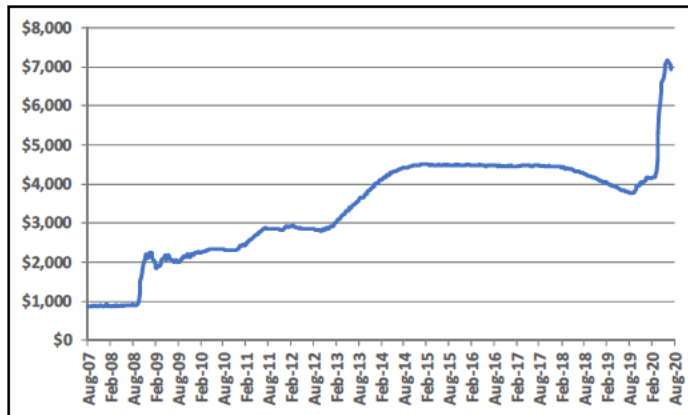
14 As illustrated in Figure AMM-2 below, the Federal Reserve's asset holdings now
15 amount to over \$7 trillion, which is an all-time high, and the resulting effect on capital
16 market conditions has likely never been more pronounced. While the Federal Reserve's
17 aggressive monetary stimulus may help to ensure market liquidity and support the
18 economy, these actions also support financial asset prices, which in turn place artificial
19 downward pressure on bond yields.

³⁹ Federal Reserve, *Press Release* (Mar 23, 2020)

<https://www.federalreserve.gov/monetarypolicy/files/monetary20200323a1.pdf>

⁴⁰ See, e.g., *Federal Reserve takes additional actions to provide up to \$2.3 trillion in loans to support the economy*, Press Release (Apr 9, 2020) <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200409a.htm>

FIGURE AMM-2
FEDERAL RESERVE BALANCE SHEET
(\$ BILLIONS)



<https://fred.stlouisfed.org/series/WALCL>

Q. DO TRENDS IN THE YIELDS ON TREASURY NOTES AND BONDS ACCURATELY REFLECT THE EXPECTATIONS AND REQUIREMENTS OF DP&L'S EQUITY INVESTORS?

A. No. While Treasury bond yields provide one indicator of capital costs, they do not serve as a direct guide to the magnitude—or even direction—for changes in the cost of equity for utilities. For example, during times of heightened uncertainty and risk, investors may prefer the relative safety of U.S. government bonds, which can lead to a significant fall in Treasury bond yields at the same time that required returns on common stocks are increasing. Treasury bond yields may also be disproportionately impacted by monetary policies, such as quantitative easing, designed with the express intent of artificially suppressing bond yields. FERC has recognized that movements in Treasury bond yields do not provide a reliable guide to changes in required returns for utilities, concluding that,

"adjusting ROEs based on changes in U.S. Treasury bond yields may not produce a rational result, as both the magnitude and direction of the correlation may be inaccurate."⁴¹

Q. DOES THE PROSPECT OF ECONOMIC RECESSION IMPLY LOWER CAPITAL COSTS?

A. No. Investors' required rates of return for DP&L and other financial assets are a function of risk, with greater exposure to uncertainty requiring higher—not lower—rates of return to induce long-term investment. With respect to credit markets, S&P observed that conditions "look set to remain extraordinarily difficult for borrowers at least into the second half of the year, with the economic stop associated with coronavirus-containment measures continuing with no clear end in sight."⁴² And while regulated utilities are favorably positioned relative to other industry sectors, S&P nevertheless noted that "access to the equity markets remains extraordinarily challenging."⁴³

While expected growth rates may moderate as the economy softens, it is important not to confuse investors' expectations for future growth with their required rate of return. In fact, trends in growth rates say nothing at all about investors' overall risk perceptions. The fact that investors' required rates of return for long-term capital can rise in tandem with expectations of declining growth that might accompany an economic slowdown is demonstrated in the equity markets, where perceptions of greater risks led investors to sharply reevaluate what they are willing to pay for utility common stocks. While the decline in utility stock prices may in part be attributed to somewhat diminished expectations of future cash flows, there is also every indication that investors' discount rate,

⁴¹ *Coakley v. Bangor Hydro-Elec.*, 147 FERC ¶ 61,234 at P 159 (2014)

⁴² S&P Global Ratings, *Credit Conditions North America: Unprecedented Uncertainty Slams Credit* (Mar 31, 2020)

⁴³ S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (Apr 2, 2020)

or cost of common equity, has moved higher to accommodate the greater risks they now associate with equity investments.

Q. IS THERE ANY DIRECT EVIDENCE THAT THE RISKS ASSOCIATED WITH ELECTRIC UTILITY COMMON STOCKS HAVE INCREASED AS A RESULT OF RECENT MARKET TURMOIL?

A. Yes. Beta is a widely referenced measure of equity risk that is based on the relative volatility of a utility's common stock price relative to the market as a whole, and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory, and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions.

As shown subsequently in Table AMM-7, the current average beta for the proxy group of comparable utilities that I rely on in this case for estimating the Company's ROE is 0.88. Prior to the pandemic, the average beta for the same group of companies was 0.59. This dramatic increase in a primary gauge of investors' risk perceptions is further proof of the rise in electric utility risk in 2020.

Q. HOW DO INTEREST RATES ON LONG-TERM BONDS COMPARE WITH THOSE PROJECTED FOR THE NEXT FEW YEARS?

A. Table AMM-2 below compares current interest rates on 10-year and 30-year Treasury bonds, triple-A rated corporate bonds, and double-A rated utility bonds with the average of near-term projections from the Blue Chip Financial Forecasts, Energy Information Administration ("EIA"), IHS Markit, and The Value Line Investment Survey ("Value Line"):

TABLE AMM-2
INTEREST RATE TRENDS

	<u>Jul. 2020</u>	<u>Average 2021-25</u>	<u>Change (bp)</u>
10-Yr. Treasury	0.62%	1.90%	128
30-Yr. Treasury	1.31%	2.24%	93
Aaa Corporate	2.14%	3.25%	111
Aa Utility	2.46%	4.12%	166

Source:

Value Line Investment Survey, Forecast for the U.S. Economy (May 29, 2020).

IHS Markit, Long-Term Macro Forecast - Baseline (May 28, 2020).

Energy Information Administration, Annual Energy Outlook 2020 (Jan. 29, 2020).

Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2020).

As evidenced above, there is a clear consensus that the cost of permanent capital will be higher in the 2021-2025 timeframe than it is currently. As a result, current cost of capital estimates are likely to understate investors' requirements during the time the rates set in this proceeding are effective.

Q. IS IT NECESSARY THAT INTEREST RATE FORECASTS, LIKE THOSE SHOWN ABOVE, BE PERFECTLY ACCURATE IN ORDER TO BE RELIED ON?

A. No. When estimating investors' required rate of return, what investors expect, not what actually happens, is what matters most. While the projections of various services may be proven optimistic or pessimistic in hindsight, this is irrelevant in assessing expected interest rates and how they might influence the Company's allowed ROE. Any difference in actual rates as compared to analysts' forecasts is beside the point. What is most important is that investors share analysts' views when the forecasts were made and incorporate those views into their decision-making process, not the actual rates that ultimately transpire.

1 **Q. WOULD IT BE REASONABLE TO DISREGARD THE IMPLICATIONS OF**
2 **CURRENT CAPITAL MARKET CONDITIONS IN ESTABLISHING A FAIR ROE**
3 **FOR DP&L?**

4 A. No. They reflect the circumstances under which DP&L must attract and retain capital. The
5 standards underlying a fair rate of return require that the Company's authorized ROE reflect
6 a return competitive with other investments of comparable risk and preserve its ability to
7 maintain access to capital on reasonable terms. These standards can be met only by
8 considering the requirements of investors. As S&P concluded, challenges posed by the
9 coronavirus crisis "have the potential to significantly impact the financial performance of
10 the investor-owned utilities, increasing the overall level of investor risk, and will have to
11 be addressed by state regulators."⁴⁴

12 While market dislocations may complicate the evaluation of the cost of common
13 equity, there has been little indication that the challenges confronting the economy and
14 financial markets will be resolved quickly. If the upward shift in investors' risk perceptions
15 and required rates of return for long-term capital is not incorporated in the allowed ROE,
16 the results will fail to meet the comparable earnings standard that is fundamental in
17 determining the cost of capital. From a more practical perspective, failing to provide
18 investors with the opportunity to earn a rate of return commensurate with DP&L's risks
19 will weaken its financial integrity, while hampering the Company's ability to attract
20 necessary capital.

21 **Q. SHOULD THE ECONOMIC DISLOCATIONS CAUSED BY THE CORONAVIRUS**
22 **PANDEMIC BE CONSIDERED?**

23 A. Yes. No one knows the future of our complex global economy. While there is continued
24 hope for a relatively swift economic rebound as COVID-19 containment measures are

⁴⁴ S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar 25, 2020)

1 gradually lifted, residual impacts of the unprecedented economic and health crisis could
2 linger indefinitely. In any event, it would be imprudent to gamble the interests of customers
3 and the economy of Ohio in the hope that the harsh economic reality will suddenly be
4 resolved. DP&L must raise capital in the real world of financial markets. To ignore the
5 current reality would be unwise given the importance of reliable electric service for
6 customers and the economy.

IV. COMPARABLE RISK PROXY GROUP

7 Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

8 A. This section describes the procedures underlying my identification of a proxy group of
9 publicly traded companies.

**10 Q. CAN QUANTITATIVE METHODS BE APPLIED DIRECTLY TO DP&L TO
11 ESTIMATE THE COST OF EQUITY?**

12 A. No. Application of quantitative methods to estimate the cost of common equity requires
13 observable capital market data, such as stock prices and beta values. Moreover, even for a
14 firm with publicly traded stock, the cost of common equity can only be estimated. As a
15 result, applying quantitative models using observable market data only produces an
16 estimate that inherently includes some degree of observation error. Thus, the accepted
17 approach to increase confidence in the results is to apply quantitative methods to a proxy
18 group of publicly traded companies that investors regard as risk-comparable. The results
19 of the analysis on the sample of companies are relied upon to establish a range of
20 reasonableness for the cost of equity for the specific company at issue.

1 Q. WHAT SPECIFIC PROXY GROUP OF UTILITIES DO YOU RELY ON FOR
2 YOUR ANALYSES?

3 A. My analyses relied on a proxy group composed of 22 companies, which I refer to as the
4 "Electric Group." To develop this group, I began with the following criteria:

- 5 1. Companies that are included in the Electric Utility Industry groups compiled
6 by Value Line.
- 7 2. Electric utilities that paid common dividends over the last six months and
8 have not announced a dividend cut since that time.
- 9 3. Electric utilities with no ongoing involvement in a major merger or
10 acquisition that would distort quantitative results.

11 In addition, my analysis also considered credit ratings from S&P and Moody's,
12 along with Value Line's Safety Rank in evaluating relative risk. Typically, I limit the proxy
13 group to those companies with ratings from Moody's or S&P that fall within one "notch"
14 higher or lower than the utility at issue. As noted earlier, the Company has been assigned
15 a corporate credit rating of BB by S&P, which would normally result in a ratings range of
16 BB- to BB+. Since no utilities in the prospective proxy group fall within that range, I
17 applied a somewhat lower risk S&P ratings range of BBB- to BBB+. The Company has
18 been assigned a long-term rating of Baa2 by Moody's, and implementing my typical
19 convention resulted in a Moody's ratings range of Baa3 to Baa1.

20 Q. YOUR UNIVERSE OF PROXY COMPANIES BEGAN WITH THOSE COVERED
21 BY VALUE LINE. IS THERE ANY OTHER PUBLICLY TRADED UTILITY THAT
22 IS NOT YET COVERED BY VALUE LINE THAT INVESTORS WOULD REGARD
23 AS COMPARABLE?

