

**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

**Inquiry Regarding the Commission's  
Policy for Determining Return on  
Equity**

**Docket No. PL19-4-000**

**COMMENTS ON BEHALF OF  
THE CITIES OF ANAHEIM, AZUSA, BANNING,  
COLTON, PASADENA, AND RIVERSIDE, CALIFORNIA**

Pursuant to the Commission's March 21, 2019 Notice of Inquiry in the above-captioned proceeding,<sup>1</sup> the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (collectively, the "Six Cities") hereby submit their comments on the Commission's Notice of Inquiry concerning the Commission's policy for determining return on equity ("ROE") to be used in Commission-jurisdictional rates.

**I. DESCRIPTION OF THE SIX CITIES**

The Six Cities own and operate municipal electric systems located within the California Independent System Operator Corporation ("CAISO") Balancing Authority Area, and all six Cities participate in the CAISO's markets as both purchasers and sellers. The Six Cities are transmission customers of the CAISO and Participating Transmission Owners ("TOs") in the CAISO. The issues raised by the Notice of Inquiry will have an impact on the Transmission Revenue Requirements of Participating TOs within the CAISO, which are a component of the access charges paid by CAISO transmission

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<sup>1</sup> *Inquiry Regarding the Commission's Policy for Determining Return on Equity*, 166 FERC ¶ 61,207 (2019) (the "Notice of Inquiry" or "NOI").

customers. As transmission customers of the CAISO, the Six Cities have a direct and substantial interest in the Commission's ROE policies and, in particular, in the issues identified in the Notice of Inquiry.

## II. COMMENTS

In *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*"), and *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*"), the Supreme Court established standards for determining allowable rates of return on common equity capital for regulated entities. In *Hope*, the Supreme Court observed that "[t]he rate-making process . . . i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests."<sup>2</sup> The Supreme Court held that achieving a balance between investors' and consumers' interests requires: (1) the ROE to be sufficient to sustain the financial integrity of the utility and its ability to raise the capital necessary to perform its duties;<sup>3</sup> and (2) protection for consumers from "exploitation at the hands of" the utility.<sup>4</sup> Thus, the Commission must determine "the minimum amount that one must pay new investors . . . to offer the utility the money it needs for investment," which should "pay[]

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<sup>2</sup> *Hope*, 320 U.S. at 603.

<sup>3</sup> See, e.g., *Bluefield*, 262 U.S. at 693 (stating that the "return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties").

<sup>4</sup> *Hope*, 320 U.S. at 612.

investors a ‘fair return,’ *but no more*, while obtaining for the company the capital that it needs.”<sup>5</sup>

The best way to satisfy the standards of *Hope* and *Bluefield* is to apply the Commission’s two-step Discounted Cash Flow (“DCF”) methodology to a proxy group of comparable electric utilities selected based on a corporate credit rating screen, among other selection criteria. Indeed, this approach represents the Commission’s longstanding policy regarding the determination of public utilities’ ROEs. However, in the event that the Commission determines that ROE for electric utilities should be based upon a composite of multiple analytical methodologies, then the ROE should be set according to the results of the two-step DCF methodology, a Capital Asset Pricing Model (“CAPM”), and the Risk Premium analysis.<sup>6</sup> If these three methods are to be used, they should not be weighted equally, but, rather, the results of the two-step DCF methodology should be accorded greater weight in forming the composite results.<sup>7</sup> The Expected Earnings Analysis is inappropriate for use in setting electric utility ROEs and should not be factored into the composite zone of reasonableness or incorporated into a composite analysis to select the point estimate used to set the ROE.

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<sup>5</sup> *Boston Edison Co. v. FERC*, 885 F.2d 962, 965 (1st Cir. 1989) (internal quotations omitted) (emphasis supplied); *see also Anaheim, et al. v. FERC*, 669 F.2d 799, 803 (D.C. Cir. 1981).

<sup>6</sup> Mr. Mac Mathuna proposes specific applications of both the CAPM and Risk Premium methods, which are summarized below.

<sup>7</sup> Specifically, Mr. Mac Mathuna supports alternate approaches to weighting, depending upon whether the Risk Premium method is included, which Mr. Mac Mathuna generally does not support. *See Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 62:13-63:7

In support of the positions set forth in these comments, the Six Cities provide the attached affidavit of Breandan Mac Mathuna of GDS Associates, Inc., designated as Exhibit No. CIT-0001. The Mac Mathuna Affidavit comprehensively addresses a number of the issues raised by the Commission in the NOI. The Six Cities respectfully request that the Commission consider Mr. Mac Mathuna's affidavit in determining the appropriate policy to apply in setting the base ROE for electric utilities subject to the Commission's jurisdiction. The Six Cities' comments below briefly summarize the principal points that are more fully addressed by Mr. Mac Mathuna.

**A. Role and Objectives of the Commission's Base ROE Policies.**

As explained above, the role and objective of the Commission's ROE policies are stated in its precedents. Specifically, the Commission's role is to equitably balance what are often competing interests in ensuring that utilities have access to needed capital in order to maintain the financial integrity of their businesses, while ensuring that customers are not charged rates that are higher than necessary to accomplish this objective.

The Six Cities reserve their right to further address the issues raised by these questions in reply comments.

**B. ROEs for Different Commission-Regulated Industries**

The Six Cities do not take a position on whether the policies and methodologies that are applicable to electric utilities should be expanded to other regulated industries.

**C. Performance of the DCF Model**

The DCF model used by the Commission in setting electric utility ROEs has performed accurately and consistently with its assumptions, and it remains a valid model

for use in setting base ROE. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 8:15 – 14:18. As described in Mr. Mac Mathuna’s affidavit, utility stocks have performed consistent with the theory underlying the DCF model. *See id.* at 8:20-23. Per the assumptions of the DCF model, projected proxy company earnings have increased in a manner that, in concert with other changes in the market, would justify increases in their stock prices over the same period. There are other variables – such as expected opportunity costs or returns, changes in risk perception, and real interest rates, among others – that impact stock price and the required rate of return, such that “[i]t is not correct that, under the DCF theory, increases in a company’s actual earnings or projected growth in earnings would ordinarily be required to justify an increase in the company’s stock price.” *Id.* at 10:32 – 11:2. Based on the foregoing, Mr. Mac Mathuna concludes that “the underlying theory of the DCF methodology has performed consistently over the last 10 to 20 years.” *See id.* at 14:16-18. Thus, it is appropriate to continue using the DCF model to determine electric utility cost of equity.

#### **D. Proxy Groups**

The Commission should continue to apply its DCF methodology to a proxy group of electric utilities<sup>8</sup> companies with comparable risk. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 14-35. Among other screening criteria, the proxy group should be screened for comparable risk characteristics through the application of a credit

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<sup>8</sup> Non-electric utilities should not be included in a proxy group for determining and electric utility ROE. *See Mac Mathuna Affidavit*, Exh. No. CIT-0008 at 15:24 – 17:3.

rating screen, rather than including all investment grade utilities in the proxy group. *See id.* at 26:5-13. As noted by Mr. Mac Mathuna, “credit ratings provide an objective means to identify a proxy group of comparably risked electric utilities, and the Commission has traditionally relied upon a credit rating band to develop a risk-comparable proxy group.” *Id.* at 31:16-19. Including all investment-grade utilities in the group would “fail to achieve the goal of developing a proxy group of risk comparable electric utilities,” and “would be a significant departure from the *Hope* and *Bluefield* standards.” *Id.* at 26:8-13. Retaining the credit rating screen, on the other hand, “ensure[s] the proxy group only consists of electric utilities that are of comparable risk to the utility whose rates are at issue.” *Id.* at 27:3-5. Thus, the Commission should continue to screen proxy group companies by including only those “companies with credit ratings no more than one notch above or below the utility or utilities whose ROE is at issue,” using “both Standard and Poor’s corporate credit ratings and Moody’s issuer ratings when both are available.”<sup>9</sup>

While the Commission has the discretion to consider risk in the placement of the just and reasonable ROE within the zone of reasonableness, adjustment away from the median to another point within the zone should not be “routine.” *See Mac Mathuna Affidavit*, Exh. No. CIT-0008 at 33:6-9. The proponent of an upward adjustment to the ROE above the median result of the range should continue to bear a substantial burden to show that its particular circumstances justify a change to the placement of the ROE and, importantly, that the resulting rates are just and reasonable. Satisfying this burden

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<sup>9</sup> *See Martha Coakley, Attorney Gen. of the Commonwealth of Mass., et al. v. Bangor Hydro-Elec. Coop., et al.*, 165 FERC ¶ 61,030 (2018) at P 49 and n.106. (“Coakley Order Directing Briefs”).

appropriately includes demonstrating, based upon “a comparison between the risk level of the subject company and the risk level of each of the proxy group companies,” that the applicant utility is demonstrably riskier than the companies in the proxy group. *El Paso Natural Gas Company*, 145 FERC ¶ 61,040 at P 698 (2013) (“Opinion No. 528”), *order on reh’g*, 154 FERC ¶ 61,120 (2016) (“*El Paso*”); *see also Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 33:12-14. If – and only if – this showing has been made should the Commission authorize an ROE that is above the median of the range of reasonableness.

In determining the appropriate proxy group, tests of economic logic, including low- and high-end outlier tests, should be applied. Mr. Mac Mathuna proposes a high-end outlier test that would eliminate any model results “that are more than two standard deviations from the median of each model’s ROE array prior to testing for low- and high-end outliers.” *Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 20:19-22. Mr. Mac Mathuna does not advocate for modifications to the Commission’s low-end outlier test.

After eliminating high- and low-end outliers, the Commission should apply an objective standard for determining where there is a natural break between proxy companies. Under Mr. Mac Mathuna’s proposed standard, which would identify natural breaks occurring at either the high-end or the low-end of the array, additional companies that are “close to the threshold level that applies prior to considering natural breaks” and “relatively far from the neighboring proxy value that would be retained.” *Id.* at 23:3-11. Mr. Mac Mathuna has developed objective criteria for measuring these factors, which are described in his affidavit. *Id.* If the Commission adopts an ROE methodology that uses the results of multiple frameworks, the outlier tests, including the natural break standard,

should be applied independently to the array of ROEs resulting from each framework. *Id.* at 25:10-11.

### **E. Financial Model Choice**

When evaluating utility equities, investors use the DCF, CAPM, and Risk Premium, each of which are market-based models, to estimate the required rate of return or cost of equity. *See Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 37:5-7. Mr. Mac Mathuna provides detailed descriptions of each of these methodologies and their appropriate application in his affidavit. *See id.* at 39:9 – 41:11 (describing the DCF method); 41:12 – 50:15 (describing the CAPM method, including variants using historical and projected market risk premiums); and 50:16 – 51:5 (describing the Risk Premium method). While the Commission has raised for consideration the potential use of the Expected Earnings method for setting utilities ROEs,<sup>10</sup> this method “is devoid of capital market input,” “has been thoroughly discredited,” and is not considered by investors. *Id.* at 37:7-9. If the Commission determines that it should base the ROE on a composite set of analyses, it should consider and give varying degrees of weight to the DCF, CAPM, and Risk Premium methodologies, which are market-oriented methods for measuring cost of equity. The Commission should not rely on the Expected Earnings methodology.

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<sup>10</sup> *See* Coakley Order Directing Briefs at P 16, and *Ass’n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 165 FERC ¶ 61,118, at P 17 (2018) (“MISO Order Directing Briefs”).



While continued reliance solely on the DCF methodology is both theoretically sound and consistent with longstanding Commission policy, if the DCF, CAPM, and Risk Premium methodologies each are used, they should not be weighted equally. Rather, in light of the Commission's decades-long use of the DCF method<sup>11</sup> and the continued viability of the DCF as a measure of investors' expected returns for electric utilities, the DCF results should be weighted more heavily than the results produced by either the CAPM or Risk Premium models. *See Mac Mathuna Affidavit*, Exh No. CIT-0001 at 63:3-6. Specifically, if the Commission chooses to use multiple models, then it should consider the following two alternatives:

Alternative 1: If the Commission decides not to rely upon the Risk Premium methodology at all in establishing the ROE, then, for determining both the zone of reasonableness and the appropriate ROE, the DCF results should be weighted at 60% and the CAPM results should be weighted at 40%.

Alternative 2: If the Commission decides to use the Risk Premium methodology, then, in determining the zone of reasonableness, the DCF should

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<sup>11</sup> *See Generic Determination of Rate of Return on Common Equity for Pub. Utils.*, Order No. 489, FERC Stats. & Regs. ¶ 30,795 (1988). Order No. 489 is not the first time that the Commission recognized the DCF methodology as a useful analytical framework for estimating the rate of return required by investors to invest their capital with a company. For example, the Commission "first took cognizance of the DCF methodology in public utility cases as far back as the 1970's." *See Coakley v. Bangor Hydro-Elec. Co.*, 147 FERC ¶ 61,234, at P 14 n.26 (2014) ("Opinion No. 531"), *order on paper hearing*, Opinion No. 531-A, 149 FERC ¶ 61,032 (2014) ("Opinion No. 531-A"), *reh'g denied*, Opinion No. 531-B, 150 FERC ¶ 61,165 (2015) ("Opinion No. 531-B"), *vacated and remanded sub nom. Emera Maine v. FERC*, 854 F.3d 9 (D.C. Cir. 2017) (*citing Minn. Power & Light Co.*, 3 FERC ¶ 61,045, at 61,132-33 (1978) ("We are interested in forward looking analyses of the market's required rates of return. The Commission seeks to have before it estimates of the opportunity cost of equity capital in capital markets to use in making rate of return determinations. Market oriented techniques, including the DCF approach, are useful in this regard."))).

be weighted at 60% and the CAPM at 40%, while the ROE would be fixed based upon a 50% weighting for the DCF median, a 30% weighting for the CAPM median, and a 20% weighting for the Risk Premium result. *See id.* at 63 Table 3.