24 A. Yes. Investors would regard Algonquin Power & Utilities, Inc. ("Algonquin") as a
25 comparable investment alternative that is relevant to an evaluation of a just and reasonable
26 ROE for DP&L. Although it has not yet been included in Value Line's electric utility
27 industry groups, investors also regard Algonquin as having operations comparable to those

1 of other electric utilities in the proxy group. Algonquin is a North American diversified
2 generation, transmission, and distribution utility with approximately \$10 billion in total
3 assets. Algonquin provides regulated utility services to over 750,000 customers in Arizona,
4 Arkansas, California, Georgia, Illinois, Iowa, Kansas, Massachusetts, Missouri, New
5 Hampshire, Oklahoma, and Texas.⁴⁵ A majority of Algonquin's revenues, earnings, and
6 assets are related to its regulated U.S. utility operations.⁴⁶ In addition, Algonquin reports
7 interim and annual consolidated financial statements in U.S. dollars, its dividend is
8 denominated in U.S. dollars, and its common shares are listed on the New York Stock
9 Exchange. While Algonquin is not rated by Moody's, it has been assigned a credit rating
10 of BBB by S&P.

11 **Q. WHAT OTHER PUBLICLY TRADED UTILITY IS RELEVANT IN**
12 **ESTABLISHING A PROXY GROUP?**

13 **A.** Emera should also be included in the proxy group.

14 **Q. PLEASE EXPLAIN WHY EMERA SHOULD BE CONSIDERED.**

15 **A.** Emera's credit ratings fall within the screening criteria discussed above. While Emera is
16 currently included in Value Line's "Power Industry" sector, rather than its "Electric Utility"
17 industry groups, investors consider Emera to have risks and operations comparable to those
18 of other electric utilities. Emera is primarily engaged in electricity generation,
19 transmission, and distribution; gas transmission and distribution; and utility energy
20 services, and serves approximately 2.5 million customers. Emera completed its acquisition

⁴⁵ Algonquin completed its acquisition of Empire District in 2017, which more than doubled its size. Empire District was included in Value Line's electric utility industry group prior to its merger with Algonquin.

⁴⁶ For example, Algonquin reported that during 2019 regulated utility operations accounted for 84% of total revenues, 86% of operating income, and 63% of total assets. Approximately 95% of Algonquin's consolidated revenue and 90% of property, plant, and equipment are attributable to operations in the U.S.
https://www.sec.gov/cgi-bin/viewer?action=view&cik=1174169&accession_number=0001174169-20-000018&xbrl_type=v#

of TECO Energy in 2016 and Value Line reported that Emera's Florida electric utility is its largest operating segment and that "over 95% of earnings now [come] from regulated operations."⁴⁷

Similarly, CFRA highlighted Emera's primary focus on electric utility operations, and classified Emera in its "Electric Utilities" industry group,⁴⁸ and Emera reports as an "Electric Utility" under the Standard Industrial Classification Code (4911).⁴⁹ S&P noted that "Emera, Inc. is a geographically diverse electric and natural gas holding utility company,"⁵⁰ and reported that regulated utility operations contribute "about 95% of consolidated cash flow."⁵¹ Thus, investors would regard Emera as a comparable investment alternative that is relevant to an evaluation of the required rate of return for Avista. Emera's operations are dominated by its U.S.-based utilities in Florida, Maine, and New Mexico, which together accounted for approximately 67 percent of consolidated net income and total assets at year-end 2018.⁵²

V. CAPITAL MARKET ESTIMATES

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. This section presents capital market estimates of the cost of equity. First, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. Next, I describe various quantitative analyses conducted

⁴⁷ The Value Line Investment Survey (Mar 20, 2020)

⁴⁸ CFRA, *Emera Incorporated*, Quantitative Stock Report (Jun 24, 2017) CFRA, founded as the Center for Financial Research and Analysis, is one of the world's largest providers of institutional-grade independent equity research, acquired the equity and fund research arm of S&P in October 2016

⁴⁹ See, e.g., Emera, Inc., 2019 SEC Form 40-F,

<https://www.sec.gov/Archives/edgar/data/1127248/000119312520090975/d904641d40f.htm>

⁵⁰ S&P Global Ratings, *Emera Inc. And Subsidiaries 'BBB+' Ratings Affirmed; Outlooks Remain Negative*, RatingsDirect (Mar 26, 2019)

⁵¹ S&P Global Ratings, *Emera Inc. And TECO Downgraded On Weak Financials, Outlook Stable; Subsidiaries Ratings Affirmed*, Research Update (Mar 24, 2020)

⁵² Emera, Inc., 2018 Financial Statements at Note 4 While Emera announced the planned sale of its Maine utility operations on March 25, 2019, this transaction is small in relation to Emera's total business, with the sale price representing approximately 4 percent of total assets

to estimate the cost of common equity for the proxy group of comparable risk utilities.

Finally, I examine flotation costs, which are properly considered in evaluating a fair and

reasonable rate of return on equity.

A. Economic Standards

Q. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THE COST OF EQUITY CONCEPT?

A. The fundamental economic principle underlying the cost of equity concept is the notion that investors are risk averse. In capital markets where relatively risk-free assets are available (e.g., U.S. Treasury securities), investors can be induced to hold riskier assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Because all assets compete with each other for investor funds, riskier assets must yield a higher expected rate of return than safer assets to induce investors to invest and hold them.

Given this risk-return tradeoff, the required rate of return (k) from an asset (i) can generally be expressed as:

$$k_i = R_f + RP_i$$

where: R_f = Risk-free rate of return, and
 RP_i = Risk premium required to hold riskier asset i .

Thus, the required rate of return for a particular asset at any time is a function of:
(1) the yield on risk-free assets, and (2) the asset's relative risk, with investors demanding correspondingly larger risk premiums for bearing greater risk.

1 Q. IS THERE EVIDENCE THAT THE RISK-RETURN TRADEOFF PRINCIPLE
2 ACTUALLY OPERATES IN THE CAPITAL MARKETS?

3 A. Yes. The risk-return tradeoff can be readily documented in segments of the capital markets
4 where required rates of return can be directly inferred from market data and where
5 generally accepted measures of risk exist. Bond yields, for example, reflect investors'
6 expected rates of return, and bond ratings measure the risk of individual bond issues.
7 Comparing the observed yields on government securities, which are considered free of
8 default risk, to the yields on bonds of various rating categories demonstrates that the risk-
9 return tradeoff does, in fact, exist.

10 Q. DOES THE RISK-RETURN TRADEOFF OBSERVED WITH FIXED INCOME
11 SECURITIES EXTEND TO COMMON STOCKS AND OTHER ASSETS?

12 A. It is widely accepted that the risk-return tradeoff evidenced with long-term debt extends to
13 all assets. Documenting the risk-return tradeoff for assets other than fixed income
14 securities, however, is complicated by two factors. First, there is no standard measure of
15 risk applicable to all assets. Second, for most assets – including common stock – required
16 rates of return cannot be directly observed. Yet there is every reason to believe that
17 investors exhibit risk aversion in deciding whether or not to hold common stocks and other
18 assets, just as when choosing among fixed-income securities.

19 Q. IS THIS RISK-RETURN TRADEOFF LIMITED TO DIFFERENCES BETWEEN
20 FIRMS?

21 A. No. The risk-return tradeoff principle applies not only to investments in different firms,
22 but also to different securities issued by the same firm. The securities issued by a utility
23 vary considerably in risk because they have different characteristics and priorities. As
24 noted earlier, common shareholders are the last in line and they receive only the net
25 revenues, if any, remaining after all other claimants have been paid. As a result, the rate of

1 return that investors require from a utility's common stock, the most junior and riskiest of
2 its securities, must be considerably higher than the yield offered by the utility's senior, long-
3 term debt.

4 **Q. WHAT ARE THE CHALLENGES IN DETERMINING A JUST AND**
5 **REASONABLE ROE FOR A REGULATED ENTERPRISE?**

6 A. The actual return investors require is unobservable. Different methodologies have been
7 developed to estimate investors' expected and required return on capital, but all such
8 methodologies are merely theoretical tools and generally produce a range of estimates,
9 based on different assumptions and inputs. The DCF method, which is frequently
10 referenced and relied on by regulators, is only one theoretical approach to gain insight into
11 the return investors require; there are numerous other methodologies for estimating the cost
12 of capital and the ranges produced by the different approaches can vary widely.

13 **Q. IS IT CUSTOMARY TO CONSIDER THE RESULTS OF MULTIPLE**
14 **APPROACHES WHEN EVALUATING A JUST AND REASONABLE ROE?**

15 A. Yes. In my experience, financial analysts and regulators routinely consider the results of
16 alternative approaches in determining allowed ROEs. It is widely recognized that no single
17 method can be regarded as failsafe; with all approaches having advantages and
18 shortcomings. As the FERC has noted, "[t]he determination of rate of return on equity
19 starts from the premise that there is no single approach or methodology for determining the
20 correct rate of return."⁵³ Similarly, a publication of the Society of Utility and Regulatory
21 Financial Analysts concluded that:

22 Each model requires the exercise of judgment as to the reasonableness of
23 the underlying assumptions of the methodology and on the reasonableness
24 of the proxies used to validate the theory. Each model has its own way of
25 examining investor behavior, its own premises, and its own set of

⁵³ *Northwest Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 4 (1997)

1 simplifications of reality. Each method proceeds from different
2 fundamental premises, most of which cannot be validated empirically.
3 Investors clearly do not subscribe to any singular method, nor does the stock
4 price reflect the application of any one single method by investors.⁵⁴

5 As this treatise succinctly observed, "no single model is so inherently precise that
6 it can be relied on solely to the exclusion of other theoretically sound models."⁵⁵ Similarly,
7 *New Regulatory Finance* concluded that:

8 There is no single model that conclusively determines or estimates the
9 expected return for an individual firm. Each methodology possesses its own
10 way of examining investor behavior, its own premises, and its own set of
11 simplifications of reality. Each method proceeds from different
12 fundamental premises that cannot be validated empirically. Investors do
13 not necessarily subscribe to any one method, nor does the stock price reflect
14 the application of any one single method by the price-setting investor.
15 There is no monopoly as to which method is used by investors. In the
16 absence of any hard evidence as to which method outdoes the other, all
17 relevant evidence should be used and weighted equally, in order to
18 minimize judgmental error, measurement error, and conceptual
19 infirmities.⁵⁶

20 Thus, while the DCF model is a recognized approach to estimating the ROE, it is
21 not without shortcomings and does not otherwise eliminate the need to ensure that the "end
22 result" is fair. The Indiana Utility Regulatory Commission has recognized this principle:

23 There are three principal reasons for our unwillingness to place a great deal
24 of weight on the results of any DCF analysis. One is . . . the failure of the
25 DCF model to conform to reality. The second is the undeniable fact that
26 rarely if ever do two expert witnesses agree on the terms of a DCF equation
27 for the same utility – for example, as we shall see in more detail below,
28 projections of future dividend cash flow and anticipated price appreciation
29 of the stock can vary widely. And, the third reason is that the unadjusted
30 DCF result is almost always well below what any informed financial
31 analysis would regard as defensible, and therefore require an upward
32 adjustment based largely on the expert witness's judgment. In these

⁵⁴ David C. Parcell, *The Cost of Capital – A Practitioner's Guide*, Society of Utility and Regulatory Financial Analysts (2010) at 84

⁵⁵ *Id.*

⁵⁶ Roger A. Morin, *New Regulatory Finance*, Pub Util Reports, Inc. (2006) at 429

1 circumstances, we find it difficult to regard the results of a DCF
2 computation as any more than suggestive.⁵⁷

3 More recently, the FERC recognized the potential for any application of the DCF
4 model to produce unreliable results.⁵⁸

5 As this discussion indicates, consideration of the results of alternative approaches
6 reduces the potential for error associated with any single quantitative method. Just as
7 investors inform their decisions through the use of a variety of methodologies, my
8 evaluation of a fair ROE for the Company considered the results of multiple financial
9 models.

10 **Q. DOES THE FACT THAT DP&L IS A SUBSIDIARY OF AES IN ANY WAY ALTER**
11 **THESE FUNDAMENTAL STANDARDS UNDERLYING A FAIR AND**
12 **REASONABLE ROE?**

13 A. No. While the Company has no publicly traded common stock and AES is DP&L's
14 ultimate parent company, this does not change the standards governing the determination
15 of a fair ROE for the Company. Ultimately, the common equity that is required to support
16 the utility operations of DP&L must be raised in the capital markets, where investors
17 consider the Company's ability to offer a rate of return that is competitive with other risk-
18 comparable alternatives. DP&L must compete with other investment opportunities and
19 unless there is a reasonable expectation that investors will have the opportunity to earn
20 returns commensurate with the underlying risks, capital will be allocated elsewhere, the
21 Company's financial integrity will be weakened, and investors will demand an even higher
22 rate of return. DP&L's ability to offer a reasonable return on investment is a necessary
23 ingredient in ensuring that customers continue to enjoy economical rates and reliable
24 service.

⁵⁷ *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990)

⁵⁸ *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014)

Q. WHAT DOES THE ABOVE DISCUSSION IMPLY WITH RESPECT TO ESTIMATING THE COST OF COMMON EQUITY FOR A UTILITY?

A. Although the cost of common equity cannot be observed directly, it is a function of the returns available from other investment alternatives and the risks to which the equity capital is exposed. Because it is not readily observable, the cost of common equity for a particular utility must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the company specifically, and employing various quantitative methods that focus on investors' required rates of return. These various quantitative methods typically attempt to infer investors' required rates of return from stock prices, interest rates, or other capital market data.

B. Discounted Cash Flow Analyses

Q. HOW IS THE DCF MODEL USED TO ESTIMATE THE COST OF COMMON EQUITY?

A. DCF models are based on the assumption that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return. Rather than developing annual estimates of cash flows into perpetuity, the DCF model can be simplified to a "constant growth" form:

$$P_0 = \frac{D_1}{k_e - g}$$

where: P_0 = Current price per share;
 D_1 = Expected dividend per share in the coming year;
 k_e = Cost of equity; and,
 g = Investors' long-term growth expectations.

1 The cost of common equity (k_e) can be isolated by rearranging terms within the
2 equation:

$$k_e = \frac{D_1}{P_0} + g$$

3
4 This constant growth form of the DCF model recognizes that the rate of return to
5 stockholders consists of two parts: 1) dividend yield (D_1/P_0); and 2) growth (g). In other
6 words, investors expect to receive a portion of their total return in the form of current
7 dividends and the remainder through price appreciation.

8 **Q. WHAT STEPS ARE REQUIRED TO APPLY THE CONSTANT GROWTH DCF**
9 **MODEL?**

10 A. The first step in implementing the constant growth DCF model is to determine the expected
11 dividend yield (D_1/P_0) for the firm in question. This is usually calculated based on an
12 estimate of dividends to be paid in the coming year divided by the current price of the
13 stock. The second, and more controversial, step is to estimate investors' long-term growth
14 expectations (g) for the firm. The final step is to sum the firm's dividend yield and
15 estimated growth rate to arrive at an estimate of its cost of common equity.

16 **Q. HOW DO YOU DETERMINE THE DIVIDEND YIELD FOR THE ELECTRIC**
17 **GROUP?**

18 A. Estimates of dividends to be paid by each of these utilities over the next twelve months,
19 obtained from Value Line, serve as D_1 . This annual dividend is then divided by a 30-day
20 average stock price as of August 12, 2020 for each utility to arrive at the expected dividend
21 yield. The expected dividends, stock prices, and resulting dividend yields for the firms in
22 the Electric Group are presented on page 1 of Exhibit AMM-4 (Corrected). As shown
23 there, dividend yields for the firms in the Electric Group range from 2.6% to 5.1%, and
24 average 3.9%.

1 Q. WHAT IS THE NEXT STEP IN APPLYING THE CONSTANT GROWTH DCF
2 MODEL?

3 A. The next step is to evaluate growth expectations, or "g," for the firm in question. In
4 constant growth DCF theory, earnings, dividends, book value, and market price are all
5 assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. But
6 implementation of the DCF model is more than just a theoretical exercise; it is an attempt
7 to replicate the mechanism investors used to arrive at observable stock prices. A wide
8 variety of techniques can be used to derive growth rates, but the only "g" that matters in
9 applying the DCF model is the value that investors expect.

10 Q. WHAT ARE INVESTORS MOST LIKELY TO CONSIDER IN DEVELOPING
11 THEIR GROWTH EXPECTATIONS?

12 A. Implementation of the DCF model is solely concerned with replicating the forward-looking
13 evaluation of real-world investors. In the case of utilities, dividend growth rates are not
14 likely to provide a meaningful guide to investors' current growth expectations. This is
15 because utilities have significantly altered their dividend policies in response to more
16 accentuated business risks and capital requirements in the industry, with the payout ratio
17 for electric utilities falling significantly from historical levels. As a result, dividend growth
18 in the utility industry has lagged growth in earnings as utilities conserve financial
19 resources.

20 A measure that plays a pivotal role in determining investors' long-term growth
21 expectations are future trends in earnings per share ("EPS"), which provide the source for
22 future dividends and ultimately support share prices. The importance of earnings in
23 evaluating investors' expectations and requirements is well accepted in the investment
24 community, and surveys of analytical techniques relied on by professional analysts indicate
25 that growth in earnings is far more influential than trends in dividends per share ("DPS").

1 The availability of projected EPS growth rates also is key to investors relying on
2 this measure as compared to future trends in DPS. Apart from Value Line, investment
3 advisory services do not generally publish comprehensive DPS growth projections, and
4 this scarcity of dividend growth rates relative to the abundance of earnings forecasts attests
5 to their relative influence. The fact that securities analysts focus on EPS growth, and that
6 DPS growth rates are not routinely published, indicates that projected EPS growth rates are
7 likely to provide a superior indicator of the future long-term growth expected by investors.

8 **Q. DO THE GROWTH RATE PROJECTIONS OF SECURITY ANALYSTS**
9 **CONSIDER HISTORICAL TRENDS?**

10 A. Yes. Professional security analysts study historical trends extensively in developing their
11 projections of future earnings. Hence, to the extent there is any useful information in
12 historical patterns, that information is incorporated into analysts' growth forecasts.

13 **Q. DID PROFESSOR MYRON J. GORDON, A PIONEER OF THE DCF APPROACH,**
14 **RECOGNIZE THE PIVOTAL ROLE THAT EARNINGS PLAY IN FORMING**
15 **INVESTORS' EXPECTATIONS?**

16 A. Yes. Dr. Gordon specifically recognized that "it is the growth that investors expect that
17 should be used" in applying the DCF model and he concluded:

18 A number of considerations suggest that investors may, in fact, use earnings
19 growth as a measure of expected future growth.⁵⁹

20 **Q. ARE ANALYSTS' ASSESSMENTS OF GROWTH RATES APPROPRIATE FOR**
21 **ESTIMATING INVESTORS' REQUIRED RETURN USING THE DCF MODEL?**

22 A. Yes. In applying the DCF model to estimate the cost of common equity, the only relevant
23 growth rate is the forward-looking expectations of investors that are captured in current

⁵⁹ Myron J. Gordon, *The Cost of Capital to a Public Utility*, MSU Pub Util Studies (1974) at 89

1 stock prices. Investors, just like securities analysts and others in the investment
2 community, do not know how the future will actually turn out. They can only make
3 investment decisions based on their best estimate of what the future holds in the way of
4 long-term growth for a particular stock, and securities prices are constantly adjusting to
5 reflect their assessment of available information.

6 Any claims that analysts' estimates are not relied upon by investors are illogical
7 given the reality of a competitive market for investment advice. If financial analysts'
8 forecasts do not add value to investors' decision making, then it is irrational for investors
9 to pay for these estimates. Similarly, those financial analysts who fail to provide reliable
10 forecasts will lose out in competitive markets relative to those analysts whose forecasts
11 investors find more credible. The reality that analyst estimates are routinely referenced in
12 the financial media and in investment advisory publications, as well as the continued
13 success of services such as Thomson Reuters and Value Line, implies that investors use
14 them as a basis for their expectations.

15 While the projections of securities analysts may be proven optimistic or pessimistic
16 in hindsight, this is irrelevant in assessing the expected growth that investors have
17 incorporated into current stock prices, and any bias in analysts' forecasts – whether
18 pessimistic or optimistic – is irrelevant if investors share analysts' views. Earnings growth
19 projections of security analysts provide the most frequently referenced guide to investors'
20 views and are widely accepted in applying the DCF model. As explained in *New*
21 *Regulatory Finance*:

22 Because of the dominance of institutional investors and their influence on
23 individual investors, analysts' forecasts of long-run growth rates provide a
24 sound basis for estimating required returns. Financial analysts exert a
25 strong influence on the expectations of many investors who do not possess
26 the resources to make their own forecasts, that is, they are a cause of *g*
27 [growth]. The accuracy of these forecasts in the sense of whether they turn

1 out to be correct is not an issue here, as long as they reflect widely held
2 expectations.⁶⁰

3 **Q. HAVE REGULATORS ALSO RECOGNIZED THAT ANALYSTS' GROWTH**
4 **RATE ESTIMATES ARE AN IMPORTANT AND MEANINGFUL GUIDE TO**
5 **INVESTORS' EXPECTATIONS?**

6 **A.** Yes. The Kentucky Public Service Commission has indicated its preference for relying on
7 analysts' projections in establishing investors' expectations:

8 KU's argument concerning the appropriateness of using investors'
9 expectations in performing a DCF analysis is more persuasive than the AG's
10 argument that analysts' projections should be rejected in favor of historical
11 results. The Commission agrees that analysts' projections of growth will be
12 relatively more compelling in forming investors' forward-looking
13 expectations than relying on historical performance, especially given the
14 current state of the economy.⁶¹

15 Similarly, the FERC has expressed a clear preference for projected EPS growth
16 rates in applying the DCF model to estimate the cost of equity for both electric and natural
17 gas pipeline utilities:

18 Opinion No. 414-A held that the IBES five-year growth forecasts for each
19 company in the proxy group are the best available evidence of the short-
20 term growth rates expected by the investment community. It cited evidence
21 that (1) those forecasts are provided to IBES by professional security
22 analysts, (2) IBES reports the forecast for each firm as a service to investors,
23 and (3) the IBES reports are well known in the investment community and
24 used by investors. The Commission has also rejected the suggestion that the
25 IBES analysts are biased and stated that "in fact the analysts have a
26 significant incentive to make their analyses as accurate as possible to meet
27 the needs of their clients since those investors will not utilize brokerage
28 firms whose analysts repeatedly overstate the growth potential of
29 companies."⁶²

30 The Public Utility Regulatory Authority of Connecticut has also noted that "there
31 is not growth in DPS without growth in EPS," and concluded that securities analysts'

⁶⁰ Roger A. Morin, *New Regulatory Finance, Pub. Util. Reports, Inc.* (2006) at 298 (emphasis added)

⁶¹ *Kentucky Utilities Co.*, Case No. 2009-00548 (Ky PSC Jul 30, 2010) at 30-31

⁶² *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 at P 121 (2009) (footnote omitted)

growth projections have a greater influence over investors' expectations and stock prices.⁶³

In addition, the Regulatory Commission of Alaska ("RCA") has previously determined that analysts' EPS growth rates provide a superior basis on which to estimate investors' expectations:

We also find persuasive the testimony . . . that projected EPS returns are more indicative of investor expectations of dividend growth than historical growth data because persons making the forecasts already consider the historical numbers in their analyses.⁶⁴

The RCA has concluded that arguments against exclusive reliance on analysts' EPS growth rates to apply the DCF model "are not convincing."⁶⁵

Q. WHAT ARE SECURITY ANALYSTS CURRENTLY PROJECTING IN THE WAY OF GROWTH FOR THE FIRMS IN THE ELECTRIC GROUP?

A. The earnings growth projections for each of the firms in the Electric Group reported by Value Line, IBES,⁶⁶ and Zacks Investment Research ("Zacks") are displayed on page 2 of Exhibit AMM-4 (Corrected).