Alternative 1 does not include application of the Risk Premium analysis because, as described in Mr. Mac Mathuna's affidavit, there are "significant concerns regarding the most common application of the Risk Premium method" (*see id.* at 62:16-18), which he discusses in detail at pages 134 through 144 and are summarized below.

As is further described in the Mac Mathuna Affidavit, there are valid methodological reasons for the Commission to consider adopting a modification to its previously-proposed approach for forming the ROE range of reasonableness and the median and midpoint estimates when relying on a composite of several analytical methodologies. *See generally Mac Mathuna Affidavit*, Exh No. CIT-0001 at 63:8 – 65:15. Specifically, rather than taking a simple average of the top and bottom of the zone of reasonableness produced by each methodology, the Commission should consider "develop[ing] a single composite ROE array by calculating a composite ROE for each proxy group electric utility member." *Id.* at 64:8-9. The Commission would accomplish this by averaging the ROEs produced by each methodology for each proxy group member. *Id.* at 64:8-12. As Mr. Mac Mathuna discusses, development of company-specific composite ROE results will have the effect of mitigating results that are illogical or unreasonable that may results from the Commission's proposed approach to developing composite results.

## **F. Mismatch Between Market-based ROE Determinations and Book-Value Rate Base**

In response to a services of questions posed by the Commission in the Notice of Inquiry and as shown in the Mac Mathuna Affidavit, the allowed ROE for an electric utility should be set at the cost of equity based on an estimate of the market-based cost of equity. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 70:24 – 83:3. The purported “mismatch” between applying a market-based ROE determination to an electric utility’s book value rate base does not create a problem. Rather, applying a market-based ROE determination to a market value rate base suffers from circularity problems. *See id.* at 66:26 – 67:3. Mr. Mac Mathuna describes that multiple industry experts and the Commission have explained why it is not inconsistent to apply a market-based ROE determination to a book value rate base, supporting the conclusion that the Commission should not change its current practice of applying a market-based ROE determination to the book value rate base. *See id.* at 67-73.

With regard to differences between market value and book value of common equity that result in market-to-book ratios greater than 1.0, Mr. Mac Mathuna describes the many reasons why this may occur, including depreciation versus financing policies, regulatory lag, cost trends, factors not under regulatory control, and changes in rate base relative to capacity and output. *See id.* at 75:4-8. However, the simplest conclusion is “that the expected return earned by electric utilities is greater than the investors’ required rate of return,” which “result[s] in a market value that is greater than book value.” *See id.* at 77:6-8.

Based on the foregoing, the allowed ROE for an electric utility should be set at the cost of equity based on a market-based cost of equity estimate using the two-step DCF methodology.

### **G. First Prong of ROE Determination**

The Six Cities do not take a position on the first prong of the Commission's ROE determination at this time. However, the Six Cities reserve their right to comment on these issues in reply comments.

### **H. Model Mechanics and Implementation**

#### **1. General issues/issues that affect multiple models**

With regard to the general issues that affect multiple models, the Six Cities only address the choice of growth rate as a proxy for investors' expectations. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 80:11 – 84:22. The growth rate reflecting investor consensus should come from a “source that provides a reasonable representation of the growth rate expected by the market.” *Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 81:8-9. The growth rates published by Institutional Brokers' Estimate System (“IBES”) meet this objective. IBES growth rates are easily accessible in a central location without a fee or subscription requirement, and they provide consensus growth rates, obviating the need for investors to consult multiple sources. *See Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 80:23-26. The Commission also has long relied on IBES growth rates (*see id.* at 81:10-11), and they “offer[] the benefits of predictability, consistency, and objectivity” (*id.* at 84:13-17).

The Commission should continue to require the use of IBES growth rates in ROE analyses, and it should not combine short-term growth rate data from multiple sources. Allowing parties to pick and choose which growth rates to apply in conducting their analyses may result in cherry picking those growth rates that produce the highest (or lowest) ROE. *See Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 82:5-10. Combining results from multiple sources could also create “distorted results,” because they may use different time periods and/or analysts, and certain sources may not be readily available to all parties. *See id.* at 82:11 – 83:12.

## **2. Model-Specific Questions**

### **a. DCF**

The Commission should continue to apply the two-step DCF methodology to estimate electric utility cost of equity. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 86:9-10; *see also id.* at 39:9 – 41:11 (describing the DCF methodology and why it is appropriate for use in setting electric utility ROEs). Alternative models, such as a model using free cash flow rather than dividends or a multi-stage DCF model, require the adoption of uncertain assumptions and are likely to result in unnecessary controversy and dispute. *See id.* at 86:10-12. Further, the DCF methodology is suited for use in determining the cost of equity for electric utilities, because utility stocks reflect steady returns and typically provide consistent dividends. *See id.* at 40:14 – 41:2.

The two-step DCF model is also appropriate for determining base ROE because it incorporates a long-term growth rate (*see generally id.* at 95:8-11), measured by Gross Domestic Product (“GDP”), which reflects the fact that investors consider “projections of

earnings and dividend growth beyond five years” (*id.* at 91:18-19). Indeed, both investors and industry analysts must account for a stock’s long-term value. Even if their intention is to hold onto the stock for a short period of time, investors must “account for the remaining expected value of the stock at the end of their investment horizon.” *Id.* at 93:13-14. As the Commission has recognized, investors rely on GDP growth when evaluating their expectations for common stock. *Id.* at 96:8-18.

Given these characteristics, the two-step DCF model remains the best tool for determining electric utility cost of equity and should be retained as the primary methodology upon which the Commission bases its ROE determinations.

#### **b. CAPM**

The appropriate application of the CAPM for use in determining electric utility cost of equity includes calculating the market risk premium component based on the two-step DCF methodology and using only a standard, single-factor CAPM that is not adjusted based on the Fama-French model or to add a size premium. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 107:18 – 108:2.

First, the market risk premium component of the CAPM should be calculated using the two-step DCF methodology, rather than the one-step DCF, which does not incorporate a long-term growth rate. *See generally id.* at 104:15-18. Because companies cannot “grow in perpetuity at a rate above the growth rate of the general economy,” limiting their growth rate through application of a long-term growth rate measured by GDP is appropriate when calculating the market risk premium. *Id.* at 97:24-25. With regard to market risk premium, Mr. Mac Mathuna also recommends “that the

Commission place equal weight on ex-post and ex-ante market risk premium methods if it were to no longer solely rely on the two-step DCF method.” *Id.* at 107:10-12; *see also id.* at 50:6-15 (explaining that there is no consensus as to whether to use an historical or projected market risk premium and recommending a blended approach). If Mr. Mac Mathuna’s recommendation to incorporate both historical and projected market risk premiums is not adopted and the Commission instead elects to use the DCF methodology for purposes of estimating the ex ante market risk premium, then it is critical that the two-step DCF methodology, which includes both short- and long-term growth rates, is used.

Second, Value Line is the appropriate source for the beta value included in the CAPM, as agreed on by multiple industry experts. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 105:17-106:1. Value Line computes beta using historical data, which is also consistent with Mr. Mac Mathuna’s proposal to blend the historical and projected market risk premium. *Id.* at 106:20-21.

Third, the Commission should not use the Fama-French Model of the CAPM (*see generally id.* at 108:4 – 110:5), which seeks to “identify additional factors not included in the standard CAPM model that purport to better measure and explain stock returns” (*id.* at 108:5-7). The Commission has previously rejected the use of this model, and multiple industry experts raise serious concerns with the Fama-French variant. *See id.* at 108:8 – 110:5. Such concerns include that the model does not perform as well as the standard CAPM, application of the Fama-French model may provide irrational results, and the Fama-French model is more appropriate for assessing portfolios than individual stocks. *See id.* at 109:8 – 110:3.

Finally, the CAPM should not be adjusted to add a size premium, which artificially inflates the model's results. *See generally Mac Mathuna Affidavit* at 117:1-5. Inclusion of a size premium is based on questionable data, and industry experts have questioned its applicability for determining electric utility rates. *See id.* at 116:11-13.

### **c. Expected Earnings**

The Expected Earnings analysis should not be relied on to determine a just and reasonable ROE. As described by Mr. Mac Mathuna, the Expected Earnings analysis is not a market-based approach to determining cost of equity, and it suffers from issues or circularity. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 117:17-18; *see also id.* at 51:12 – 58:20 (explaining why the Expected Earnings analysis is inferior to alternative analytical methods for establishing the ROE for electric utilities).

As explained in the Mac Mathuna Affidavit, the Expected Earnings analysis “does not measure the rate of return investors require to invest in the common equity capital of a utility,” but, rather, “measures expectations of what the utility will earn on the book value of its common equity.” *Id.* at 52:9-12. Thus, the methodology lacks market and investor input and cannot measure the rate of return required by the market. *Id.* at 53:10-13.

Further, the Expected Earnings analysis suffers from circularity issues, in that the resultant return is based on the returns set by regulators in the past. *See id.* at 118:1-8. Describing this circularity, Mr. Mac Mathuna refers to the fact that return projections become a self-fulfilling prophecy because “[u]sing the Value Line-projected ROEs as the authorized ROEs would provide the utilities the opportunity to earn those ROEs and



virtually guarantee such earnings when the utility's rates are based on formula rates that use forward projections of investment and costs with true-ups to provide for the recovery of actual costs, including the authorized ROE." *Id.* at 119:5-9. Mitigating the circularity in the Expected Earning analysis would not be beneficial due to the other flaws inherent in the methodology. *See id.* at 120:17-18. Instead, this methodology should simply not be used to determine electric utility cost of equity.

#### **d. Risk Premium**

The Six Cities do not recommend use of the Risk Premium analysis when determining electric utility ROEs due to a number of concerns with application of the analysis that render it an unreliable method for determining a just and reasonable ROE. *See generally Mac Mathuna Affidavit*, Exh. No. CIT-0001 at 121:5 – 126:8. However, should the Commission determine that applying the Risk Premium analysis is appropriate, it must also consider the various flaws inherent in the analysis and effectively address them. As Mr. Mac Mathuna explains, this requires a case-by-case review of the data inputs to the Risk Premium analysis to ensure that only inputs fit for determining just and reasonable ROEs are included. *Id.* at 126:6-8.

Many experts in the industry use the "Allowed ROE Risk Premium" methodology, which does not actually reveal the investors' required rate of return, but instead attempts to "measure[s] a relationship between prior ROEs previously-authorized by the Commission and utility bond yields, amounting to a short-hand approach for estimating how changes in yields may have impacted the Commission's allowed-ROEs." *See id.* at 123:11-14. The regression analysis used as part of the Risk Premium analysis

has only limited value, because it does not account for historic volatility in risk premiums, which are influenced by a myriad of other factors. *Id.* at 123:19-124:2. Further, like the Expected Earnings analysis, the Risk Premium suffers from issues of circularity, in that it relies on historical ROEs to determine the implied risk premium, resulting in an inappropriate tying of current ROE determinations to past ROE decisions. *Id.* at 124:12-13. Finally, the Commission has determined that the Risk Premium is only “sufficiently reliable” to corroborate its ROE determination – “not to set the ROE itself.”<sup>12</sup> As demonstrated, the Risk Premium analysis should not be used for determining electric utility cost of equity.

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<sup>12</sup> Opinion No. 531-B at P 98.

### III. CONCLUSION

Wherefore, the Six Cities respectfully request that the Commission consider the foregoing comments and the evidence set forth in the Mac Mathuna Affidavit in evaluating its policies for determining the just and reasonable ROE for inclusion in Commission-jurisdictional rates.

Respectfully submitted,

/s/ Margaret E. McNaul

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June 26, 2019

**CERTIFICATE OF SERVICE**

I hereby certify that I have on this 26th day of June, 2019, caused a copy of the foregoing document to be sent by electronic mail or United States mail to all parties on the list compiled by the Secretary of the Commission in this proceeding.

/s/ Rebecca L. Shelton

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**AFFIDAVIT  
Of  
BREANDAN T. MAC MATHUNA  
On Behalf Of  
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**June 25, 2019**

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1 **I. Introduction**

2 My name is Breandan T. Mac Mathuna. I am a Project Manager for GDS  
3 Associates, Inc. ("GDS"). My business address is 1850 Parkway Place, Suite 800,  
4 Marietta, Georgia 30067.

5 I graduated from the University College Dublin, Ireland with a Bachelor of  
6 Commerce in 2007. My area of concentration was Finance. I received a Master's of  
7 Business Studies in Strategic Management and Planning from the UCD Michael Smurfit  
8 Graduate Business School, University College Dublin, Ireland in 2008.

9 I have over ten years of experience in the power industry. In 2008, I began my  
10 career at EirGrid, the Transmission System Operator and Market Operator in Ireland and  
11 Northern Ireland, which is owned by the Irish government. As part of my responsibilities,  
12 I developed a business case and financial model for the transfer of transmission network  
13 assets from the Electric Supply Board, the Transmission Asset Owner and dominant energy  
14 company in the then newly-deregulated market, to EirGrid. I later became a transmission  
15 pricing specialist and was assigned to a task force to design and implement a new  
16 transmission network tariff for generators that were interconnected to the transmission  
17 system. I was promoted in 2010 to the group regulation team as a regulatory analyst and  
18 later to a senior regulatory analyst role. During this time, I was tasked with developing  
19 and coordinating the revenue requirement submission to the Irish energy regulator  
20 regarding the Ireland and Great Britain electricity interconnector link project.  
21 Additionally, I worked with senior management to develop a sustainable dividend payment  
22 framework, with EirGrid subsequently paying its first dividend to the Irish government.