Q. HOW ELSE ARE INVESTORS' EXPECTATIONS OF FUTURE GROWTH PROSPECTS OFTEN ESTIMATED WHEN APPLYING THE CONSTANT GROWTH DCF MODEL?

A. In constant growth theory, growth in book equity will be equal to the product of the earnings retention ratio (one minus the dividend payout ratio) and the earned rate of return on book equity. Furthermore, if the earned rate of return and the payout ratio are constant over time, growth in earnings and dividends will be equal to growth in book value. Despite

⁶³ Public Utility Regulatory Authority of Connecticut, *Decision*, Docket No. 13-02-20 (Sept. 24, 2013).

⁶⁴ Regulatory Commission of Alaska, U-07-76(8) at 65, n. 258.

⁶⁵ Regulatory Commission of Alaska, U-08-157(10) at 36.

⁶⁶ Formerly I/B/E/S International, Inc., IBES growth rates are now compiled and published by Refinitiv and made available at, for instance, <https://finance.yahoo.com>.

the fact that these conditions are never met in practice, this "sustainable growth" approach may provide a rough guide for evaluating a firm's growth prospects and is frequently proposed in regulatory proceedings.

The sustainable growth rate is calculated by the formula, $g = br + sv$, where "b" is the expected retention ratio, "r" is the expected earned return on equity, "s" is the percent of common equity expected to be issued annually as new common stock, and "v" is the equity accretion rate. Under DCF theory, the "sv" factor is a component of the growth rate designed to capture the impact of issuing new common stock at a price above, or below, book value. The sustainable, "br+sv" growth rates for each firm in the Electric Group are summarized on page 2 of Exhibit AMM-4 (Corrected), with the underlying details being presented in Exhibit AMM-5.⁶⁷

Q. ARE THERE SIGNIFICANT SHORTCOMINGS ASSOCIATED WITH THE "BR+SV" GROWTH RATE?

A. Yes. I do not give it much weight for two reasons. First, in order to calculate the sustainable growth rate, it is necessary to develop estimates of investors' expectations for four separate variables; namely, "b", "r", "s", and "v." Given the inherent difficulty in forecasting each parameter and the difficulty of estimating the expectations of investors, the potential for measurement error is significantly increased when using four variables, as opposed to referencing a direct projection for EPS growth. Second, empirical research in the finance literature indicates that sustainable growth rates are not as significantly correlated to measures of value, such as share prices, as are analysts' EPS growth forecasts.⁶⁸ The "sustainable growth" approach is included for completeness, but evidence indicates that analysts' forecasts provide a superior and more direct guide to investors' growth

⁶⁷ Because Value Line reports end-of-year book values, an adjustment factor is incorporated to compute an average rate of return over the year, which is consistent with the theory underlying this approach

⁶⁸ Roger A. Morin, *New Regulatory Finance*, Pub Util Reports, Inc (2006) at 307

1 expectations. Accordingly, I give less weight to cost of equity estimates based on br+sv
2 growth rates in evaluating the results of the DCF model.

3 **Q. WHAT COST OF COMMON EQUITY ESTIMATES ARE IMPLIED FOR THE**
4 **ELECTRIC GROUP USING THE DCF MODEL?**

5 A. After combining the dividend yields and respective growth projections for each utility, the
6 resulting cost of common equity estimates are shown on page 3 of Exhibit AMM-4
7 (Corrected).

8 **Q. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL,**
9 **IS IT APPROPRIATE TO ELIMINATE ILLOGICAL ESTIMATES AT THE**
10 **EXTREME LOW OR HIGH END OF THE RANGE?**

11 A. Yes. In applying quantitative methods to estimate the cost of equity, it is essential that the
12 resulting values pass fundamental tests of reasonableness and economic logic.
13 Accordingly, DCF estimates that are implausibly low or high should be eliminated when
14 evaluating the results of this method.

15 **Q. HOW DO YOU EVALUATE DCF ESTIMATES AT THE LOW END OF THE**
16 **RANGE?**

17 A. I base my evaluation of DCF estimates at the low end of the range on the fundamental risk-
18 return tradeoff, which holds that investors will take on more risk only if they expect to earn
19 a higher rate of return to compensate them for the greater uncertainty. Because common
20 stocks lack the protections associated with an investment in long-term bonds, a utility's
21 common stock imposes far greater risks on investors. As a result, the rate of return that
22 investors require from a utility's common stock is considerably higher than the yield offered
23 by senior, long-term debt. Consistent with this principle, DCF results that are not
24 sufficiently higher than the yield available on less risky utility bonds must be eliminated.

1 Q. HAVE SIMILAR TESTS BEEN APPLIED BY REGULATORS?

2 A. Yes. The FERC has noted that adjustments are justified where applications of the DCF
3 approach produce illogical results. The FERC evaluates DCF results against observable
4 yields on long-term public utility debt and has recognized that it is appropriate to eliminate
5 estimates that do not sufficiently exceed this threshold.⁶⁹ The FERC affirmed that:

6 The purpose of the low-end outlier test is to exclude from the proxy group
7 those companies whose ROE estimates are below the average bond yield or
8 are above the average bond yield but are sufficiently low that an investor
9 would consider the stock to yield essentially the same return as debt. In
10 public utility ROE cases, the Commission has used 100 basis points above
11 the cost of debt as an approximation of this threshold, but has also
12 considered the distribution of proxy group companies to inform its decision
13 on which companies are outliers. As the Presiding Judge explained, this is
14 a flexible test.⁷⁰

15 More recently, FERC has established a new test which is based on adding 20 percent of
16 the CAPM market risk premium to the current triple-B bond yield.⁷¹

17 Q. WHAT INTEREST RATE BENCHMARK DO YOU CONSIDER IN EVALUATING
18 THE DCF RESULTS FOR DP&L?

19 A. Utility bonds rated "Baa" represent the lowest ratings grade for which Moody's publishes
20 an index of average yields, and the closest available approximation for the risks of common
21 stock, which are significantly greater than those of long-term debt. Monthly yields for Baa
22 utility bonds reported by Moody's averaged 3.63% during the six-months ending July 2020.
23 As documented earlier, current forecasts anticipate higher long-term rates over the near-

⁶⁹ See, e.g., *Southern California Edison Co.*, 131 FERC ¶ 61,020 at P 55 (2010) ("SoCal Edison")

⁷⁰ *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 122 (2014)

⁷¹ See, e.g., *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-A, 171 FERC ¶ 61,154 at P 161 (2020). While I do not agree with FERC's reference to 20% of the CAPM market risk premium as a basis for establishing the low-end threshold, FERC's methodology correctly recognizes that risk premiums widen as bond yields fall.

term. As shown in Table AMM-3 below, forecasts of IHS Markit and the EIA imply an average Baa bond yield of approximately 4.8% over the period 2021-2025:

**TABLE AMM-3
IMPLIED BAA UTILITY BOND YIELD**

	Baa Yield 2021-25
Projected Aa Utility Yield	
IHS Global Insight (a)	3.65%
EIA (b)	4.60%
Average	4.12%
Current Baa - AA Yield Spread (c)	0.72%
Implied Baa Utility Yield	4.84%

Q. WHAT ELSE SHOULD BE CONSIDERED IN EVALUATING DCF ESTIMATES AT THE LOW END OF THE RANGE?

A. While a 100 basis point spread over public utility bond yields is a starting place in evaluating low-end values, reference to a static test ignores the implications of the inverse relationship between equity risk premiums and bond yields. As discussed earlier, the premium that investors demand to bear the higher risks of common stock is not constant. As demonstrated empirically in the application of the risk premium method,⁷² equity risk premiums expand when interest rates fall, and vice versa.

For example, based on a review of its precedent for evaluating low-end values, the FERC established a 100 basis point risk premium over Moody's bond yield averages as a threshold to eliminate DCF results in *SoCal Edison*, citing prior decisions in *Atlantic Path 15*,⁷³ *Startrans*,⁷⁴ and *Pioneer*⁷⁵ in support of this policy.⁷⁶ Because bond yields declined significantly between the time of those findings and the study period in this case, the

⁷² Exhibit AMM-8, page 4

⁷³ *Atl. Path 15, LLC*, 122 FERC ¶ 61,135 (2008) ("*Atlantic Path 15*")

⁷⁴ *Startrans IO, LLC*, 122 FERC ¶ 61,306 (2008) ("*Startrans*")

⁷⁵ *Pioneer Transmission, LLC*, 126 FERC ¶ 61,281 (2009) ("*Pioneer*")

⁷⁶ *SoCal Edison* at P 54

1 inverse relationship implies a significant increase in the equity risk premium that investors
2 require to accept the higher uncertainties associated with an investment in utility common
3 stocks versus bonds. As shown on page 4 of Exhibit AMM-4 (Corrected), recognizing the
4 inverse relationship between equity risk premiums and bond yields would indicate a current
5 low-end threshold in the range of approximately 6.0% to 6.6%. Meanwhile, FERC's more
6 recent methodology based on the CAPM market risk premium indicates a low-end
7 threshold of 5.6%. The impact of widening equity risk premiums should be considered in
8 evaluating low-end cost of equity estimates.

9 **Q. WHAT DO YOU CONCLUDE REGARDING THE REASONABLENESS OF DCF**
10 **VALUES AT THE LOW END OF THE RANGE OF RESULTS?**

11 A. As highlighted on page 3 of Exhibit AMM-4 (Corrected), after considering this test and the
12 distribution of individual estimates, I eliminate low-end DCF estimates ranging from 0.6%
13 to 6.3%. Based on my professional experience and the risk-return tradeoff principle that is
14 fundamental to finance, it is inconceivable that investors are not requiring a substantially
15 higher rate of return for holding common stock. As a result, consistent with the threshold
16 established by utility bond yields, the values below the threshold provide little guidance as
17 to the returns investors require from utility common stocks and should be excluded.

18 **Q. DO YOU ALSO RECOMMEND EXCLUDING ESTIMATES AT THE HIGH END**
19 **OF THE RANGE OF DCF RESULTS?**

20 A. While I typically recommend the exclusion of high-end estimates that are clearly
21 implausible, in this case, no such values exist. The upper end of the DCF range for the
22 Electric Group is set by a cost of equity estimate of 13.6%. While a 13.6% cost of equity
23 estimate may exceed the majority of the remaining values, low-end DCF estimates in the
24 6% and 7% range are assuredly far below investors' required rate of return. Taken together
25 and considered along with the balance of the results, the remaining values provide a

reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

Q. WHAT COST OF COMMON EQUITY ESTIMATES ARE IMPLIED BY YOUR DCF RESULTS FOR THE ELECTRIC GROUP?

A. As shown on page 3 of Exhibit AMM-4 (Corrected) and summarized in Table AMM-4 below, after eliminating illogical values, application of the constant growth DCF model results in the following cost of equity estimates:

**TABLE AMM-4
DCF RESULTS – ELECTRIC GROUP**

<u>Growth Rate</u>	<u>Average</u>	<u>Midpoint</u>
Value Line	8.9%	10.0%
IBES	9.6%	10.2%
Zacks	9.0%	10.0%
br + sv	8.7%	10.1%

C. Capital Asset Pricing Model

Q. PLEASE DESCRIBE THE CAPM.

A. The CAPM is a theory of market equilibrium that measures risk using the beta coefficient. Assuming investors are fully diversified, the relevant risk of an individual asset (e.g., common stock) is its volatility relative to the market as a whole, with beta reflecting the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. The CAPM is mathematically expressed as:

1
$$R_j = R_f + \beta_j(R_m - R_f)$$

2 where: R_j = required rate of return for stock j ;
3 R_f = risk-free rate;
4 R_m = expected return on the market portfolio; and,
5 β_j = beta, or systematic risk, for stock j .