1 Finally, I worked closely with senior management regarding EirGrid's regulatory  
2 engagement as part of the price control process determining the five-year revenue  
3 requirement for EirGrid. In particular, I worked on developing EirGrid's position on an  
4 appropriate return on equity ("ROE") rate, prepared material filed with the Irish regulator,  
5 and participated in regulatory negotiations to assert EirGrid's positions.

6 I joined GDS, a multi-disciplinary engineering and consulting firm primarily  
7 serving electric, gas and water utilities, in 2014 and have subsequently performed a wide  
8 variety of financial consulting services with a focus on rates, state and federal regulatory  
9 matters, and strategic power supply advice. This has involved the development of  
10 financial, wholesale power cost, and annual operating budget forecasts for numerous  
11 clients. I have developed power supply procurement strategies and managed the request  
12 for proposal processes and contracting for these efforts. I have performed long-term asset  
13 reviews and economic feasibility analyses of purchase power contracts and/or ownership  
14 of renewable generation facilities, participated at Regional Transmission Organization  
15 ("RTO") stakeholder committees, and completed a comprehensive financial analysis on  
16 becoming an RTO member for a large client that is currently in an unstructured market.

17 I have filed direct testimony before the Commission regarding the just and reasonable ROE  
18 for use in the Southern Companies' open access transmission formula rate.<sup>1</sup> I have assisted  
19 in conducting ROE analyses and also supported the development of transmission ROE  
20 protests and the drafting of direct testimony as part of ROE complaints, and I am currently

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<sup>1</sup> See Direct Testimony and Exhibits of Breandan T. Mac Mathuna, Exh. No. JC-1, *Ala. Mun. Auth. And Coop. Energy v. Ala. Power Co.*, Docket No. EL18-147-000 (Filed May 10, 2018).



involved in a number of ongoing settlement negotiations regarding ROE proceedings at FERC. I have performed analyses of transmission owners' annual FERC-approved Open Access Transmission Tariff ("OATT") filings and numerous reactive revenue requirement FERC Schedule 2 tariff filings, including representing clients' interests at settlement conferences regarding those filings. In connection with my financial consulting assignments, I regularly follow the capital markets and factors influencing the cost of capital for electric utilities.

I am presenting this affidavit on behalf of the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (collectively, the "Six Cities").

## **II. List of Exhibits**

In addition to my affidavit, designated as Exhibit No. CIT-0001, I sponsor the following exhibits:

Exhibit No. CIT-0002:	Market Capitalization Analysis
Exhibit No. CIT-0003:	Value Line Reports
Exhibit No. CIT-0004:	Market-to-Book Ratios Example
Exhibit No. CIT-0005:	Alternative High-End Outlier Test
Exhibit No. CIT-0006:	Natural Break Standard Analysis

1     **III.     Purpose and Overview of Affidavit**

2             In the Notice of Inquiry (“NOI”),<sup>2</sup> the Commission seeks information  
3     regarding whether and how it should modify its policies concerning the  
4     determination of the ROE used in jurisdictional rates charged by public utilities. The  
5     Commission outlines eight topics and poses a series of questions regarding each  
6     topic.

7             The purpose of this affidavit is to provide responses to certain of these  
8     questions for the Commission’s consideration in evaluating potential changes to its  
9     return on equity policies. Regarding the instances where I have not provided a  
10    response to a question posed in the NOI, my silence should not be construed as  
11    agreement with the statements of the Commission in the NOI, those aspects of the  
12    newly-proposed ROE framework outlined in the Orders Directing Briefs<sup>3</sup> to which  
13    the question may relate, or the positions expressed by any other participant in this  
14    proceeding or by parties in other proceedings. I also reserve the right to address the  
15    questions in the NOI as part of a reply affidavit.

16            My responses follow chronologically the order of the topics and related  
17    questions as laid out by the Commission in its NOI. Responses to NOI questions are  
18    set forth in the following sections. Where practical and to avoid repetition, I have

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<sup>2</sup> *Inquiry Regarding the Commission’s Policy for Determining Return on Equity*, 166 FERC ¶ 61,207 (2019).

<sup>3</sup> *Martha Coakley, Attorney Gen. of the Commonwealth of Mass. v. Bangor Hydro-Elec. Coop.*, 165 FERC ¶ 61,030 (2018) (“Coakley Order Directing Briefs”); *Ass’n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 165 FERC ¶ 61,118 (2018) (“MISO Order Directing Briefs”).

1 grouped and responded to certain consecutively numbered questions on a  
2 consolidated basis.

3 **IV. Response to NOI Questions**

4 **A. Role and Objectives of the Commission's Base ROE Policy**

5 **A1. To what extent would the ROE methodology described in the *Coakley***  
6 **and MISO Briefing Orders impact the predictability of ROE**  
7 **determinations and the costs for market participants of making or**  
8 **intervening in such proceedings?**

9 **A2. How would using the ROE methodology described in the *Coakley* and**  
10 **MISO Briefing Orders affect an investor's ability to forecast the ROE**  
11 **the Commission would establish in a litigated proceeding and the**  
12 **ability of participants to propose, contest, and settle base ROEs as**  
13 **compared to using only the DCF methodology?**

14 **A3. Currently, public utilities in different Independent System Operators**  
15 **(ISOs) or RTOs may receive different ROEs, despite all using national**  
16 **proxy groups, due primarily to differences in when FPA section 205 or**  
17 **206 proceedings were initiated. Are such variations justified, and, if**  
18 **not, should the Commission consider applying the same ROE to all**  
19 **utilities in RTOs/ISOs based on the most recent proceeding?**

20 **A4. Should the ROE reflect the cost of capital at the time of the investment**  
21 **or be subject to adjustment to reflect the contemporary ROE required**  
22 **by investors?**

23 **A4.a. Should the Commission consider a "vintage approach," with**  
24 **ROE fixed for the life of the asset at the time that each asset was**  
25 **completed?**

26 **A4.b. Would such a "vintage approach" need to be coupled with an**  
27 **annual national default ROE for investments made in that year,**  
28 **so as to minimize the need for numerous annual litigated ROE**  
29 **proceedings for each public utility that made an investment**  
30 **during that year? What procedure should be used to determine**  
31 **such a default ROE?**

32 I do not address these questions in my affidavit at this time, but reserve the right to  
33 do so in a reply affidavit.

1     **B.     ROEs for Different Commission-Regulated Industries**

2             In this affidavit, my comments address issues relating to the Commission's ROE  
3     policies and methodologies as applied to electric utilities. I do not state a position as to  
4     whether the policies and methodologies that are applicable to electric utilities should be  
5     expanded to other regulated industries.

6     **C.     Performance of the DCF Model**

7             **C1.     The DCF model assumes stock prices are equal to the present value of**  
8             **projected future cash flows. Is there evidence of situations when these**  
9             **assumptions are inaccurate?**

10            Please refer to my response to question C2.

11            **C2.     Have current and projected proxy company earnings over the last 10**  
12            **to 20 years increased in a manner that would justify any increases in**  
13            **their stock prices over the same period, consistent with DCF model**  
14            **assumptions?**

15            Yes, current and projected proxy company earnings have increased, thus justifying  
16     an increase in stock prices, but the influence of earnings on stock prices has occurred in  
17     concert with other factors, and this combination of factors does account for the price  
18     increases over the last 10 to 20 years consistent with Discounted Cash Flow ("DCF") model  
19     assumptions. As explained below, the DCF model does not assume that only changes in  
20     earnings drive changes in stock prices. It is my belief that the Commission is incorrect in  
21     its assertion, made in the MISO Order Directing Briefs, that "[i]n recent years, utility stock  
22     prices appear to have performed in a manner inconsistent with the theory underlying the  
23     DCF methodology."<sup>4</sup> The Commission's implied premise that the DCF theory dictates that

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<sup>4</sup> MISO Order Directing Briefs at P 47.

1 changes in prices must move in lock-step with changes in earnings and/or earnings  
2 expectations over time is not correct.

3 According to the Commission:

4 increases in a company's actual earnings or projected growth  
5 in earnings would ordinarily be required to justify an  
6 increase in the company's stock price. However, as  
7 described in the *Coakley* Briefing Order, although the Dow  
8 Jones Utility Average increased by almost 70 percent from  
9 October 1, 2012 through December 1, 2017, there was not  
10 an increase in either utility earnings or projected earnings  
11 during that period that would justify the substantial increase  
12 in stock prices.<sup>5</sup>

13 The theory underlying the DCF methodology provides that stock prices may change not  
14 only as a result of expected changes in earnings/dividends ("g"), but also due to changes  
15 in investors' required rate of return for investing in a company ("k"). Indeed, it is investors'  
16 required rate of return for which the DCF formula solves. That required rate of return  
17 certainly changes over time and is influenced by a myriad of factors in addition to expected  
18 growth in earnings and dividends. Such factors include, for example, expected opportunity  
19 costs or returns that might be earned on alternative investments, changes in risk  
20 perceptions, changes in risk tolerance, a desire for current income versus longer-term  
21 capital gains, and expectations about inflation, real interest rates, the global economy, the  
22 U.S. economy in general or various sectors of the U.S. economy. Under the DCF theory,  
23 stock prices will react in response to any and all of those variables even if earnings or  
24 expected growth in earnings and dividends remain static.

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<sup>5</sup> See *id.*

1 Many decades ago, the Commission itself debunked the contention that the DCF  
2 assumes that the market price of a stock is exclusively or even primarily determined by  
3 current dividends and expected future increases in dividends and earnings. In Order No.  
4 489, the Commission explained:

5 AEP argues that the model assumes erroneously that the  
6 market price of a stock is primarily or exclusively  
7 determined by current dividends and expected future  
8 increases in dividends, and ignores other factors such as  
9 expectations about changes in stock prices, inflation rates  
10 and speculative considerations.

11 AEP misinterprets the theory underlying the DCF model.  
12 The DCF model used by the Commission shows the  
13 relationship between stock prices and dividends, growth rate  
14 of dividends, and shareholders' required rate of return. It  
15 does not assume that price is primarily determined by  
16 dividends alone. The DCF model assumes that price, "P0",  
17 is determined by a combination of factors:

$$[P0 = D0 (1+.5g) / (k-g)]$$

18  
19  
20 Two of these factors relate to dividends. The indicated  
21 current dividend is represented by the "D0" term and the  
22 expected growth rate of dividends is represented by the "g"  
23 term. The other factor, the shareholders' required return on  
24 equity, the "k" term, also influences price. This term has  
25 several components, including expectations about the real  
26 interest rates, the expected rate of inflation, and the "risks"  
27 associated with owning a particular stock. It is this term that  
28 is estimated by the DCF model. Contrary to AEP's claim,  
29 prices in the DCF model change in response to changes in  
30 expectations associated with the "g" and "k" terms.<sup>6</sup>

31 I concur with the Commission's reasoning from Order No. 489. As the Commission  
32 explained, it is not correct that, under the DCF theory, increases in a company's actual

---

<sup>6</sup> *Generic Determination of Rate of Return on Common Equity for Pub. Utils.*, Order No. 489, FERC Stats. & Regs. ¶ 30,795, at 30,990 (1988) ("Order No. 489") (citations omitted).

1 earnings or projected growth in earnings would ordinarily be required to justify an increase  
2 in the company's stock price.

3 The Commission also seeks to support its contention that utility stock prices have  
4 not performed in a manner consistent with the premise underlying the DCF methodology  
5 when it observes that "there was not an increase in either utility earnings or projected  
6 earnings during that period that would justify the substantial increase in stock prices" even  
7 though "the Dow Jones Utility Average increased by almost 70 percent from October 1,  
8 2012 through December 1, 2017."<sup>7</sup> However, as I just discussed, under the DCF theory,  
9 many variables other than earnings and projected earnings affect stock prices, including,  
10 for example, the opportunity costs of making alternative investments and expectations  
11 about inflation. While the Commission references the nearly 70 percent increase in the  
12 Dow Jones Utility Average from October 1, 2012 through December 1, 2017, the stock  
13 market in general rose significantly over that same period. For example, the S&P 500  
14 index rose over 83%, from 1,440.90 to 2,645.10.<sup>8</sup> Many of the same factors influencing  
15 the increase in utility stock prices were also influencing overall stock market prices.

16 Additionally, relative opportunity costs were changing. Stock markets are complex,  
17 and individual stock prices are somewhat interdependent on the stock price of other  
18 individual stocks and with broader trends affecting stock prices generally. Thus, changes  
19 in individual stock prices cannot be viewed in isolation. For instance, as the S&P 500 prices

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<sup>7</sup> See MISO Order Directing Briefs at P 47.

<sup>8</sup> S&P 500 (^GSPC) Stock Historical Prices & Data, *Yahoo! Finance*,  
<https://finance.yahoo.com/quote/%5EGSPC/history?period1=1349064000&period2=1512104400&interval=1d&filter=history&frequency=1d> (last visited June 19, 2019).

1 rose, investors who perceived the price of the stocks driving the S&P 500 increases as  
2 being too pricey<sup>9</sup> would have sought alternative investments, thereby increasing the  
3 demand for and market prices of those alternative investments.

4 Additionally, over that same period (October 2012 through December 2017),  
5 inflation expectations were declining, making utility stock investments, with their  
6 relatively high and generally growing dividends, more attractive as a result of the utility  
7 stocks' nominal expected return becoming more valuable in real terms. As shown by the  
8 graph below, expected inflation, as measured by the relative prices of inflation-protected  
9 and inflation-exposed U.S. Treasury bonds and reported by the Federal Reserve, was  
10 almost 3.0% toward the end of 2012 and during early 2013. Inflation subsequently declined  
11 to about 1.4% by mid-2016 before rising back up to near 2.0% toward the end of 2017.<sup>10</sup>

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<sup>9</sup> In other words, the price to acquire the stock was greater than investors' assessment of potential future rewards that may result from holding the stock.