6 Under the CAPM formula above, a stock's required return is a function of the risk-
7 free rate (R_f), plus a risk premium that is scaled to reflect the relative volatility of a firm's
8 stock price, as measured by beta (β). Like the DCF model, the CAPM is an *ex-ante*, or
9 forward-looking model based on expectations of the future. As a result, in order to produce
10 a meaningful estimate of investors' required rate of return, the CAPM must be applied using
11 estimates that reflect the expectations of actual investors in the market, not with backward-
12 looking, historical data.

13 **Q. HOW DO YOU APPLY THE CAPM TO ESTIMATE THE COST OF COMMON**
14 **EQUITY?**

15 A. Application of the CAPM to the Electric Group based on a forward-looking estimate for
16 investors' required rate of return from common stocks is presented in Exhibit AMM-6
17 (Corrected). In order to capture the expectations of today's investors in current capital
18 markets, the expected market rate of return is estimated by conducting a DCF analysis on
19 the dividend paying firms in the S&P 500.

20 I obtain the dividend yield for each company from Value Line. The growth rate is
21 equal to the average of the EPS growth projections for each firm published by IBES, Value
22 Line, and Zacks. In order to address potential concerns regarding the veracity and accuracy
23 of the growth estimates, I removed negative values and all estimates greater than 20%.
24 Each company's dividend yield and growth rate are then weighted by the company's
25 proportionate share of total market value.

1 Based on the weighted average of the projections for the individual firms, these
2 estimates imply an average growth rate over the next five years of 8.9%. Combining this
3 average growth rate with a year-ahead dividend yield of 2.5% results in a current cost of
4 common equity estimate for the market as a whole (R_m) of 11.4%. Subtracting a 1.5% risk-
5 free rate based on the average yield on 30-year Treasury bonds for the six-months ending
6 July 2020 produces a market equity risk premium of 9.9%.

7 **Q. WHAT IS THE SOURCE OF THE BETA VALUES YOU USED TO APPLY THE**
8 **CAPM?**

9 A. I rely on the beta values reported by Value Line, which in my experience is the most widely
10 referenced source for beta in regulatory proceedings. As noted in *New Regulatory Finance*:

11 Value Line is the largest and most widely circulated independent
12 investment advisory service, and influences the expectations of a large
13 number of institutional and individual investors. ... Value Line betas are
14 computed on a theoretically sound basis using a broadly based market
15 index, and they are adjusted for the regression tendency of betas to
16 converge to 1.00.⁷⁷

17 **Q. WHAT ELSE SHOULD BE CONSIDERED IN APPLYING THE CAPM?**

18 A. Financial research indicates that the CAPM does not fully account for observed differences
19 in rates of return attributable to firm size. Accordingly, a modification is required to
20 account for this size effect. As explained by Morningstar:

21 One of the most remarkable discoveries of modern finance is that of a
22 relationship between company size and return. ... The relationship
23 between company size and return cuts across the entire size spectrum; it is
24 not restricted to the smallest stocks. ... This size-rated phenomenon has
25 prompted a revision to the CAPM, which includes a size premium.⁷⁸

26 According to the CAPM, the expected return on a security should consist of the
27 riskless rate, plus a premium to compensate for the systematic risk of the particular

⁷⁷ Roger A. Morin, *New Regulatory Finance*, Pub Util Reports, Inc. (2006) at 71

⁷⁸ Morningstar, *Ibbotson S&P 2015 Classic Yearbook* at pp 99, 108

1 security. The degree of systematic risk is represented by the beta coefficient. The need for
2 the size adjustment arises because differences in investors' required rates of return that are
3 related to firm size are not fully captured by beta. To account for this, researchers have
4 developed size premiums that need to be added to the theoretical CAPM cost of equity
5 estimates to account for the level of a firm's market capitalization in determining the CAPM
6 cost of equity.⁷⁹ Accordingly, my CAPM analyses also incorporates an adjustment to
7 recognize the impact of size distinctions, as measured by the average market capitalization
8 for the Electric Group.

9 **Q. ARE YOU RECOMMENDING THAT THE COMMISSION AWARD A PREMIUM**
10 **TO THE ROE BECAUSE OF DP&L'S RELATIVE SIZE?**

11 A. No. I am not proposing to apply a general size risk premium in evaluating a fair and
12 reasonable ROE for the Company and my recommendation does not include any
13 adjustment related to the relative size of DP&L. Rather, the size adjustment is specific to
14 the CAPM and merely corrects for an observed inability of the beta measure to fully reflect
15 the risks perceived by investors for the firms in the Electric Group. As the FERC has
16 recognized, "[t]his type of size adjustment is a generally accepted approach to CAPM
17 analyses."⁸⁰

⁷⁹ Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, *Stocks, Bonds, Bills and Inflation*, these size premia are now developed by Duff & Phelps and presented in its *Valuation Handbook – Guide to Cost of Capital*

⁸⁰ Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015)

1 Q. WHAT IS THE IMPLIED ROE FOR THE ELECTRIC GROUP USING THE CAPM
2 APPROACH?

3 A. As shown on page 1 of Exhibit AMM-6 (Corrected), after adjusting for the impact of firm
4 size the CAPM approach implies an average and midpoint cost of equity estimates of
5 10.8% and 10.9%, respectively, for the Electric Group.

6 Q. DO YOU ALSO APPLY THE CAPM USING FORECASTED BOND YIELDS?

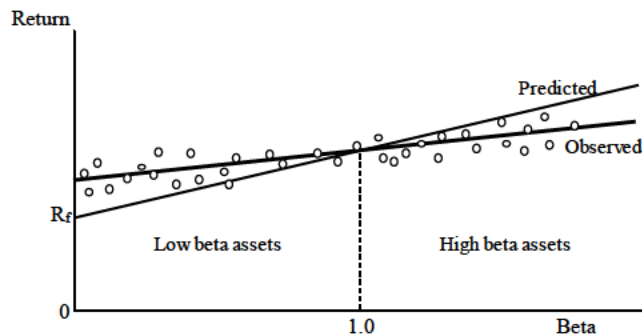
7 A. Yes. As discussed earlier, there is general consensus that interest rates will increase over
8 the period when the rates established in this proceeding will be in effect. Accordingly, in
9 addition to the use of current bond yields, I also apply the CAPM based on the forecasted
10 long-term Treasury bond yields developed based on projections published by Value Line,
11 IHS Global Insight and Blue Chip. As shown on page 2 of Exhibit AMM-6 (Corrected),
12 incorporating a forecasted Treasury bond yield for 2021-2025 implies an average cost of
13 equity estimate of 10.9% for the Electric Group after adjusting for the impact of relative
14 size, with a midpoint of 11.0%.

D. Empirical Capital Asset Pricing Model

15 Q. HOW DOES THE ECAPM APPROACH DIFFER FROM TRADITIONAL
16 APPLICATIONS OF THE CAPM?

17 A. Empirical tests of the CAPM have shown that low-beta securities earn returns somewhat
18 higher than the CAPM would predict, and high-beta securities earn less than predicted. In
19 other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to
20 beta, with low-beta stocks tending to have higher returns and high-beta stocks tending to
21 have lower returns than predicted by the CAPM. This is illustrated graphically in the figure
22 below:

FIGURE AMM-3
CAPM – PREDICTED VS. OBSERVED RETURNS



Because the betas of utility stocks, including those in the Electric Group, are generally less than 1.0, this implies that cost of equity estimates based on the traditional CAPM would understate the cost of equity. This empirical finding is widely reported in the finance literature, as summarized in *New Regulatory Finance*:

As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical relationships.⁸¹

As discussed in *New Regulatory Finance*,⁸² based on a review of the empirical evidence, the expected return on a security is related to its risk by the ECAPM, which is represented by the following formula:

$$R_j = R_f + 0.25(R_m - R_f) + 0.75[\beta_j(R_m - R_f)]$$

Like the CAPM formula presented earlier, the ECAPM represents a stock's required return as a function of the risk-free rate (R_f), plus a risk premium. In the formula above,

⁸¹ Roger A. Morin, *New Regulatory Finance*, Pub Util Reports, Inc. (2006) at 189

⁸² *Id.* at 190

1 this risk premium is composed of two parts: (1) the market risk premium ($R_m - R_f$) weighted
2 by a factor of 25%, and (2) a company-specific risk premium based on the stocks relative
3 volatility $[(\beta)(R_m - R_f)]$ weighted by 75%. This ECAPM equation, and its associated
4 weighting factors, recognizes the observed relationship between standard CAPM estimates
5 and the cost of capital documented in the financial research, and corrects for the understated
6 returns that would otherwise be produced for low beta stocks.

7 **Q. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF VALUE LINE**
8 **BETAS?**

9 A. Yes. Value Line beta values are adjusted for the observed tendency of beta to converge
10 toward the mean value of 1.00 over time.⁸³ The purpose of this adjustment is to refine beta
11 values determined using historical data to better match forward-looking estimates of beta,
12 which are the relevant parameter in applying the CAPM or ECAPM models. Meanwhile,
13 the ECAPM does not involve any adjustment to beta whatsoever. Rather, it represents a
14 formal recognition of findings in the financial literature that the observed risk-return
15 tradeoff illustrated in Figure AMM-3 is flatter than predicted by the CAPM. In other
16 words, even if a firm's beta value is estimated with perfect precision, the CAPM would still
17 understate the return for low-beta stocks and overstate the return for high-beta stocks. The
18 ECAPM and the use of adjusted betas represent two separate and distinct issues in
19 estimating returns.

20 **Q. HAVE OTHER REGULATORS RELIED ON THE ECAPM?**

21 A. Yes. The ECAPM approach has been relied on by the Staff of the Maryland Public Service
22 Commission ("MDPSC"). For example, MDPSC Staff Witness Julie McKenna noted that
23 "the ECAPM model adjusts for the tendency of the CAPM model to underestimate returns

⁸³ See, e.g., Marshall E. Blume, *Betas and Their Regression Tendencies*, Journal of Finance, Vol. 30, No. 3 (Jun 1975) at 785-795

1 for low Beta stocks," and concluded that, "I believe under current economic conditions that
2 the ECAPM gives a more realistic measure of the ROE than the CAPM model does."⁸⁴
3 The staff of the Colorado Public Utilities Commission has recognized that, "[t]he ECAPM
4 is an empirical method that attempts to enhance the CAPM analysis by flattening the risk-
5 return relationship,"⁸⁵ and relied on the exact same standard ECAPM equation presented
6 above.⁸⁶ The New York Public Service Commission also routinely incorporates the results
7 of the ECAPM approach—which it refers to as the "zero-beta CAPM"—in determining
8 allowed ROEs.⁸⁷ The Regulatory Commission of Alaska has also relied on the ECAPM,
9 noting that:

10 Tesoro averaged the results it obtained from CAPM and ECAPM while at
11 the same time providing empirical testimony that the ECAPM results are
12 more accurate than [sic] traditional CAPM results. The reasonable investor
13 would be aware of these empirical results. Therefore, we adjust Tesoro's
14 recommendation to reflect only the ECAPM result.⁸⁸

15 The Wyoming Office of Consumer Advocate, an independent division of the
16 Wyoming Public Service Commission, has also relied on this same ECAPM formula in
17 estimating the cost of equity for a utility, as have witnesses for the Office of Arkansas
18 Attorney General.⁸⁹ More recently, the Montana Public Service Commission determined
19 that "[t]he evidence . . . has convinced the Commission that the Empirical Capital Asset
20 Pricing Model ("ECAPM") should be the primary method for estimating . . . the cost of
21 equity" for a utility under its jurisdiction.⁹⁰

⁸⁴ *Direct Testimony and Exhibits of Julie McKenna*, Maryland PSC Case No. 9299 (Oct. 12, 2012) at 9

⁸⁵ Proceeding No. 13AL-0067G, *Answer Testimony and Schedules of Scott England* (July 31, 2013) at 47

⁸⁶ *Id.* at 48

⁸⁷ See, e.g., *Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan*, CASE 17-E-0459 (Jun. 14, 2018) at 38

⁸⁸ Regulatory Commission of Alaska, Order No. P-97-004(151) (Nov. 27, 2002) at 145

⁸⁹ Docket No. 30011-97-GR-17, *Pre-Filed Direct Testimony of Anthony J. Ornelas* (May 1, 2018) at 52-53; Docket No. 17-071-U, *Direct Testimony of Marlon F. Griffing, PH.D.* (May 29, 2018) at 33-35

⁹⁰ Montana Public Service Commission, Docket No. D2017 9 80, Order No. 7575c (Sep. 26, 2018) at P 114

1 Q. WHAT COST OF EQUITY ESTIMATES ARE INDICATED BY THE ECAPM?

2 A. My applications of the ECAPM are based on the same forward-looking market rate of
3 return, risk-free rates, and beta values discussed earlier in connections with the CAPM. As
4 shown on page 1 of Exhibit AMM-7 (Corrected), applying the forward-looking ECAPM
5 approach to the firms in the Electric Group results in an average cost of equity estimate of
6 11.1% after incorporating the size adjustment corresponding to the market capitalization
7 of the individual utilities. The midpoint of the size adjusted ECAPM range is also 11.1%.