<sup>10</sup> See *5-Year, 5-Year Forward Inflation Expectation Rate*, Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/T5YIFR> (last visited June 12, 2019) (applying custom date range for October 1, 2012 through December 1, 2017).



**Figure 1: 5-Year Forward Inflation Expectation Rate**



In the MISO Order Directing Briefs, the Commission further stated “[i]t appears that, for whatever the reason, investors have seen greater value in utility stocks than the DCF methodology would predict. This suggests that the ROE estimated by that methodology may be correspondingly inaccurate.”<sup>11</sup> The Commission’s statement implies that part of the DCF methodology’s role is to predict future stock prices. However, this misrepresents the purpose of the DCF methodology. Rather than predicting stock prices, its purpose is to identify investors’ required return under the methodology’s simplifying assumptions during the study period in question. In Order No. 489, the Commission clarified how the DCF methodology should be used:

The Commission agrees that the DCF model is a poor method for predicting future stock prices. A simplifying assumption underlying the constant growth DCF model is that the firm will grow at a constant rate. This implies that

<sup>11</sup> See MISO Order Directing Briefs at P 47.

1 book value and dividends can be thought of as growing at  
2 roughly the same rate. If there were no changes in  
3 expectations from one year to the next, prices could be  
4 expected to grow at the same rate as earnings, dividends, and  
5 book value . . . . Since expectations do change, it is not  
6 surprising that AUS found that the model did a poor job of  
7 explaining changes in stock prices. The DCF model is used  
8 to estimate the return required by investors at the time the  
9 analysis is performed. It is not intended to forecast price  
10 changes, changes in market conditions, or changes in  
11 expectations. A year later, expectations about interest rates,  
12 dividends, and growth rates will likely have changed. Prices  
13 change because expectations change. A test to determine  
14 whether a DCF model can forecast stock price changes is not  
15 a valid test of the model.<sup>12</sup>

16 Thus, based on the Commission's precedents and the data I have reviewed, I  
17 conclude that the underlying theory of the DCF remains sound, and the methodology has  
18 performed consistently over the last 10 to 20 years.

19 **C3. How does the DCF methodology perform over a wide range of interest**  
20 **rate conditions?**

21 **C3.a. What specific assumptions of the DCF model, if any, do not**  
22 **work well in low or high interest rate environments?**

23 **C3.b. Is there evidence that the volatility of price-to-earnings ratios**  
24 **over the last 10 to 20 years, assumed to be constant in the DCF**  
25 **methodology, has been driven by the wide swings in interest**  
26 **rates over this period? If so, would the constant P/E assumption**  
27 **impact the award of reasonable ROEs?**

28 I do not address these questions in my affidavit at this time, but reserve the right to  
29 do so in a reply affidavit.

30 **D. Proxy Groups**

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<sup>12</sup> Order No. 489 at 30,991.

1           **D1.    Should proxy groups for electric utilities, as well as natural gas and oil**  
2                                   **pipelines, consist only of companies with corresponding regulated**  
3                                   **businesses?**

4                           **D1.a.   For companies with a combination of regulated and unregulated**  
5                                   **businesses, should a company be required to derive a certain**  
6                                   **percentage of its revenues from the applicable regulated**  
7                                   **business in order for that company to be included in the proxy**  
8                                   **group that is used to determine an ROE for a company in that**  
9                                   **regulated business?**

10                   **D1.b.   Are the corresponding proxy groups sufficiently large given the**  
11                                   **continued consolidation in the industries?**

12           I do not address these questions in my affidavit at this time, but reserve the right to  
13   do so in a reply affidavit.

14           **D2.    Should risk be considered both in the proxy group selection and in the**  
15                                   **placement within the zone of reasonableness?**

16           Yes, risk should be considered in proxy group company selection and in the  
17   placement within the zone of reasonableness so long as the risk assessment is properly  
18   applied for both. Please refer to my responses to questions D6. and D9.

19                   **D2.a.   Should the Commission's approach to proxy group selection**  
20                                   **change depending on which financial models it considers when**  
21                                   **determining the just and reasonable ROE and, if so, how?**

22           I do not address these questions in my affidavit at this time, but reserve the right to  
23   do so in a reply affidavit.

24           **D3.    Should the Commission consider non-energy companies when selecting**  
25                                   **proxy groups?**

26                   **D3.a.   What non-energy industries or securities have comparable risk**  
27                                   **to public utilities and natural gas and oil pipelines, if any?**

28           No. Given electric utilities' unique industry characteristics, it is inappropriate to  
29   include non-electric utilities in the analysis when determining the ROE for electric utilities.

1 As the U.S. Court of Appeals for the D.C. Circuit (“D.C. Circuit”) has opined, “[f]inding  
2 unregulated companies of comparable risk is an extremely tricky process.”<sup>13</sup> The  
3 Commission has previously stated that “we will not consider the non-utility DCF analysis  
4 ... because those methodologies are not based on electric utilities,”<sup>14</sup> and I do not support  
5 changes in the Commission’s policy.

6 A check on the reasonableness of a non-utility group is to ask whether one would  
7 include electric utilities in a group with risk comparable to, for example, Walmart Stores,  
8 which operates in a highly competitive and unregulated industry. I suggest that the answer  
9 is almost always no. For instance, Moody’s characterizes Walmart’s peer group as  
10 “Retail,”<sup>15</sup> while it characterizes Southern California Edison Company’s (“SoCal Edison”)  
11 as part of the “Regulated Electric and Gas Utilities” peer group.<sup>16</sup> Moody’s Retail peer  
12 group of U.S.-domiciled companies includes companies such as Amazon.com, Costco  
13 Wholesale and Walgreens. Unsurprisingly, as the peer group name would suggest, none  
14 are electric utilities.<sup>17</sup>

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<sup>13</sup> *Ill. Bell Tel. Co. v. FCC*, 988 F.2d 1254, 1262-1263 (D.C. Cir. 1993).

<sup>14</sup> *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234, at P 146, n.288 (“Opinion No. 531”), *order on paper hearing*, Opinion No. 531-A, 149 FERC ¶ 61,032 (2014) (“Opinion No. 531-A”), *order on reh’g*, Opinion No. 531-B, 150 FERC ¶ 61,165 (2015) (“Opinion No. 531-B”), *vacated by*, *Emera Maine v. FERC*, 854 F.3d 9 (2017) (“*Emera Maine*”), *order on remand*, *Coakley Order Directing Briefs*, 165 FERC ¶ 61,030.

<sup>15</sup> See Walmart Inc. – Peer Group, Moody’s Investor Services, Inc., <https://www.moodys.com/credit-ratings/Walmart-Inc-credit-rating-806500> (last visited on June 19, 2019). The peer group members can be viewed under the “Peer Group” tab provided on the website.

<sup>16</sup> Southern California Edison Company – Peer Group, Moody’s Investor Services, <https://www.moodys.com/credit-ratings/Southern-California-Edison-Company-credit-rating-693000> (last visited on June 19, 2019). The peer group members can be viewed under the “Peer Group” tab provided on the website.

<sup>17</sup> Walmart and Amazon in particular have been described as the world’s largest general consumer product retailers, with a peer group consisting of Big Lots, Canadian Tire, and eBay, among others. See Daniel Seens, *Walmart or Amazon: An Extended Peer Group Comparison*, Yahoo! Finance (Oct. 15, 2018),

I find that it is inappropriate to include non-electric utilities in the analyses used to determine ROEs for electric utilities given electric utilities' unique industry characteristics, and I do not recommend this approach.

**D3.b. Do certain non-energy industries or securities feature fewer outliers?**

I do not address this question in my affidavit at this time, but reserve the right to do so in a reply affidavit.

**D4. What, if any, are appropriate high- and low-end outlier tests?**

**D4.a. The Commission currently excludes from the proxy group companies whose ROE fails to exceed the average 10-year bond yield by approximately 100 basis points. Should the low-end outlier test continue to be based on a fixed value relative to the costs of debt or (a) should it be based on its value relative to the median (i.e., less than 50 percent of the median); or (b) still reflect the cost of debt but vary based on interest rates?**

As part of the newly proposed framework outlined in the Coakley and MISO Orders Directing Briefs, the Commission proposes “to continue to use the same screens for developing a proxy group as the Commission has used in recent cases, including Opinion Nos. 531 and 551.”<sup>18</sup> One of the screens seeks to ensure that a proxy group only retains “companies whose ROE results pass threshold tests of economic logic, including both a low-end outlier test and a high-end outlier test.”<sup>19</sup> The need to test for economic logic is

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<https://finance.yahoo.com/news/walmart-amazon-extended-peer-group-154345262.html>; see also Phalguni Soni, *Cash Is King – Analyzing Valuations For Walmart And Its Peers*, Market Realist (Feb. 18, 2015), <https://articles.marketrealist.com/2015/02/cash-king-analyzing-valuations-walmart-peers/> (identifying Walmart's industry peers, which do not include electric utilities). In these examples, none of the peer group members are electric utilities.

<sup>18</sup> Coakley Order Directing Briefs at P 49 (citations omitted); MISO Order Directing Briefs at P 50; see also *Ass'n of Bus. Advocating Tariff Equity v. MISO*, 156 FERC ¶ 61,234 (2016) (“Opinion No. 551”).

<sup>19</sup> See Coakley Order Directing Briefs at P 49.

1 not in dispute. For example, Dr. William E. Avera, a witness who has previously filed  
2 testimony on behalf of Commission-regulated public utilities, when explaining his  
3 recommendation that not all points within the DCF range of results can be relied upon to  
4 determine the cost of common equity, stated:

5           The DCF range for a proxy group of electric utilities must be  
6           adjusted to eliminate cost of equity estimates that fail  
7           fundamental tests of economic logic. It is a basic economic  
8           principle that investors can be induced to hold more risky  
9           assets only if they expect to earn a return to compensate them  
10          for their risk bearing. As a result, the rate of return that  
11          investors require from a utility's common stock, the most  
12          junior and riskiest of its securities, must be considerably  
13          higher than the yield offered by senior, long-term debt.<sup>20</sup>

14          Regarding the low-end outlier test, the Commission has stated that its objective is  
15          to “exclude from the proxy group companies whose low-end ROE” is “sufficiently low  
16          that an investor would consider the stock to ‘yield essentially the same return’ as debt.”<sup>21</sup>  
17          To meet this objective, the Commission explains that it “excludes from the proxy group  
18          companies whose ROE fails to exceed the average 10-year [sic] bond yield by  
19          approximately 100 basis points, taking into account any natural break between the cost of  
20          equity estimates of the companies excluded from the proxy group and the lowest cost of  
21          equity estimate of the companies included in the proxy group.”<sup>22</sup> I agree that a 100-basis  
22          point band, subject to the natural break analysis as discussed further below, reasonably

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<sup>20</sup> Direct Testimony of William E. Avera, Exh. No. PNR-700 at 48:8-14, *Pioneer Transmission, LLC*, Docket No. ER09-75-000 (filed Oct. 15, 2008).

<sup>21</sup> See *S. Cal. Edison Co.*, 131 FERC ¶ 61,020, at P 55 (2010).

<sup>22</sup> See MISO Order Directing Briefs at P 51 (citing Opinion No. 531 at P 123).

1 meets the objective of identifying ROEs that are sufficiently low such that investors would  
2 perceive the equity returns to yield essentially the same return as debt.

3 When applying the low-end outlier test, the Commission has previously relied on  
4 the six-month average bond yields for the DCF study period as reported in the Moody's  
5 Public Utility Bond Index for the same rating category as the utility whose low-end ROE  
6 is being tested.<sup>23</sup> This test remains appropriate because it is the economic logic of the  
7 calculated ROE for the specific proxy company that is being tested, and the bond yield for  
8 that utility's credit rating category should be used in the test. Credit ratings consider both  
9 financial and business risks of utilities and differentiate between the overall risks associated  
10 with individual utilities. Investors require lower capital cost rates for utilities with lower  
11 risks and higher capital cost rates for those with higher risks. This fact is evidenced by the  
12 differences in the Moody's Baa-rated utility bond index yields and its six A-rated utility  
13 bond index yields. Additionally, the Commission has explained that "[a]n investor will  
14 expect a higher yield for a more risky investment. For instance, an AAA long-term bond  
15 has a lower discount rate than a BBB bond, because there is more risk that the company  
16 with the BBB bond will not meet its obligations."<sup>24</sup> Therefore, using the Baa bond index  
17 yield to test the ROE for an A-rated utility is not appropriate, as this approach fails to reflect  
18 the risk associated with the applicant utility.

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<sup>23</sup> See *S. Cal. Edison Co.*, 131 FERC ¶ 61,020 at PP 54-56; *Bangor Hydro-Elec. Co.*, 117 FERC ¶ 61,129, at P 53 (2006) ("We affirm the Presiding Judge's determination that in eliminating unreliable low-end ROEs, it is appropriate to consider the company's own cost of debt, not the composite debt rate of the proxy group.").

<sup>24</sup> See *Nw. Pipeline Corp.*, Opinion No. 396-B, 79 FERC ¶ 61,309 (1997) ("Opinion No. 396-B"), *reh'g denied*, Opinion No. 396-C, 81 FERC ¶ 61,036, at 61,189, n.8 (1997) ("Opinion No. 396-C").

1           Regarding the high-end outlier test, in the Coakley and MISO Orders Directing  
2   Briefs, the Commission has proposed a new test to meet its stated objective to “identify  
3   those companies whose cost of equity under the model in question is so far above the cost  
4   of equity of a typical proxy company as to suggest that it is the result of atypical  
5   circumstances not representative of the risk profile of a more normal utility.”<sup>25</sup> The  
6   proposal is to exclude:

7                   [A]ny proxy company whose cost of equity estimated with a  
8                   given model is more than 150 percent of the median result  
9                   of all of the potential proxy group members in that model  
10                  before any high or low-end outlier test is applied, subject to  
11                  a “natural break” analysis.<sup>26</sup>

12           The proposed test is severely limited in its effectiveness. The proposed 150%  
13   multiplier is an arbitrarily-chosen measure that does not appropriately consider information  
14   inherent in the underlying array of ROEs produced by each model. There is no statistically  
15   sound basis supporting the multiplier. Further, the multiplier will have limited value in  
16   determining atypical results as the underlying array changes because the 150% multiplier  
17   does not consider the dispersion of the ROEs produced by each model and therefore  
18   provides an inadequate assessment of the underlying data set.

19           I recommend that the proposed high-end outlier test be improved by replacing the  
20   150% multiplier with a common statistical method for identifying outliers based on the  
21   elimination of any model results that are more than two standard deviations from the  
22   median of each model’s ROE array prior to testing for low- and high-end outliers. The

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<sup>25</sup> See MISO Order Directing Briefs at P 54.

<sup>26</sup> See *id.*



1 standard deviation measures the dispersion evident in the dataset and is a standard  
2 statistical method to identify outliers. It can also be easily computed using the standard  
3 deviation formula function in Microsoft Excel. A two-standard deviation bandwidth is  
4 commonly used to provide a 95% confidence level that it encompasses the true value of  
5 the statistic being measured.<sup>27</sup> Thus, employing the two-standard deviation bandwidth test  
6 makes use of a standard statistical method that is simple to apply.

7 To demonstrate the application of my recommended alternative high-end outlier  
8 test, I turn to the illustrative example the Commission provided in the MISO Order  
9 Directing Briefs of how its proposed high-end outlier test would be applied.<sup>28</sup> The  
10 Commission, in its example, calculated a 15.30% high-end outlier threshold for the  
11 Expected Earnings analysis and removed two estimated ROE values of 16.37% and  
12 18.24%, as these values were greater than the threshold level.<sup>29</sup> When applying my  
13 alternative high-end outlier test, I calculated the two standard deviation upper limit as  
14 14.88%.<sup>30</sup> Therefore, I eliminate the same two ROE values as were eliminated under the  
15 Commission-proposed test, but I also eliminate an ROE value of 15.21% because it is

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<sup>27</sup> See Eugene F. Brigham and Louis C. Gapenski, *Intermediate Financial Management*, 36 (The Dryden Press, 5th Ed. 1996).

<sup>28</sup> See MISO Order Directing Briefs at P 55. While the order did not specifically cite the source, it is apparent that the Commission relied upon Dr. Avera's MISO I expected earnings analysis as presented in Exhibit No. MTO-31. Cross-Answering Testimony of William E. Avera, Exh. No. MTO-31, *Ass'n of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Docket No. EL14-12-002 (filed June 15, 2015).

<sup>29</sup> *Id.*

<sup>30</sup> The upper limit is determined by first calculating the standard deviation of the ROE array, before the application of any outlier tests, which is 2.34%. Second, the standard deviation value is multiplied by "2" and added to the 10.20% median of the ROE array, again, as determined before the application of outlier tests.

1 greater than the upper threshold limit of my alternative high-end outlier test. The  
2 Commission's proposed high-end outlier test, which does not consider the dispersion of  
3 the ROEs produced by the analysis, would inappropriately result in the elimination of the  
4 top two ROE values, but not the third-highest value.<sup>31</sup>

5 In the Coakley and MISO Orders Directing Briefs, the Commission made clear its  
6 intention to apply a "natural break" analysis with respect to the low- and high-end outlier  
7 tests, but it did not articulate specifically how this analysis should be performed. However,  
8 the Commission has previously recognized that the cut-off point for the low-end outlier  
9 test can vary "depending upon where the natural break is in the array of low-end ROEs of  
10 the candidate proxy group companies that would distinguish outliers from non-outliers,"<sup>32</sup>  
11 and it has noted that it will apply outlier tests with a degree of flexibility.<sup>33</sup> Thus, the  
12 Commission has recognized that it can be appropriate to eliminate outlier ROE results if  
13 they are sufficiently close to the thresholds that are first set by the outlier tests and are  
14 significantly far apart from the remaining ROEs in the array. It is now an opportune time  
15 for the Commission to establish clear and objective standards regarding the manner in  
16 which it intends to perform its "natural break" analysis.

17 To that end, I recommend that the Commission adopt the following "Natural Break"  
18 standard. This standard can be applied regardless of the ultimate high- or low-end outlier  
19 tests implemented by the Commission. Under my proposed standard, a proxy value would

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<sup>31</sup> See Exhibit No. CIT-0005 detailing this example.

<sup>32</sup> See *S. Cal. Edison Co.*, 131 FERC ¶ 61,020 at P 55.

<sup>33</sup> See Opinion No. 531 at P 122.

1 be deemed to constitute a “natural break” and, thus, the proxy company’s result removed  
2 from the analysis if it meets a two-part test:

3 Part 1: The proxy value is close to the threshold level that applies prior to  
4 considering natural breaks, tested by whether that distance is less than one-  
5 half the average jump (that is, one-half the width of the distribution’s range  
6 divided by the number of proxies, in each case prior to excluding any  
7 outlier); and  
8

9 Part 2: The proxy value is relatively far from the neighboring proxy value that  
10 would be retained, tested by whether that distance is more than three times  
11 the proxy group average jump.

12 While the one-half and three times the average jump values referenced above are  
13 admittedly somewhat arbitrarily chosen, they do provide objective measures of the relative  
14 closeness to the threshold values and the relative distance from otherwise retained values  
15 that may be consistently applied to determine predictable outcomes. The use of one-half  
16 the average jump would assure that only ROE results that are relatively near the threshold  
17 values would be selected for further evaluation, and the use of three times the average jump  
18 would assure that only values that are significantly distant from the next retained ROE to  
19 constitute a natural break would be rejected. The Commission could reevaluate the one-  
20 half and three times the average jump values after applying those benchmarks in several  
21 cases, but I submit that they are logical and reasonable starting points that would provide  
22 needed transparency and objectivity to the Commission’s natural break analyses.

23 To demonstrate the application of this recommended “Natural Break” standard, I  
24 again turn to the illustrative example the Commission provided in the MISO Order  
25 Directing Briefs of how its proposed high-end outlier test would be applied.<sup>34</sup> As

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<sup>34</sup> See MISO Order Directing Briefs at P 55.

1 previously noted, the Commission, in its example, calculated a 15.30% high-end outlier  
2 threshold for the Expected Earnings analysis and removed two estimated ROE values of  
3 16.37% and 18.24%, as these values were greater than the threshold level. However, the  
4 Commission did not eliminate, or even acknowledge, the next highest ROE in the  
5 distribution, Vectren's 15.21% value, which was only nine basis points lower than the  
6 Commission's proposed threshold level. Given this proximity to the threshold value,  
7 Vectren's ROE value should have been evaluated in order to determine whether a "natural  
8 break" is present in the distribution that would confirm either elimination or retention of  
9 the Vectren value. Under my recommended standard, Vectren's 15.21% meets the first  
10 test because its 9-basis points distance from the 15.30% threshold level is less than one-  
11 half the average jump (which is 14 basis points<sup>35</sup>), and it meets the second test because its  
12 126-basis point distance from CMS Energy's 13.94% ROE value, the next highest ROE  
13 value in the array, is more than three times the distribution's 28.7 basis point average jump  
14 (i.e., 86 basis points).<sup>36</sup> Therefore, under my proposed Natural Break standard, Vectren's  
15 ROE should be eliminated as it is sufficiently close to the Commission's proposed high-  
16 end threshold level and is clearly distinguishable from the remaining non-outlier utilities.

17 **D4.b. How, if at all, should the Commission's approach to outliers**  
18 **vary among different financial models?**

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<sup>35</sup> The average jump is 28.7 basis points ((18.24% - 7.61%)/ 37 companies) and one-half the average jump is 14 basis points.

<sup>36</sup> See Exhibit No. CIT-0006, which illustrates this example. Please note that in this example, the Commission's outlier test as proposed in Opinion No. 531 is applied, rather than my recommended alternative high-end outlier test as discussed above.

1 In the Coakley and MISO Orders Directing Briefs, the Commission proposes to  
2 apply the low- and high-end outlier tests separately to each of the models of its newly  
3 proposed framework that produce an array of ROEs, which are the DCF, Capital Asset  
4 Pricing Model (“CAPM”) and Expected Earnings models.<sup>37</sup> I agree with this approach.

5 It is critical that the high-end outlier test be applied independently to the array of  
6 ROE estimates produced by each ROE method ultimately adopted by the Commission.  
7 Each method independently estimates the cost of equity for each of the proxy companies  
8 to which it is applied, and, given the Commission’s concern with the model risk inherent  
9 in each method, it is imperative that the extreme values produced by each method be tested  
10 against the other estimates produced by that method. To be internally consistent, the low-  
11 and high-end tests should be applied individually to each model’s results. As Dr. Roger  
12 Morin has explained in his book, *New Regulatory Finance*, “[e]ach methodology possesses  
13 its own way of examining investor behavior, its own premises, and its own set of  
14 simplifications of reality.”<sup>38</sup> Consequently, one can only determine whether a proxy group  
15 member’s ROE estimate, based on a specific model’s assumptions, is illogical or can be  
16 identified as an outlying value through reference to the full array of ROE outputs produced  
17 by that same model. This process ensures that each methodology is producing internally  
18 consistent outputs that are economically logical before they are combined to determine a  
19 just and reasonable range of ROEs.

20 **D5. How, if at all, does the Commission’s use of credit ratings in ROE**  
21 **determinations incentivize public utilities to behave in certain ways,**

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<sup>37</sup> For example, see MISO Order Directing Briefs at P 51.

<sup>38</sup> Roger A. Morin, PhD, *New Regulatory Finance* 429 (Public Utilities Reports, Inc., 2006) and referenced by the Commission in the MISO Order Directing Briefs at P 36.

1                   **such as issuing more debt, and does this affect public utilities' credit**  
2                   **ratings?**

3                   I do not address this question at this time, but reserve the right to do so in a reply  
4                   affidavit.

5                   **D6.    What would be the impact of the Commission modifying the credit**  
6                   **rating screen to include all investment-grade utilities in the proxy**  
7                   **group?**

8                   Modifying the credit rating screen to include all investment-grade utilities in the  
9                   proxy group would be a significant departure from the *Hope*<sup>39</sup> and *Bluefield*<sup>40</sup> standards,  
10                  which recognize that the equity investor's interest is served if the return to the equity owner  
11                  is comparable to the returns on investments in other enterprises having similar risks.<sup>41</sup> A  
12                  proxy group of all investment-grade utilities fails to achieve the goal of developing a proxy  
13                  group of risk comparable electric utilities.

14                  In the Coakley and MISO Orders Directing Briefs, the Commission has proposed  
15                  to retain the proxy group screening factors it adopted in Opinion Nos. 531 and 551. These  
16                  criteria incorporate a screen to include "companies with credit ratings no more than one  
17                  notch above or below the utility or utilities whose ROE is at issue," and the Commission  
18                  further clarified that it "requires use of both Standard and Poor's corporate credit ratings  
19                  and Moody's issuer ratings when both are available."<sup>42</sup> The Commission previously  
20                  explained "[t]he purpose of the credit rating band screen is to include in the proxy group

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<sup>39</sup> *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*").

<sup>40</sup> *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*").

<sup>41</sup> *Hope* at 603.

<sup>42</sup> See Coakley Order Directing Briefs at P 49, n.106.

1 only those companies whose credit ratings approximate those of the utilities whose rate is  
2 at issue.”<sup>43</sup> Furthermore, the Commission has stated that it “believes that companies within  
3 one credit rating level can be considered comparable in risk.”<sup>44</sup> This screen acts as the  
4 Commission’s primary tool to ensure the proxy group only consists of electric utilities that  
5 are of comparable risk to the utility whose rates are at issue. In my view, this screen serves  
6 an important purpose and should be retained.

7 Credit ratings reflect an agency’s comprehensive review of all the risks a company  
8 faces, including both business and financial risk. Despite not providing a direct measure  
9 of equity risk, credit ratings are widely relied upon by and provide significant value to  
10 equity investors. For example, share price movements following an announcement of  
11 changes in credit ratings are strongly indicative of equity investors’ reliance on credit  
12 ratings.<sup>45</sup> Additionally, credit ratings provide an objective and independent measure of a  
13 utility’s risk, and given that each credit rating has its own respective common scale, credit  
14 ratings are also an appropriate measure of risk comparability between utilities.

15 That credit ratings are relied upon by investors is a widely accepted view. The  
16 Managing Director for Moody’s Global Regulatory Affairs, Farisa Zarin, noted in  
17 comments to the Securities and Exchange Commission:

18 To meet market needs over time, credit ratings have  
19 developed important attributes including insightful, robust

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<sup>43</sup> See Opinion 531 at P 106.

<sup>44</sup> See *S. Cal. Edison Co.*, 122 FERC ¶ 61,187 at P 27, n.27 (2008).

<sup>45</sup> For instance, Zacks reports that “a rating change for a company’s bonds can be an important factor in determining whether investors want to buy or sell that company’s stock. A change in that rating may move stock prices.” See Wayne Marks, *The Effect of Bond Rating Changes on Common Stock Prices*, Zacks <https://finance.zacks.com/effect-bond-rating-changes-common-stock-prices-1686.html> (last visited June 20, 2019).