8 As shown on page 2 of Exhibit AMM-7 (Corrected), incorporating a forecasted
9 Treasury bond yield for 2021-2025 implies an average and midpoint cost of equity for the
10 Electric Group of 11.2% and 11.1%, after adjusting for the impact of relative size

E. Utility Risk Premium

11 Q. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.

12 A. The risk premium method of estimating investors' required return extends to common
13 stocks the risk-return tradeoff observed with bonds. The cost of equity is estimated by first
14 determining the additional return investors require to forgo the relative safety of bonds and
15 to bear the greater risks associated with common stock, and by then adding this equity risk
16 premium to the current yield on bonds. Like the DCF model, the risk premium method is
17 capital market oriented. However, unlike DCF models, which indirectly impute the cost
18 of equity, risk premium methods directly estimate investors' required rate of return by
19 adding an equity risk premium to observable bond yields.

20 Q. IS THE RISK PREMIUM APPROACH A WIDELY ACCEPTED METHOD FOR
21 ESTIMATING THE COST OF EQUITY?

22 A. Yes. The risk premium approach is based on the fundamental risk-return principle that is
23 central to finance, which holds that investors will require a premium in the form of a higher

1 return in order to assume additional risk. This method is routinely referenced by the
2 investment community and in academia and regulatory proceedings, and provides an
3 important tool in estimating a fair ROE for DP&L.

4 **Q. HOW DO YOU IMPLEMENT THE RISK PREMIUM METHOD?**

5 A. Estimates of equity risk premiums for utilities are based on surveys of previously
6 authorized ROEs. Authorized ROEs presumably reflect regulatory commissions' best
7 estimates of the cost of equity, however determined, at the time they issued their final order.
8 Such ROEs should represent a balanced and impartial outcome that considers the need to
9 maintain a utility's financial integrity and ability to attract capital. Moreover, allowed
10 returns are an important consideration for investors and have the potential to influence
11 other observable investment parameters, including credit ratings and borrowing costs.
12 Thus, when considered in the context of a complete and rigorous analysis, this data
13 provides a logical and frequently referenced basis for estimating equity risk premiums for
14 regulated utilities.

15 **Q. IS IT CIRCULAR TO CONSIDER RISK PREMIUMS BASED ON AUTHORIZED**
16 **RETURNS IN ASSESSING A FAIR ROE FOR DP&L?**

17 A. No. In establishing authorized ROEs, regulators typically consider the results of alternative
18 market-based approaches. Because allowed risk premiums consider objective market data
19 (e.g., stock prices dividends, beta, and interest rates), and are not based strictly on past
20 actions of other regulators, this mitigates concerns over any potential for circularity.

21 **Q. HOW DO YOU CALCULATE THE EQUITY RISK PREMIUMS BASED ON**
22 **ALLOWED ROES?**

23 A. The ROEs authorized for electric utilities by regulatory commissions across the U.S. are
24 compiled by Regulatory Research Associates and published in its Regulatory Focus report.

On page 3 of Exhibit AMM-8, the average yield on public utility bonds is subtracted from the average allowed ROE for electric utilities to calculate equity risk premiums for each year between 1974 and 2019.⁹¹ As shown there, over this period these equity risk premiums for electric utilities average 3.76%, and the yield on public utility bonds average 8.10%.

Q. IS THERE ANY CAPITAL MARKET RELATIONSHIP THAT MUST BE CONSIDERED WHEN IMPLEMENTING THE RISK PREMIUM METHOD?

A. Yes. As discussed earlier, the magnitude of equity risk premiums is not constant and financial research has documented that equity risk premiums tend to move inversely with interest rates.⁹² In other words, when interest rate levels are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums widen. The implication of this inverse relationship is that the cost of equity does not move as much as, or in lockstep with, interest rates. Accordingly, for a 1% increase or decrease in interest rates, the cost of equity may only rise or fall some fraction of 1%. Therefore, when implementing the risk premium method, adjustments may be required to incorporate this inverse relationship if current interest rate levels have diverged from the average interest rate level represented in the data set.

Current bond yields are lower than those prevailing over the risk premium study periods. Given that equity risk premiums move inversely with interest rates, these lower bond yields also imply an increase in the equity risk premium that investors require to accept the higher uncertainties associated with an investment in utility common stocks versus bonds. In other words, higher required equity risk premiums offset the impact of

⁹¹ My analysis encompasses the entire period for which published data is available

⁹² Other regulators have also recognized that the cost of equity does not move in tandem with interest rates. *See, e.g.,* California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan Rider Schedule FRP-7, *Coakley v. Bangor Hydro-Elec. Co.*, 147 FERC ¶ 61,234 at P 147 (2014)

declining interest rates on the ROE. This relationship is illustrated in the figure on page 4 of Exhibit AMM-8.

Q. WHAT COST OF EQUITY IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF ALLOWED ROES?

A. Based on the regression output between the interest rates and equity risk premiums displayed on page 4 of Exhibit AMM-8, the equity risk premium for electric utilities increased (decreased) approximately 42 basis points for each percentage point decrease (increase) in the yield on average public utility bonds. As illustrated on page 1 of Exhibit AMM-8, with an average yield on public utility bonds for the six-months ending July 2020 of 3.23%, this implies a current equity risk premium of 5.81% for electric utilities. Adding this equity risk premium to the average yield on triple-B utility bonds of 3.63% implies a current cost of equity of 9.44%.

Q. WHAT RISK PREMIUM COST OF EQUITY ESTIMATE IS PRODUCED AFTER INCORPORATING FORECASTED BOND YIELDS?

A. As shown on page 2 of Exhibit AMM-8, incorporating a forecasted yield for 2021-2025 and adjusting for changes in interest rates since the study period implies an equity risk premium of 5.43% for electric utilities, which is less than the current equity risk premium. This lower equity risk premium is consistent with the inverse relationship I described above. Adding this equity risk premium to the implied average yield on Baa public utility bonds for 2021-2025 of 4.84% results in an implied cost of equity of 10.27%.

F. Expected Earnings Approach

Q. WHAT OTHER ANALYSES DO YOU CONDUCT TO EVALUATE A FAIR ROE FOR DP&L?

A. I also evaluate the ROE using the expected earnings method. Reference to rates of return available from alternative investments of comparable risk can provide an important benchmark in assessing the return necessary to assure confidence in the financial integrity of a firm and its ability to attract capital. This expected earnings approach is consistent with the economic underpinnings for a fair and reasonable rate of return established by the U.S. Supreme Court in Bluefield and Hope. Moreover, it avoids the complexities and limitations of capital market methods, such as the DCF and CAPM methodologies, and instead focuses on the returns earned on book equity, which are readily available to investors.

Q. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A. The simple, but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. If the utility is unable to offer a return similar to that available from other opportunities of comparable risk, investors will become unwilling to supply the capital on reasonable terms. For existing investors, denying the utility an opportunity to earn what is available from other similar risk alternatives prevents them from earning their opportunity cost of capital. Such an outcome would violate the Hope and Bluefield standards and undermine the utility's access to capital on reasonable terms.

1 Q. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY
2 IMPLEMENTED?

3 A. The traditional comparable earnings test identifies a group of companies that are believed
4 to be comparable in risk to the utility. The actual earnings of those companies on the book
5 value of their investment are then compared to the allowed return of the utility. While the
6 traditional comparable earnings test is implemented using historical data taken from the
7 accounting records, it is also common to use projections of returns on book investment,
8 such as those published by recognized investment advisory publications (e.g., Value Line).
9 Because these returns on book value equity are analogous to the allowed return on a utility's
10 rate base, this measure of opportunity costs results in a direct, "apples to apples"
11 comparison.

12 Moreover, regulators do not set the returns that investors earn in the capital markets,
13 which are a function of dividend payments and fluctuations in common stock prices- both
14 of which are outside their control. Regulators can only establish the allowed ROE, which
15 is applied to the book value of a utility's investment in rate base, as determined from its
16 accounting records. This is directly analogous to the expected earnings approach, which
17 measures the return that investors expect the utility to earn on book value. As a result, the
18 expected earnings approach provides a meaningful guide to ensure that the allowed ROE
19 is similar to what other utilities of comparable risk will earn on invested capital. This
20 expected earnings test does not require theoretical models to indirectly infer investors'
21 perceptions from stock prices or other market data. As long as the proxy companies are
22 similar in risk, their expected earned returns on invested capital provide a direct benchmark
23 for investors' opportunity costs that is independent of fluctuating stock prices, market-to-
24 book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical
25 model of investor behavior.

Q. WHAT ROE IS INDICATED FOR DP&L BASED ON THE EXPECTED EARNINGS APPROACH?

A. For the firms in the Electric Group, the year-end returns on common equity projected by Value Line over its forecast horizon are shown in Exhibit AMM-9. As I explained earlier in my discussion of the $b+sv$ growth rates used in applying the DCF model, Value Line's returns on common equity are calculated using year-end equity balances, which understates the average return earned over the year.⁹³ Accordingly, these year-end values are converted to average returns using the same adjustment factor discussed earlier and developed in Exhibit AMM-5. As shown in Exhibit AMM-9, after excluding illogical values, Value Line's projections for the Electric Group suggest an average ROE of approximately 10.3%, with a midpoint value of 10.8%.

G. Flotation Costs

Q. WHAT OTHER CONSIDERATIONS ARE RELEVANT IN SETTING THE RETURN ON EQUITY FOR A UTILITY?

A. The common equity used to finance the investment in utility assets is provided from either the sale of stock in the capital markets or from retained earnings not paid out as dividends. When equity is raised through the sale of common stock, there are costs associated with "floating" the new equity securities. These flotation costs include services such as legal, accounting, and printing, as well as the fees and discounts paid to compensate brokers for selling the stock to the public. Also, some argue that the "market pressure" from the additional supply of common stock and other market factors may further reduce the amount of funds a utility nets when it issues common equity. While DP&L has no publicly traded stock and does not incur flotation costs directly, equity capital is provided by investors

⁹³ For example, to compute the annual return on a passbook savings account with a beginning balance of \$1,000 and an ending balance of \$5,000, the interest income would be divided by the average balance of \$3,000. Using the \$5,000 balance at the end of the year would understate the actual return.

1 through AES's sale of common shares. Thus, these expenses are also relevant when
2 evaluating the fair and reasonable ROE for a wholly-owned subsidiary, such as the
3 Company.