1 and independent analysis, symbols that succinctly  
2 communicate opinions, and broad coverage across markets,  
3 industries and asset classes. These attributes have enabled  
4 credit ratings to serve as a point of reference and common  
5 language of credit that is used by financial market  
6 professionals worldwide to compare credit risk across  
7 jurisdictions, industries and asset classes, thereby facilitating  
8 the efficient flow of capital worldwide.”<sup>46</sup>

9 Dr. Avera has also provided testimony regarding the value of credit ratings as a  
10 measure of investment risk:

11 Credit ratings are assigned by independent rating agencies to  
12 provide investors with a broad assessment of the  
13 creditworthiness of a firm. Because the rating agencies’  
14 evaluation includes virtually all of the factors normally  
15 considered important in assessing a firm’s relative credit  
16 standing, corporate credit ratings provide a broad measure of  
17 overall investment risk that is readily available to investors.  
18 Widely cited in the investment community and referenced  
19 by investors as an objective measure of risk, credit ratings  
20 are also frequently used as a primary risk indicator in  
21 establishing proxy groups to estimate the cost of equity.<sup>47</sup>

22 The proxy group used to determine electric utility ROEs is intended to result in a  
23 grouping of risk-comparable companies. With regard to the role of proxy groups, the  
24 Commission has previously explained:

25 [T]he purpose of the proxy group is to “provide market-  
26 determined stock and dividend figures from public  
27 companies comparable to a target company . . . .” It is thus  
28 crucial that the firms in the proxy group be comparable to  
29 the regulated firm whose rate is being determined. In other

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<sup>46</sup> Farisa Zarin, Letter Re: Credit Rating Standardization Study – Release No. 34-63573; File No. 4-622 (Feb. 18, 2011), *quoted in* Answering Testimony of Adrien M. McKenzie, Exh. No. SER-0001 at 33:9-17, *Ark. Pub. Serv. Comm’n v. Sys. Energy Res., Inc.*, Docket Nos. EL17-41-001, EL18-142-000 (filed Mar. 20, 2019).

<sup>47</sup> Direct Testimony of William E. Avera, Exh. No. PNR-700 at 31:20 – 32:4, *Pioneer Transmission, LLC*, Docket No. ER09-75-000 (filed Oct. 15, 2008).



1 words, as the court emphasized in *Petal*, the proxy group  
2 must be ‘risk- appropriate.’<sup>48</sup>

3 The D.C Circuit likewise observed that:

4 [P]roxy group arrangements must be risk-appropriate. The  
5 principle is well-established . . . [and] captures what proxy  
6 groups do, namely, provide market-determined stock and  
7 dividend figures from public companies comparable to a  
8 target company for which those figures are unavailable.<sup>49</sup>

9 To establish proxy groups that consist of comparably-risked electric utilities, the  
10 Commission has generally relied on credit ratings and has recognized that “investors rely  
11 upon credit ratings”<sup>50</sup> when assigning investment risk. The Commission has also  
12 concluded that “[i]t is reasonable to use the proxy companies’ corporate credit rating as a  
13 good measure of investment risk, since this rating considers both the financial and the  
14 business risk of the company.”<sup>51</sup>

15 In Opinion No. 486-B,<sup>52</sup> when developing pipeline proxy groups, the Commission  
16 found that a “pipeline’s credit rating is an appropriate part of the risk analysis and is well

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<sup>48</sup> See generally *Composition of Proxy Group for Determining Gas and Oil Pipeline Return on Equity Policy Statement*, 123 FERC ¶ 61,048 at P 48 (2008) (quoting *Petal Gas Storage, L.L.C. v. FERC*, 496 F.3d 695, 699 (D.C. Cir. 2007)).

<sup>49</sup> *Petal Gas Storage, L.L.C.*, 496 F.3d at 699 (citations omitted).

<sup>50</sup> Opinion 531 at P 107.

<sup>51</sup> See *Potomac-Appalachian Transmission Highline, L.L.C.*, 122 FERC ¶ 61,188, at P 97 (2008); see also *Va. Elec. and Power Co.*, 123 FERC ¶ 61,098, at P 62 (2008) (“We agree with protesters that, consistent with *Hope*, we must consider whether the proxy group is composed of companies with comparable risk to that of VEPCO. It is reasonable to use the proxy companies’ corporate credit rating as a good measure of investment risk, since this rating considers both financial and business risk”); *Potomac-Appalachian Transmission Highline, L.L.C.*, 133 FERC ¶ 61,152, at P 63 (2010) (observing “corporate credit ratings are a reasonable measure to use to screen for investment risk,” and that “[c]redit ratings are a key consideration in developing a proxy group that is risk-comparable”); *Westar Energy, Inc.*, 122 FERC ¶ 61,268 at P 95 (2008).

<sup>52</sup> *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 (2009) (“Opinion No. 486-B”).

1 established by Commission precedent,” and “[Investment Credit Ratings], as well as  
2 business risk profile ratings, are useful criteria in evaluating relative risk.”<sup>53</sup> There, the  
3 Commission further explained that “rating agencies such as Moody’s use many factors that  
4 would be relevant to an equity investor’s analysis of a firm’s business prospects,” noting  
5 that “[i]t is correct that a strong credit rating implies a greater ability to provide consistent  
6 returns to the firm’s stockholders and to raise capital for future growth.”<sup>54</sup> In *Westar*, the  
7 Commission found that “Westar’s proxy group does not sufficiently screen for risk because  
8 it includes various companies in its proxy group whose corporate credit ratings are not  
9 comparable.”<sup>55</sup>

10 Expanding the credit rating screen to include all investment grade electric utilities  
11 would be inconsistent with the Commission’s previously-expressed concern regarding an  
12 “overly-broad selection criteria without any emphasis on finding companies that are  
13 comparable in risk . . . ”<sup>56</sup> to the subject to utility. Based on the widely-accepted view that  
14 corporate credit ratings are a measurement of investment and business risk – a view that  
15 the Commission has endorsed – I conclude that modification of the credit rating screen to  
16 require simply that proxy companies have an investment-grade rating would result in  
17 abandonment of the risk comparability principle the Commission has applied over many  
18 years. I therefore support retention of the Commission’s credit ratings screen as it is  
19 currently applied.

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<sup>53</sup> *Id.* at P 137.

<sup>54</sup> *Id.*

<sup>55</sup> *Westar Energy, Inc.*, 122 FERC at P 95.

<sup>56</sup> *S. Cal. Edison Co.*, 92 FERC ¶ 61,070, at 61,264 (2000).

1           **D7. To what extent do credit ratings correspond to the ROE required by**  
2           **investors?**

3           The Commission is tasked with determining a just and reasonable return on equity  
4           for the FERC-regulated service at issue. To reach this determination, the Commission must  
5           rely on a set of analytical tools, *albeit* imperfect tools, and judgment, because an investor's  
6           required return on equity is not directly observable. *Hope* and *Bluefield* recognize: (1) that  
7           ratemaking involves balancing investor and consumer interests; and (2) the equity  
8           investor's interest is served if the return to the equity owner is comparable to the returns  
9           on investments in other enterprises having similar risks.<sup>57</sup> Consistent with these core  
10          tenets, the Commission relies upon a proxy, or representative, group of utilities that are  
11          deemed to be of comparable risk to the subject utility and, in particular, the FERC-  
12          regulated service it renders. Apart from screening for risk comparability, the Commission  
13          also screens for data availability, activity that may render the data unreliable, and whether  
14          ROE values produced by an analytical model are economically sound and logical. The  
15          “natural break” analysis forms part of this last screen.

16          As discussed further in response to question D6., credit ratings provide an objective  
17          means to identify a proxy group of comparably-risked electric utilities, and the  
18          Commission has traditionally relied upon a credit rating band to develop a risk-comparable  
19          proxy group.

20          In his book *New Regulatory Finance*, Dr. Morin explains the rationale of using  
21          credit ratings to develop a comparable group of proxy companies:

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<sup>57</sup> *Hope*, 320 U.S. at 603.

1           The assumption underlying this approach is that there is a  
2           one-to-one correspondence between a utility's equity risk  
3           and its debt risk. This is a plausible assumption given the  
4           positive relationship between bond rating and equity risk:  
5           low bond ratings are usually accompanied with high equity  
6           risks, and vice versa.<sup>58</sup>

7       However, investors' required ROE is not directly observable, so, logically, the analytical  
8       tools in estimating the return are considered imperfect. Therefore, it is important to not  
9       over-emphasize the information provided by a single return on equity estimate for any one  
10      individual utility. Dr. Morin adds "[t]here are several convincing reasons why the  
11      determination of cost of capital should not rest on a sample of one firm" and suggests that  
12      it is most appropriate to employ an analysis based on a comparable group to increase  
13      reliability and account for abnormal conditions, among other limitations, inherent in  
14      relying on a sample of one firm.<sup>59</sup> In fact, this explains why, in part, the Commission  
15      develops a proxy group of comparably risked electric utilities, applies additional screens,  
16      and relies on the point of central tendency from the resulting array of results for an electric  
17      utility of average risk (e.g., the median in the case of single utilities) to determine the  
18      ROE.<sup>60</sup>

19           **D8.    The Commission excludes from the proxy group companies with**  
20           **merger activity during the six-month study period that is significant**  
21           **enough to distort study inputs. Should the Commission continue using**  
22           **our existing merger screen?**

23           **D8.a. If so, should the Commission revise its standards for what**  
24           **conduct constitutes merger and acquisition activity?**

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<sup>58</sup> Roger A. Morin, PhD, *New Regulatory Finance* 404 (Public Utilities Reports, Inc., 2006) (emphasis supplied).

<sup>59</sup> See *id.* at 397-399.

<sup>60</sup> See Coakley Order Directing Briefs at P 17, n.46.

1 I do not address this question at this time, but reserve the right to do so in a reply  
2 affidavit.

3 **D9. What circumstances or factors, if any, warrant an adjustment from the**  
4 **midpoint/median to other points within the zone of reasonableness (e.g.,**  
5 **lower or upper midpoint/median)?**

6 While I would not categorically rule out discretionary adjustments (upward or  
7 downward) from the midpoint or median results, I do not believe such adjustments should  
8 be routine, and the justification for such adjustments should be based on compelling  
9 evidence. For example, the Commission has previously held that “unless a party makes a  
10 very persuasive case in support of the need for an adjustment and the level of the adjustment  
11 proposed, the Commission will set the . . . return at the median of the range of reasonable  
12 returns.”<sup>61</sup> The Commission later clarified that “any analysis attempting to demonstrate  
13 that a deviation from the median ROE is justified must present a comparison between the  
14 risk level of the subject company and the risk level of each of the proxy group companies,”  
15 explaining that “[t]his is the crux of the analysis, and if it is lacking, the analysis is  
16 incomplete.”<sup>62</sup>

17 The difficulty of meeting this “heavy burden”<sup>63</sup> is clear from the lack of successful  
18 attempts to demonstrate that deviation from the point of central tendency is warranted. For  
19 example, in *El Paso*, the FERC Trial Staff noted that “once an appropriate proxy group has  
20 been determined, the Commission has never found that any pipeline company (or

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<sup>61</sup> Opinion 486-B at P 140.

<sup>62</sup> *El Paso Natural Gas Co.*, Opinion No. 528, 145 FERC ¶ 61,040 at P 698 (2013) (“Opinion No. 528”),  
*order on reh’g*, Opinion No. 528-A, 154 FERC ¶ 61,120 (2016) (“*El Paso*”).

<sup>63</sup> *See id.* at P 688 (“The Commission places a heavy burden on those attempting to justify a deviation from  
the median ROE.”).

1 intervenor) has persuasively shown the highly unusual circumstances required to justify a  
2 ROE above (or below) the median.”<sup>64</sup>

3 Further, as discussed in greater detail in response to question D6., credit ratings  
4 reflect an agency’s comprehensive review of all the risks a company faces, including both  
5 business and financial risk. For example, wildfire risk was a primary reason for SoCal  
6 Edison’s recent credit rating downgrade.<sup>65</sup> Despite not providing a direct measure of equity  
7 risk, credit ratings are widely relied upon by and provide significant value to equity  
8 investors. Additionally, credit ratings provide an objective and independent measure of a  
9 utility’s risk, and given that each credit rating has its own respective common scale, credit  
10 ratings are also an appropriate measure of risk comparability between electric utilities.  
11 Indeed, this is confirmed in Moody’s recent Rating Action report for San Diego Gas &  
12 Electric Company with Nati Martel, Vice President Senior Analyst, explaining that “[t]he  
13 downgrade of SDG&E’s ratings reflects the company’s exposure to sizeable potential  
14 liabilities in connection with California wildfires which results in a higher business and  
15 financial risk profile compared to utilities operating outside of California.”<sup>66</sup> Therefore, it

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<sup>64</sup> *Id.* at P 662. However, recently the Commission ruled that in *Potomac-Appalachian Transmission Highline*, it was appropriate to award an ROE based on the lower median, i.e., the 25<sup>th</sup> percentile, of the zone of reasonableness, on the basis that “in the abandonment phase of the project, PATH’s risk profile has decreased significantly as compared to the proxy companies that face ongoing business risks” (see *Potomac-Appalachian Transmission Highline, LLC*, 158 FERC ¶ 61,050 at P 262 (2017)) and that PATH “does not have a risk profile that is broadly comparable to those of the proxy group companies” (see *id.* at P 272).

<sup>65</sup> See *Rating Action: Moody’s downgrades Edison International to Baa3 and Southern California Edison to Baa 2*, Moody’s Investors Service (Mar. 5, 2019), [https://www.moodys.com/research/Moodys-downgrades-Edison-International-to-Baa3-and-Southern-California-Edison--PR\\_396014](https://www.moodys.com/research/Moodys-downgrades-Edison-International-to-Baa3-and-Southern-California-Edison--PR_396014) (“We downgraded Edison and SCE given the potential for multi-billion dollar exposure related to wildfire risk that is unique to investor-owned utilities in California,” said Toby Shea, VP – Senior Credit Officer.”).

<sup>66</sup> See *Rating Action: Moody’s downgrades San Diego Gas & Electric to Baa1 from A2; Outlook Negative*, Moody’s Investors Service (Mar. 5, 2019), <https://www.moodys.com/research/Moodys-downgrades-San->

1 is clear that Moody's assesses the risks faced by an electric utility and determines a rating  
2 that is comparable to its electric utility peers. A proxy group developed using the  
3 Commission's traditional credit rating band criterion results in a risk comparable electric  
4 utility proxy group without the need for a further adjustment for potential wildfire liabilities  
5 or other risks, as such other risks have already been incorporated in the rating agencies'  
6 assessments. Moreover, the facts of each case must be carefully considered. For example,  
7 if the higher risk is demonstrably due to imprudent management, it would not be  
8 appropriate to reward such imprudence with a higher ROE.

9 Thus, the Commission has historically placed great weight on the presumption that  
10 an appropriately-selected proxy group contains companies of comparable risk and that  
11 those attempting to rebut this presumption must meet a high standard of evidence. It is  
12 also clear that those seeking to rebut the presumption must provide a rigorous comparative  
13 risk analysis to each and every utility in the proxy group and that generalized assertions  
14 regarding the applicant company's risk relative to the proxy group as a whole alone are  
15 insufficient to meet this burden.

16 Furthermore, the median measurement, as opposed to the midpoint, is the most  
17 appropriate measure of central tendency of ROE results. The midpoint measurement  
18 simply averages the top and bottom ROE result and fails to consider the ROE results in  
19 between these two points. It is not the extreme ROEs from the proxy group that are  
20 representative of the return required by investors for the average amount of risk represented  
21 by the proxy group, but rather the ROE around which the results cluster. The value that

1 best represents this clustering of ROEs is the median, which is determined by identifying  
2 the ROE value for which there is an equal number of higher and lower calculated proxy  
3 group ROEs. In proceedings involving an individual electric utility with risks comparable  
4 to the average for the proxy group, it has been Commission policy to rely on the median of  
5 the ROE results for the proxy as the appropriate ROE point estimate. That policy, which  
6 was articulated in the Commission's *SCE Paper Hearing Order*,<sup>67</sup> was affirmed by the  
7 D.C. Circuit on May 10, 2013 in *S. Cal. Edison Co. v. FERC*, 717 F.3d 177 (D.C. Cir.  
8 2013).

9 **D10. The Commission currently uses midpoints to determine the central**  
10 **tendency of the zone of reasonableness when determining RTO-wide**  
11 **ROEs. Should the Commission adopt a policy of using medians for this**  
12 **purpose?**

13 **D10.a. Would the use of multiple ROE methodologies, as proposed in**  
14 **the Coakley Briefing Order, undercut the Commission's current**  
15 **rationale for using the midpoint in RTO-wide base ROE?**

16 **D10.b. Should the size of the proxy group be considered in this decision?**

17 I support continued use of the median of the proxy group results as the point estimate  
18 for establishing the ROE for an individual utility of average risk. I do not state a position  
19 in this affidavit regarding the point estimate for use in setting an RTO-wide ROE.

20 **D11. Can the Commission continue to construct proxy groups of sufficient**  
21 **size for natural gas and oil pipeline companies using the DCF**  
22 **methodology, or in general for the alternative methodologies,**  
23 **particularly considering the increased amount of merger and**  
24 **acquisition activity involving master limited partnerships (MLPs) and**  
25 **the multiple recent conversions of MLPs to C-corporations?**

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<sup>67</sup> *S. Cal. Edison Co.*, 131 FERC ¶ 61,020 (2010).



1           This affidavit does not state a position regarding the methodology for determining  
2   the return on equity for natural gas and oil pipelines.

3   **E.     Financial Model Choice**

4           **E1.    What models do investors use to evaluate utility equities?**

5           Investors primarily use three market-based models to estimate the required rate of  
6   return or cost of equity when evaluating utility equities. These are the DCF, the CAPM  
7   and the Risk Premium Model (“Risk Premium”). The Expected Earnings method, which  
8   examines a company’s expected accounting return on the book value of its common equity,  
9   is devoid of capital market input and has been thoroughly discredited.<sup>68</sup>

10          The prevalence of the DCF, the CAPM, and the Risk Premium is well documented.  
11   For example:

12           a. Dr. Jonathan Lesser and Dr. Leonardo R. Giacchino explain that “[a]  
13               number of methodologies have been developed for estimating the return on  
14               equity. The three most common are the Discounted Cash Flow Model

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<sup>68</sup> The failure of either popular financial textbooks, investor survey results, or “best practice” practitioner guides published by major advisory firms to mention, let alone, discuss the method, is noteworthy. For example, please refer to Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* (McGraw-Hill Irwin, 10th Ed. 2013). Also, Eugene F. Brigham, Dilip K. Shome and Steve R. Vinson, in a 1985 paper, report that the variation of the Expected Earnings method, known as the Comparable Earnings method, “has now been thoroughly discredited (see Robichek [15]), and it has been replaced by three market-oriented (as opposed to accounting-oriented) approaches: (i) the DCF method, (ii) the bond-yield-plus-risk-premium method, and (iii) the CAPM.” See Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility’s Cost of Equity*, 14 Fin. Mgmt. 33 (1985) (citations omitted). Note that, while the authors specifically reference the Comparable Earnings method, which examines historical accounting rates of return using unregulated firms in the sample group, their points are equally valid when regulated firms are used.

1 (DCF), the Capital Asset Pricing Model (CAPM), and the Risk Premium  
2 Model (RPM).”<sup>69</sup>

3 b. Dr. Morin similarly states the same three methods are primarily used. He  
4 says, quoting Professor Eugene Brigham, “[t]hree methods typically are  
5 used: (1) the Capital Asset Pricing Model (CAPM), (2) the discounted cash  
6 flow (DCF) method, and (3) the bond-yield-plus-risk-premium approach.”<sup>70</sup>  
7 According to Dr. Morin, “[t]hese methods are not mutually exclusive – no  
8 method dominates the others, and all are subject to error when used in  
9 practice,” so, “when faced with the task of estimating a company’s cost of  
10 equity, we generally use all three methods and then choose among them on  
11 the basis of our confidence in the data for each in the specific case at  
12 hand.”<sup>71</sup>

13 The choice of investors to not use the Expected Earnings method,<sup>72</sup> can be  
14 understood by examining its many inherent flaws as a method for estimating the cost of  
15 equity. In response to question E.3, I explain why the Expected Earnings method is inferior

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<sup>69</sup> Jonathan A. Lesser, Ph.D., Leonardo R. Giacchino, Ph.D., *Fundamentals of Energy Regulation* 147 (Public Utilities Reports, Inc., 2nd Ed. 2013).

<sup>70</sup> Roger A. Morin, PhD, *New Regulatory Finance* 430 (Public Utilities Reports, Inc., 2006) (quoting Eugene F. Brigham and Michael C. Ehrhardt, *Financial Management: Theory and Practice* (11th Ed. 2005)).

<sup>71</sup> *Id.* (quoting Eugene F. Brigham and Michael C. Ehrhardt, *Financial Management: Theory and Practice* (11th Ed. 2005)).

<sup>72</sup> See Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility’s Cost of Equity*, 14 Fin. Mgmt. 33 (1985). Note while the authors specifically reference the Comparable Earnings method, which examines historical accounting rates of return using unregulated firms in the sample group, the points that the accounting rates of return, which the Expected Earnings method provides, including projected accounting rates of return, do not provide meaningful information on the cost of capital or economic rates of return are equally valid when regulated firms are used.

1 to the DCF method and other market-based methods and should not be used in the  
2 Commission's ROE framework.

3 By presenting a series of detailed questions, the Commission's NOI makes clear  
4 that it is not only important to understand what models investors use on a broad conceptual  
5 level, but also gain an understanding of how best to apply the models in a regulatory setting  
6 to determine authorized ROEs. After all, the results of a model are only as good as its  
7 inputs. In the following sections, I explain why investors examining electric utility stocks  
8 may utilize a particular methodology.

9 ***Discounted Cash Flow Method.*** The DCF method can be used to directly estimate  
10 firms' cost of equity. An example of the direct DCF method application is to calculate cost  
11 of equity for the individual utilities in a proxy group of comparably-risked electric utilities  
12 and inferring the just and reasonable ROE from the analysis. For several decades,  
13 beginning in the early 1980s, the Commission relied exclusively upon the DCF  
14 methodology to determine the ROE for public utilities.<sup>73</sup> Additionally, the DCF method is  
15 often used to estimate the Market Risk Premium as part of the CAPM method.<sup>74</sup>

16 The DCF method's direct application to estimate the cost of equity for electric  
17 utilities is particularly apt given the utility sector's reputation as relatively low-risk,

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<sup>73</sup> See, e.g., *Generic Determination of Rate of Return on Common Equity for Pub. Utils.*, FERC Stats. & Regs. ¶ 30,644, at 31,338 (1985) ("Order No. 420") ("[T]he Commission places primary reliance on the discounted cash flow (DCF) approach to estimating the market required rate of return on common equity."); see also Opinion No. 396-C at 61,189 ("The Commission has historically used a constant growth DCF model.").

<sup>74</sup> See Eugene F. Brigham and Louis C. Gapenski, *Intermediate Financial Management* 177 (The Dryden Press, 5th Ed. 1996) ("The most common approach to ex ante premiums is to use the discounted cash flow (DCF) model to estimate the expected market rate of return.").

1 defensive investments that offers steady dividends. In discussing the Dividend Discount  
2 Model (“DDM”), which is a DCF model very similar to the Commission’s preferred two-  
3 step DCF method, Stephan A. Ross, *et al.* explain it “is only applicable to firms that pay  
4 steady dividends; it is completely useless if companies do not.”<sup>75</sup> An article from  
5 Investopedia<sup>76</sup> entitled “How to Choose the Best Stock Valuation Method” echoes this  
6 concept when discussing the DDM, stating: “the companies that pay stable and predictable  
7 dividends are typically mature blue-chip companies in well-developed industries. These  
8 types of companies are often best suited for the DDM valuation model.”<sup>77</sup>

9 Electric utilities’ reputation for being defensive and offering steady dividends is  
10 well established, with one analyst describing utilities as “fundamentally boring companies  
11 and boring stocks,” noting that “[t]heir job is to be defensive and healthy and predictable,  
12 and the overwhelming majority of the industry still is.”<sup>78</sup> Investopedia adds that “[u]tilities  
13 typically offer investors stable and consistent dividends, as well as less price volatility  
14 relative to the overall equity markets. Because utility stocks are considered stable and pay  
15 a consistent dividend, they tend to perform well when the economy is in a recession and be  
16 out of favor with the market during times of economic expansion.”<sup>79</sup> The steady and

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<sup>75</sup> See Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 412 (McGraw-Hill Irwin, 10th Ed. 2013).

<sup>76</sup> Investopedia is a well-known, popular website that explains basic financial concepts, and I refer to it in order present evidence of certain concepts that are commonly accepted in the investment community.

<sup>77</sup> Joseph Nguyen, *How to Choose the Best Stock Valuation Method*, Investopedia (Feb. 5, 2019), <https://www.investopedia.com/articles/fundamental-analysis/11/choosing-valuation-methods.asp>.

<sup>78</sup> Allison Good, *Despite PG&E Bankruptcy, ‘Boring’ US Utility Sector Still Safe, Analysts Say*, S&P Global Market Intelligence (Jan. 30, 2019), <https://www.spglobal.com/marketintelligence/en/news-insights/trending/64wlqjHxYDQcXUVMYbU8sA2>.

<sup>79</sup> See Chris B. Murphy, *Utilities Sector*, Investopedia (May 4, 2019), [https://www.investopedia.com/terms/u/utilities\\_sector.asp](https://www.investopedia.com/terms/u/utilities_sector.asp).

1 consistent dividends paid by utilities means that utility stock is considered defensive,  
2 healthy and predictable. This can be seen in practice, for example, with Southern  
3 Company's recent announcement of an increased dividend, "mark[ing] the 18<sup>th</sup> consecutive  
4 year that Southern Company has raised the dividend on its common stock."<sup>80</sup>

5       Given the unique characteristics of the electric utility sector, it can be reasonably  
6 inferred that investors use the DCF method to assess the estimated cost of equity for electric  
7 utilities. One area of debate is the appropriate growth rate to apply in the two-step DCF  
8 method. Please refer to my response to question H.2.a.3 for my views on that topic. As  
9 part of its NOI, the Commission also asks whether other variations of the DCF method that  
10 differ from the Commission's preferred two-step DCF method should be considered. I  
11 discuss the merits of alternative DCF methods in my response to H.2.a.1 and H.2.a.5.

12       ***Capital Asset Pricing Model.*** Despite the widespread use of the CAPM and  
13 expansive academic research on the model since its inception in the 1960s, there remain  
14 many different views on how best to implement the conceptual framework in practice. The  
15 standard CAPM method is a generally-accepted theoretical model and framework.<sup>81</sup> The  
16 CAPM measures the systematic risk of a company (typically the stock of a company) and  
17 its expected return. The theory is premised on the assumption that an investor can eliminate  
18 company-specific risks as part of a diversified portfolio and therefore should only earn an

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<sup>80</sup> See Press Release, Southern Company, *Southern Company Increases Dividend for 18<sup>th</sup> Consecutive Year; Annualized Rate Goes to \$2.48 per Share* (Apr. 15, 2019), <https://www.southerncompany.com/newsroom/2019/april-2019/dividend-increase-18th-consecutive-year.html>.