4 **Q. IS THERE AN ESTABLISHED MECHANISM FOR A UTILITY TO RECOGNIZE**
5 **EQUITY ISSUANCE COSTS?**

6 A. No. While debt flotation costs are recorded on the books of the utility, amortized over the
7 life of the issue, and thus increase the effective cost of debt capital, there is no similar
8 accounting treatment to ensure that equity flotation costs are recorded and ultimately
9 recognized. No rate of return is authorized on flotation costs necessarily incurred to obtain
10 a portion of the equity capital used to finance plant. In other words, equity flotation costs
11 are not included in a utility's rate base because neither that portion of the gross proceeds
12 from the sale of common stock used to pay flotation costs is available to invest in plant and
13 equipment, nor are flotation costs capitalized as an intangible asset. Unless some provision
14 is made to recognize these issuance costs, a utility's revenue requirements will not fully
15 reflect all of the costs incurred for the use of investors' funds. Because there is no
16 accounting convention to accumulate the flotation costs associated with equity issues, they
17 must be accounted for indirectly, with an upward adjustment to the cost of equity being the
18 most appropriate mechanism.

19 **Q. IS THERE ACADEMIC EVIDENCE THAT SUPPORTS A FLOTATION COST**
20 **ADJUSTMENT?**

21 A. The financial literature and evidence in this case provides a sound theoretical and practical
22 basis to include consideration of flotation costs for DP&L. An adjustment for flotation
23 costs associated with past equity issues is appropriate, even when the utility is not
24 contemplating any new sales of common stock. The need for a flotation cost adjustment
25 to compensate for past equity issues has been recognized in the financial literature. In a

Public Utilities Fortnightly article, for example, Brigham, Aberwald, and Gapenski demonstrated that even if no further stock issues are contemplated, a flotation cost adjustment in all future years is required to keep shareholders whole, and that the flotation cost adjustment must consider total equity, including retained earnings.⁹⁴ Similarly, New Regulatory Finance contains the following discussion:

Another controversy is whether the flotation cost allowance should still be applied when the utility is not contemplating an imminent common stock issue. Some argue that flotation costs are real and should be recognized in calculating the fair rate of return on equity, but only at the time when the expenses are incurred. In other words, the flotation cost allowance should not continue indefinitely, but should be made in the year in which the sale of securities occurs, with no need for continuing compensation in future years. This argument implies that the company has already been compensated for these costs and/or the initial contributed capital was obtained freely, devoid of any flotation costs, which is an unlikely assumption, and certainly not applicable to most utilities. ... The flotation cost adjustment cannot be strictly forward-looking unless all past flotation costs associated with past issues have been recovered.⁹⁵

Q. CAN YOU ILLUSTRATE WHY INVESTORS WILL NOT HAVE THE OPPORTUNITY TO EARN THEIR REQUIRED ROE UNLESS A FLOTATION COST ADJUSTMENT IS INCLUDED?

A. Yes. Assume a utility sells \$10 worth of common stock at the beginning of year 1. If the utility incurs flotation costs of \$0.48 (5% of the net proceeds), then only \$9.52 is available to invest in rate base. Assume that common shareholders' required rate of return is 10.5%, the expected dividend in year 1 is \$0.50 (i.e., a dividend yield of 5%), and that growth is expected to be 5.5% annually. As developed in Table AMM-5 below, if the allowed rate of return on common equity is only equal to the utility's 10.5% "bare bones" cost of equity,

⁹⁴ E F Brigham, D A Aberwald, and L C Gapenski, *Common Equity Flotation Costs and Rate Making*, Pub Util Fortnightly (May 2, 1985)

⁹⁵ Roger A Morin, *New Regulatory Finance*, Pub Util Reports, Inc (2006) at 335

common stockholders will not earn their required rate of return on their \$10 investment, since growth will really be only 5.25%, instead of 5.5%:

**TABLE AMM-5
NO FLOTATION COST ADJUSTMENT**

<u>Year</u>	<u>Common Stock</u>	<u>Retained Earnings</u>	<u>Total Equity</u>	<u>Market Price</u>	<u>M/B Ratio</u>	<u>Allowed ROE</u>	<u>EPS</u>	<u>DPS</u>	<u>Payout Ratio</u>
1	\$ 9.52	\$ -	\$ 9.52	\$10.00	1.050	10.50%	\$ 1.00	\$ 0.50	50.0%
2	\$ 9.52	\$ 0.50	\$10.02	\$10.52	1.050	10.50%	\$ 1.05	\$ 0.53	50.0%
3	\$ 9.52	\$ 0.53	<u>\$10.55</u>	<u>\$11.08</u>	1.050	10.50%	<u>\$ 1.11</u>	<u>\$ 0.55</u>	50.0%
Growth			5.25%	5.25%			5.25%	5.25%	

The reason that investors never really earn 10.5% on their investment in the above example is that the \$0.48 in flotation costs initially incurred to raise the common stock is not treated like debt issuance costs (*i.e.*, amortized into interest expense and therefore increasing the embedded cost of debt), nor is it included as an asset in rate base.

Including a flotation cost adjustment allows investors to be fully compensated for the impact of these costs. One commonly referenced method for calculating the flotation cost adjustment is to multiply the dividend yield by a flotation cost percentage. Thus, with a 5% dividend yield and a 5% flotation cost percentage, the flotation cost adjustment in the above example would be approximately 25 basis points. As shown in Table AMM-6 below, by allowing a rate of return on common equity of 10.75% (a 10.5% cost of equity plus a 25 basis point flotation cost adjustment), investors earn their 10.5% required rate of return, since actual growth is now equal to 5.5%:

**TABLE AMM-6
INCLUDING FLOTATION COST ADJUSTMENT**

<u>Year</u>	<u>Common Stock</u>	<u>Retained Earnings</u>	<u>Total Equity</u>	<u>Market Price</u>	<u>M/B Ratio</u>	<u>Allowed ROE</u>	<u>EPS</u>	<u>DPS</u>	<u>Payout Ratio</u>
1	\$ 9.52	\$ -	\$ 9.52	\$10.00	1.050	10.75%	\$ 1.02	\$ 0.50	48.9%
2	\$ 9.52	\$ 0.52	\$10.04	\$10.55	1.050	10.75%	\$ 1.08	\$ 0.53	48.9%
3	\$ 9.52	\$ 0.55	<u>\$10.60</u>	<u>\$11.13</u>	1.050	10.75%	<u>\$ 1.14</u>	<u>\$ 0.56</u>	48.9%
Growth			5.50%	5.50%			5.50%	5.50%	

1 The only way for investors to be fully compensated for issuance costs is to include
2 an ongoing adjustment to account for past flotation costs when setting the return on
3 common equity. This is the case regardless of whether or not the utility is expected to issue
4 additional shares of common stock in the future.

5 **Q. WHAT IS THE MAGNITUDE OF THE ADJUSTMENT TO THE "BARE BONES"**
6 **COST OF EQUITY TO ACCOUNT FOR ISSUANCE COSTS?**

7 A. The most common method used to account for flotation costs in regulatory proceedings is
8 to apply an average flotation-cost percentage to a utility's dividend yield. In Exhibit AMM-
9 10, I present a survey of the most recent open-market common stock issues for each
10 company in Value Line's electric and gas utility industries. For all companies in the electric
11 and gas industries, flotation costs averaged approximately 2.9%. Applying this 2.9%
12 expense percentage to the Electric Group dividend yield of 3.9% produces a flotation cost
13 adjustment on the order of 10 basis points.

14 **Q. HAVE OTHER REGULATORS RECOGNIZED FLOTATION COSTS IN**
15 **EVALUATING A FAIR AND REASONABLE ROE?**

16 A. Yes. For example, in Docket No. UE-991606 the Washington Utilities and Transportation
17 Commission concluded that a flotation cost adjustment of 25 basis points should be
18 included in the allowed return on equity:

19 The Commission also agrees with both Dr. Avera and Dr. Lurito that a 25
20 basis point markup for flotation costs should be made. This amount
21 compensates the Company for costs incurred from past issues of common
22 stock. Flotation costs incurred in connection with a sale of common stock
23 are not included in a utility's rate base because the portion of gross proceeds
24 that is used to pay these costs is not available to invest in plant and
25 equipment.⁹⁶

⁹⁶ *Third Supplemental Order*, WUTC Docket No. UE-991606, *et al.* (September 2000) at 95

1 In Case No. INT-G-16-02 the staff of the Idaho Public Utilities Commission
2 supported the use of the same flotation cost methodology that I recommend above,
3 concluding:

4 [I]s the standard equation for flotation cost adjustments and is referred to as
5 the "conventional" approach. Its use in regulatory proceedings is
6 widespread, and the formula is outlined in several corporate finance
7 textbooks.⁹⁷

8 More recently, the Wyoming Office of Consumer Advocate, an independent
9 division of the Wyoming Public Service Commission, recommended a 10 basis point
10 flotation cost adjustment for a wholly-owned utility that, like DP&L, does not issue
11 common stock directly.⁹⁸ Similarly, the South Dakota Public Utilities Commission has
12 recognized the impact of issuance costs, concluding that, "recovery of reasonable flotation
13 costs is appropriate."⁹⁹ Another example of a regulator that approves common stock
14 issuance costs is the Mississippi Public Service Commission, which routinely includes a
15 flotation cost adjustment in its Rate Stabilization Adjustment Rider formula.¹⁰⁰ The Public
16 Utilities Regulatory Authority of Connecticut,¹⁰¹ the Minnesota Public Utilities
17 Commission,¹⁰² and the Virginia State Corporation Commission¹⁰³ have also recognized
18 that flotation costs are a legitimate expense worthy of consideration in setting a fair and
19 reasonable ROE.

⁹⁷ Case No. INT-G-16-02, *Direct Testimony of Mark Rogers* (Dec. 16, 2016) at 18

⁹⁸ Docket No. 30011-97-GR-17, *Pre-Filed Direct Testimony of Anthony J. Ornelas* (May 1, 2018) at 52-53

⁹⁹ *Northern States Power Co.*, EL11-019, Final Decision and Order at P 22 (2012)

¹⁰⁰ See, e.g., Entergy Mississippi Formula Rate Plan FRP-7,

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiyqcfQuLLtAhXHSSsAKHd4QB7sQFjAAegQIAXAC&url=https%3A%2F%2Fwww.entergy-mississippi.com%2Fuserfiles%2Fcontent%2Fprice%2Ftariffs%2Feml_frp.pdf&usg=AOvVaw0LXIS0Z-AWjUIu3YUiGD1 (last visited Oct. 15, 2020)

¹⁰¹ See, e.g., Docket No. 14-05-06, Decision (Dec. 17, 2014) at 133-134

¹⁰² See, e.g., Docket No. E001/GR-10-276, Findings of Fact, Conclusions, and Order at 9

¹⁰³ Roanoke Gas Company, Case No. PUR-2018-00013, *Final Order*, (Jan. 24, 2020) at 6

VI. NON-UTILITY ROE BENCHMARK

1 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?**

2 A. This section presents the results of my DCF analysis applied to a group of low-risk firms
3 in the competitive sector, which I refer to as the "Non-Utility Group." This analysis is not
4 directly considered in arriving at my recommended ROE range of reasonableness;
5 however, it is my opinion that this is a relevant consideration in evaluating a fair and
6 reasonable ROE for the Company.

7 **Q. DO UTILITIES HAVE TO COMPETE WITH NON-REGULATED FIRMS FOR**
8 **CAPITAL?**

9 A. Yes. The cost of capital is an opportunity cost based on the returns that investors could
10 realize by putting their money in other alternatives. Clearly, the total capital invested in
11 utility stocks is only the tip of the iceberg of total common stock investment, and there are
12 a plethora of other enterprises available to investors beyond those in the utility industry.
13 Utilities must compete for capital, not just against firms in their own industry, but with
14 other investment opportunities of comparable risk. Indeed, modern portfolio theory is built
15 on the assumption that rational investors will hold a diverse portfolio of stocks, not just
16 companies in a single industry.

17 **Q. IS IT CONSISTENT WITH THE *BLUEFIELD* AND *HOPE* CASES TO CONSIDER**
18 **INVESTORS' REQUIRED ROE FOR NON-UTILITY COMPANIES?**

19 A. Yes. The cost of equity capital in the competitive sector of the economy forms the very
20 underpinning for utility ROEs because regulation purports to serve as a substitute for the
21 actions of competitive markets. The Supreme Court has recognized that it is the degree of
22 risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a
23 utility. The Bluefield case refers to "business undertakings attended with comparable risks

1 and uncertainties." It does not restrict consideration to other utilities. Similarly, the Hope
2 case states:

3 By that standard the return to the equity owner should be commensurate
4 with returns on investments in other enterprises having corresponding
5 risks.¹⁰⁴

6 As in the *Bluefield* decision, there is nothing to restrict "other enterprises" solely to
7 the utility industry.

8 **Q. DOES CONSIDERATION OF THE RESULTS FOR THE NON-UTILITY GROUP**
9 **HELP TO IMPROVE THE RELIABILITY OF DCF RESULTS?**

10 A. Yes. The estimates of growth from the DCF model depend on analysts' forecasts. It is
11 possible for utility growth rates to be distorted by short-term trends in the industry, or by
12 the industry falling into favor or disfavor by analysts. The result of such distortions would
13 be to bias the DCF estimates for utilities. Because the Non-Utility Group includes low risk
14 companies from more than one industry, it helps to insulate against any possible distortion
15 that may be present in results for a particular sector.

16 **Q. WHAT CRITERIA DO YOU APPLY TO DEVELOP THE NON-UTILITY GROUP?**

17 A. In order to ensure that my comparable risk proxy group is composed of conservative, low-
18 risk companies that investors would regard as comparable to utilities, I selected those
19 United States companies followed by Value Line that:

- 20 1) Pay common dividends.
- 21 2) Have a Safety Rank of "1" or "2".
- 22 3) Have a Financial Strength Rating of "B++" or greater.
- 23 4) Have a beta of 1.00 or less.
- 24 5) Have investment grade credit ratings from S&P and Moody's.

¹⁰⁴ Federal Power Comm'n v Hope Natural Gas Co 320 U S 391, (1944)

**Q. HOW DO YOU EVALUATE THE RISKS OF THE NON-UTILITY GROUP
RELATIVE TO THE PROXY GROUP OF ELECTRIC UTILITIES?**

A. My evaluation of relative risk considers four objective, published benchmarks that are widely relied on in the investment community. Credit ratings are assigned by independent rating agencies for the purpose of providing investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D (in default). Other symbols (e.g., "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes all of the factors normally considered important in assessing a firm's relative credit standing, corporate credit ratings provide a broad, objective measure of overall investment risk that is readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings are also frequently used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

While credit ratings provide the most widely referenced benchmark for investment risks, other quality rankings published by investment advisory services also provide relative assessments of risks that are considered by investors in forming their expectations for common stocks. Value Line's primary risk indicator is its Safety Rank, which ranges from "1" (Safest) to "5" (Riskiest). This overall risk measure is intended to capture the total risk of a stock, and incorporates elements of stock price stability and financial strength. Given that Value Line is perhaps the most widely available source of investment advisory information, its Safety Rank provides useful guidance regarding the risk perceptions of investors.

The Financial Strength Rating is designed as a guide to overall financial strength and creditworthiness, with the key inputs including financial leverage, business volatility measures, and company size. Value Line's Financial Strength Ratings range from "A++" (strongest) down to "C" (weakest) in nine steps. These objective, published indicators

incorporate consideration of a broad spectrum of risks, including financial and business position, relative size, and exposure to firm-specific factors.

Finally, beta measures a utility's stock price volatility relative to the market as a whole, and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory, and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions.

Q. HOW DO THE OVERALL RISKS OF THIS NON-UTILITY GROUP COMPARE WITH THE ELECTRIC GROUP?

A. Table AMM-7 compares the Non-Utility Group with the Electric Group across these four key risk measures:

**TABLE AMM-7
COMPARISON OF RISK INDICATORS**

Proxy Group	S&P Corporate	Moody's Long-term	Value Line		
	Rating	Rating	Safety Rank	Financial Strength	Beta
Non-Utility Group	A	A2	1	A+	0.83
Electric Group	BBB	Baa2	2	B++	0.88

As shown above, the risk indicators for the Non-Utility Group generally suggest less risk than for the Electric Group.

The companies that make up the Non-Utility Group are representative of the pinnacle of corporate America. These firms, which include household names such as Coca-Cola, Procter & Gamble, and Walmart, have long corporate histories, well-established track records, and exceedingly conservative risk profiles. Many of these companies pay

dividends on par with utilities, with the average dividend yield for the group of 2.4%.¹⁰⁵ Moreover, because of their significance and name recognition, these companies receive intense scrutiny by the investment community, which increases confidence that published growth estimates are representative of the consensus expectations reflected in common stock prices.

Q. WHAT ARE THE RESULTS OF YOUR DCF ANALYSIS FOR THE NON-UTILITY GROUP?

A. I apply the DCF model to the Non-Utility Group using analysts' EPS growth projections, as described earlier for the Electric Group, with the results being presented on page 3 of Exhibit AMM-11 (Corrected). As summarized in Table AMM-8 (Corrected), below, application of the constant growth DCF model results in the following cost of equity estimates:

TABLE AMM-8 (CORRECTED)
DCF RESULTS – NON-UTILITY GROUP

<u>Growth Rate</u>	<u>Average</u>	<u>Midpoint</u>
Value Line	10.4%	10.4%
IBES	9.3%	10.0%
Zacks	9.9%	10.9%

<u>Growth Rate</u>	<u>Average</u>	<u>Midpoint</u>
Value Line	10.4%	10.4%
IBES	9.4%	10.3%
Deleted: Zacks	9.9%	10.9%

As discussed earlier, reference to the Non-Utility Group is consistent with established regulatory principles. Required returns for utilities should be in line with those of non-utility firms of comparable risk operating under the constraints of free competition. Because the actual cost of equity is unobservable, and DCF results inherently incorporate a degree of error, cost of equity estimates for the Non-Utility Group provide an important benchmark in evaluating a fair and reasonable ROE for DP&L.

¹⁰⁵ Exhibit AMM-11 (Corrected), page 1

VII. CAPITAL STRUCTURE

1 Q. IS AN EVALUATION OF THE CAPITAL STRUCTURE MAINTAINED BY A
2 UTILITY RELEVANT IN ASSESSING ITS RETURN ON EQUITY?

3 A. Yes. Other things equal, a higher debt ratio and lower common equity ratio, translates into
4 increased financial risk for all investors. A greater amount of debt means more investors
5 have a senior claim on available cash flow, thereby reducing the certainty that each will
6 receive his contractual payments. This increases the risks to which lenders are exposed,
7 and they require correspondingly higher rates of interest. From common shareholders'
8 standpoint, a higher debt ratio means that there are proportionately more investors ahead
9 of them, thereby increasing the uncertainty as to the amount of cash flow that will remain.

10 Q. WHAT COMMON EQUITY RATIO IS IMPLICIT IN DP&L'S CAPITAL
11 STRUCTURE?

12 A. The capital structure used to compute the overall rate of return for DP&L includes 53.87%
13 common equity.

14 Q. HOW DOES THIS COMPARE TO THE AVERAGE EQUITY RATIOS
15 MAINTAINED BY THE ELECTRIC GROUP?

16 A. As shown on page 1 of Exhibit AMM-12, common equity ratios for the individual firms in
17 the Electric Group range from a low of 25.9% to a high of 67.7% at year-end 2019, and
18 averaged 46.6%. Meanwhile, the three- to five-year forecasts published by Value Line
19 result in an average common equity ratio of 47.8% for the Electric Group, with the
20 individual equity ratios ranging from 31.5% to 59.0%.

1 Q. WHAT CAPITALIZATION RATIOS ARE MAINTAINED BY OTHER UTILITY
2 OPERATING COMPANIES?

3 A. Pages 2 and 3 of Exhibit AMM-12 displays capital structure data at year-end 2019 for the
4 group of electric utility operating companies owned by the firms in the Electric Group used
5 to estimate the cost of equity. As shown there, common equity ratios for these utilities
6 range from 46.2% to 77.1% and average 53.4%.

7 Q. WHAT OTHER FACTORS DO INVESTORS CONSIDER IN THEIR
8 ASSESSMENT OF A COMPANY'S CAPITAL STRUCTURE?

9 A. Utilities, including DP&L, are facing significant capital investment plans. Coupled with
10 the potential for turmoil in capital markets, this warrants a stronger balance sheet to deal
11 with an uncertain environment. A conservative financial profile, in the form of a reasonable
12 common equity ratio, is consistent with the need to accommodate these uncertainties and
13 maintain the continuous access to capital under reasonable terms that is required to fund
14 operations and necessary system investment, even during times of adverse capital market
15 conditions. This is even more imperative for DP&L due to its weakened financial metrics,
16 which place downward pressure on the Company's credit standing.

17 Q. DO ONGOING ECONOMIC AND CAPITAL MARKET UNCERTAINTIES ALSO
18 INFLUENCE THE APPROPRIATE CAPITAL STRUCTURE FOR DP&L?

19 A. Yes. Financial flexibility plays a crucial role in ensuring the wherewithal to meet funding
20 needs, and utilities with higher financial leverage may be foreclosed or have limited access
21 to additional borrowing, especially during times of stress. As Moody's observed:

22 Utilities are among the largest debt issuers in the corporate universe and
23 typically require consistent access to capital markets to assure adequate
24 sources of funding and to maintain financial flexibility. During times of
25 distress and when capital markets are exceedingly volatile and tight,

1 liquidity becomes critically important because access to capital markets
2 may be difficult.¹⁰⁶

3 Confirming this view, S&P noted that "availability to the equity market remains
4 extraordinarily challenging" for utilities, and concluded that "lack of access to the equity
5 market" will also pose a risk to financial standing in the industry.¹⁰⁷ As a result, the
6 Company's capital structure must maintain adequate equity to preserve the flexibility
7 necessary to maintain continuous access to capital even during times of unfavorable market
8 conditions.

9 **Q. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO DP&L'S**
10 **PROPOSED CAPITAL STRUCTURE?**

11 A. Based on my evaluation, I conclude that DP&L's actual capital structure represents a
12 reasonable mix of capital sources from which to calculate the Company's overall rate of
13 return. The Company's ratemaking capital structure is consistent with the industry
14 benchmarks reflected in the capital structure ratios maintained by the Electric Group. It is
15 well within the range of individual results, consistent with the capitalization maintained by
16 other utility operating companies, and reflects the lower financial leverage necessary to
17 accommodate higher expected capital expenditures.

18 While industry averages provide one benchmark for comparison, each firm must
19 select its capitalization based on the risks and prospects it faces, as well as its specific needs
20 to access the capital markets. DP&L's proposed capital structure reflects the Company's
21 ongoing efforts to maintain its credit standing and support access to capital on reasonable
22 terms. The reasonableness of the Company's capital structure is reinforced by ongoing
23 uncertainties and the importance of maintaining the financial flexibility necessary to

¹⁰⁶ Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar 26, 2020)

¹⁰⁷ S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative* (Apr 2, 2020)

support continued system investment, even during times of adverse industry or market conditions.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

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Case No(s). 20-1651-EL-AIR, 20-1652-EL-AAM, 20-1653-EL-ATA

Summary: Notice Notice of The Dayton Power and Light
Company d/b/a AES Ohio of Filing Corrected Testimony of Adrien M. McKenzie, CFA
electronically filed by Mr. Jeffrey S Sharkey on behalf of The Dayton Power and Light
Company