<sup>81</sup> See Roger A. Morin, PhD, *New Regulatory Finance* 166-167 (Public Utilities Reports, Inc., 2006) ("[T]he CAPM provides a valid and rigorous conceptual framework to determine capital costs").

1 expected return in respect of the systematic, or market risk, of a company. Additionally,  
 2 the theory holds that a diversified investor's expected return increases for greater  
 3 incremental market risk. The CAPM methodology is mathematically expressed as:

$$ER_i = R_f + \beta_i (ER_m - R_f)$$

4 where:

5  $ER_i$  = expected return on investment

6  $R_f$  = risk-free rate

7  $\beta_i$  = beta, or systematic risk, of the investment

8  $ER_m$  = expected return of market

9  $(ER_m - R_f)$  = market risk premium

10  
 11 The risk-free rate is generally represented by a long-term rate such as the yield on 30-year  
 12 U.S. Treasury bonds. The "Beta" term measures the volatility of a company's stock return  
 13 relative to the market return. The price of a stock that has a Beta value greater than 1.0 is  
 14 assumed to be more responsive to a change in the market returns than a stock that has a  
 15 Beta value of less than 1.0. The term " $R_m$ " represents the expected market return and can  
 16 be estimated from historical or prospective data. The difference between the expected  
 17 market return and the risk-free rate is known as the Market Risk Premium.

18 A body of empirical research has sought to identify additional factors beyond the  
 19 Beta that may better measure and explain stock returns, such as the Fama-French Three  
 20 Factor Model, described in detail in my response to Question H.2.b.4.<sup>82</sup> My response to

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<sup>82</sup> Dr. Morin explains that "[t]he Fama-French formula for the cost of capital adds two factors to the CAPM to reflect a portfolio's (or security's) sensitivity to these two additional risk factors," with the factors "representing *size excess returns* (SMB) and *financial distress excess returns* (HML), where company size is defined in terms of total market capitalization (number of shares multiplied by share price) and financial distress is proxied by the ratio of the book value of equity to the market value of equity." See Roger A. Morin, PhD, *New Regulatory Finance* 203 (Public Utilities Reports, Inc., 2006).

1 question H.2.b.4 also outlines my belief that it is inappropriate to incorporate additional  
2 factors to the standard, single-factor CAPM method. Additionally, the application of the  
3 Beta is further discussed in response to question H.2.b.3. Here, I discuss the approaches  
4 used to estimate the Market Risk Premium component of the CAPM method.

5 As the Commission notes in the Coakley Order Directing Briefs, a Market Risk  
6 Premium can be determined on either an ex-post, historically-experienced basis or ex-ante  
7 forward-looking basis.<sup>83</sup> However, it is difficult to conclusively determine which approach  
8 is “better,” with both approaches having merits and limitations in estimating the Market  
9 Risk Premium.<sup>84</sup> Credit Suisse summarizes the dilemma faced by investors as follows:

10 Each approach has strengths and weaknesses. Historical  
11 results are backed by lots of data but are highly sensitive to  
12 the time period you select to analyze, reflect survivorship  
13 bias, and vary based on whether you use arithmetic or  
14 geometric averages. Surveys capture investor attitudes at the  
15 moment but are imperfect because investors have a strong  
16 tendency to extrapolate their most recent experience, and the  
17 structures of the surveys are not always ideal. A market-  
18 implied [Equity Risk Premium] is based on prevailing prices  
19 but requires numerous assumptions about drivers such as  
20 future growth and return on capital.<sup>85</sup>

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<sup>83</sup> Coakley Order Directing Briefs, Appendix at 41. The Commission also refers to survey approaches that are generally-accepted to be forward-looking, such as an ex-ante premium estimate. See Roger A. Morin, PhD, *New Regulatory Finance* 161-163 (Public Utilities Reports, Inc., 2006).

<sup>84</sup> See Roger A. Morin, PhD, *New Regulatory Finance* 162 (Public Utilities Reports, Inc., 2006); see also Michael J. Mauboussin and Dan Callahan, *Estimating the Cost of Capital, A Practical Guide to Assessing Opportunity Cost*, Credit Suisse at 12 (Oct. 8, 2013), [https://research-doc.credit-suisse.com/docView?language=ENG&source=ulg&format=PDF&document\\_id=805810190&serialid=OI/G4SnL/qh5FOIYS9MKXLzznvRJnu1XiYUvUZAo%2BIE%3D](https://research-doc.credit-suisse.com/docView?language=ENG&source=ulg&format=PDF&document_id=805810190&serialid=OI/G4SnL/qh5FOIYS9MKXLzznvRJnu1XiYUvUZAo%2BIE%3D) (“Credit Suisse 2013”).

<sup>85</sup> Michael J. Mauboussin and Dan Callahan, *Estimating the Cost of Capital, A Practical Guide to Assessing Opportunity Cost*, Credit Suisse at 12 (Oct. 8, 2013), [https://research-doc.credit-suisse.com/docView?language=ENG&source=ulg&format=PDF&document\\_id=805810190&serialid=OI/G4SnL/qh5FOIYS9MKXLzznvRJnu1XiYUvUZAo%2BIE%3D](https://research-doc.credit-suisse.com/docView?language=ENG&source=ulg&format=PDF&document_id=805810190&serialid=OI/G4SnL/qh5FOIYS9MKXLzznvRJnu1XiYUvUZAo%2BIE%3D) (“Credit Suisse 2013”).

1 I reviewed multiple sources that infer investor views, and they demonstrate that a single  
2 definitive approach to using an ex-post or ex-ante Market Risk Premium estimate is not  
3 evident. These sources include: (a) a sample of reports published by major global  
4 investment and accounting advisory firms; (b) investor surveys; (c) affidavits from ROE  
5 expert witnesses in Commission proceedings; and (d) the Commission's Orders and  
6 Opinions. The following sections highlight the varying approaches taken.

7 **Major global investment and accounting firms:**

- 8 a. KPMG Netherlands, in its December 2018 report "Equity Market Risk  
9 Premium – Research Summary" relied on the ex-ante estimate using the  
10 DCF method. Notwithstanding reliance on the ex-ante approach, the report  
11 states that the ex-post approach "is well established and theoretically sound,  
12 [but] it does not allow for the incorporation of the most recent market  
13 developments."<sup>86</sup>
- 14 b. Ernst & Young Switzerland, in its February 2018 report "Practitioner's  
15 guide to cost of capital & WACC calculation" used a "historical" Market  
16 Risk Premium as part of its CAPM methodology.<sup>87</sup>
- 17 c. Credit Suisse suggested the use of both the ex-post and ex-ante approaches,  
18 explaining that "[o]ne approach that makes sense is to start with a historical

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<sup>86</sup> See Credit Suisse 2013, at 12.

<sup>87</sup> See Ernst & Young Switzerland, *Practitioner's Guide to Cost of Capital & WACC Calculation*, at 11 (Feb. 1, 2018), <https://www.eycom.ch/en/Publications/20180206-Practitioners-guide-to-cost-of-capital-And-WACC-calculation/download>.



1 average, calibrate the result using credit spreads, and then compare it to  
2 market-implied returns.”<sup>88</sup>

3 **Investor Surveys:**

4 a. W. Todd Brotherson, *et al.* interviewed a number of officers at large  
5 corporations (e.g., Coca Cola) and financial advisors (e.g., JP Morgan).<sup>89</sup>  
6 They reported that the Market Risk Premium topic “prompted the greatest  
7 variety of responses among survey participants.”<sup>90</sup> They summarized their  
8 findings as follows:

9 Among financial advisors, 73% extrapolate historical  
10 returns into the future on the presumption that past  
11 experience heavily conditions future expectations.  
12 Among companies, 43% cite historical data and another  
13 16% use various sources inclusive of historical data.  
14 Unlike the results of our earlier study (1998) in which  
15 historical returns were used by all companies and  
16 advisors, we found a number of respondents (18% of  
17 financial advisors and 32% of companies) using  
18 forward-looking estimates of the market risk premium.  
19 The advisors cited versions of the dividend discount  
20 model. The companies used a variety of methods  
21 including Bloomberg’s version of the dividend discount  
22 model.<sup>91</sup>

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<sup>88</sup> See Credit Suisse 2013, at 12.

<sup>89</sup> W. Todd Brotherson, Kenneth M. Eades, Robert S. Harris, and Robert C. Higgins, “Best Practices” in *Estimating the Cost of Capital: An Update*, 23 J. Applied Fin. 2-4 (2013).

<sup>90</sup> See *id.* at 12.

<sup>91</sup> See *id.* (citations omitted).

b. Based on their survey of 392 chief financial officers, John. R. Graham and Campbell Harvey report that 39% of all respondents used the CAPM “with average historical returns on common stock.”<sup>92</sup>

**ROE Witnesses:**

a. It is informative to review the approaches taken by the ROE expert witnesses, who represent investor-owned utilities, FERC Trial Staff, and wholesale customers before the Commission. Based on a sample of testimony from various proceedings, I observe that these experts favor a number of different approaches to estimating the Market Risk Premium.

The table below summarizes the approaches taken:

***Table 1: Expert Witnesses - Market Risk Premium Approaches***

Witness Name	Proceeding	Represents	Market Risk Premium Estimation Method
McKenzie	ER19-13	Investor Owned Utilities	Ex-Ante: One-Step DCF
Keyton	EL14-12 / EL15-45 Paper Hearing Proceeding	Trial Staff	Ex-Ante: Two-Step DCF
Gorman	EL14-12 / EL15-45 Paper Hearing Proceeding	Wholesale Customers	Ex-Ante: Two-Step DCF
Morin	ER19-221	Investor Owned Utilities	Ex-Post: Historically Experienced
Villadsen <sup>93</sup>	ER18-1553	Investor Owned Utilities	Ex-Ante: One-Step DCF

<sup>92</sup> John R. Graham and Campbell Harvey, *The Theory and Practice of Corporate Finance: Evidence from the Field*, 60 J. Fin. Econ. 202, Table 3 (2001).

<sup>93</sup> In January 2019, Dr. Villadsen provided testimony to the State of New York Public Service Commission that relied upon the historically experienced Market Risk Premium. *See* Direct Testimony of Bente Villadsen,

Witness Name	Proceeding	Represents	Market Risk Premium Estimation Method
Vander Weide	EL18-147	Investor Owned Utilities	Both: Ex-Post Historically Experienced and Ex-Ante

**Commission Views:**

a. In Opinion No. 531, the Commission explained that it was using non-DCF methods, including the CAPM, “only for the purpose of corroborating the decision to place the ROE above the midpoint of the zone of reasonableness,” explaining that the non-DCF methods were “sufficiently reliable – not to set the ROE itself – but rather to corroborate our decision.”<sup>94</sup> In describing its use of the CAPM method, the Commission stated that

[w]hile the Commission has in the past rejected the use of CAPM analyses, those cases are distinguishable from the instant proceeding because they involved CAPM analyses that were based on historic market risk premiums, *see, e.g., ITC Holdings Corp., et al. v. Interstate Power and Light Co. and Midwest Indep. Sys. Op., Inc.*, 121 FERC ¶ 61,229, at P 43 n.37 (2007), whereas the NETOs’ CAPM analysis is based on forward-looking investor expectations for the market risk premium.<sup>95</sup>

Thus, it appears that the Commission favors an ex-ante Market Risk Premium estimate.

*Consol. Edison Co. of N. Y., Inc.*, New York Public Service Commission Case No. 19-00317 (2019).

<sup>94</sup> See Coakley Order Directing Briefs at P 39 (citations omitted).

<sup>95</sup> See Opinion No. 531 at P 147, n.292.

1           b. Notwithstanding the views expressed above, the Commission has accepted  
2           CAPM analyses that relied on a historically-experienced ex-post Market  
3           Risk Premium in orders<sup>96</sup> that post-date Opinion No. 531. These Orders  
4           relate to important elements of PJM Interconnection, L.L.C.'s ("PJM")  
5           capacity market that influence auction prices. PJM files revisions to its  
6           Variable Resource Requirement Curve used in the Reliability Pricing  
7           Model every four years. As noted in the most recent order accepting PJM's  
8           tariff revisions, "PJM explains that its VRR Curve is an administratively-  
9           determined demand curve that is used, in combination with the supply curve  
10          formed from capacity supplier sell offers, to clear the RPM Auctions."<sup>97</sup>  
11          The inputs to this curve include the Cost of New Entry ("CONE") for a  
12          representative, theoretical new power plant.<sup>98</sup> An important input to the  
13          CONE estimate is the cost of capital. For several years, PJM has relied on  
14          The Brattle Group to produce the CONE estimate, inclusive of the cost of  
15          capital assumption. Brattle's approach has been to rely upon a CAPM that  
16          uses historically-experienced Market Risk Premium estimates.<sup>99</sup>

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<sup>96</sup> See *PJM Interconnection, L.L.C.*, 149 FERC ¶ 61,183 (2014) ("2014 Quadrennial Review Order"); *PJM Interconnection, L.L.C.*, 167 FERC ¶ 61,029 (2019) ("2019 Quadrennial Review Order").

<sup>97</sup> See 2019 Quadrennial Review Order at P 2.

<sup>98</sup> *Id.* at P 3.

<sup>99</sup> See *PJM Cost of New Entry: Combustion Turbines and Combined-Cycle Plants with June 1, 2022 Online Date*, The Brattle Group, at 38 (Apr. 19, 2018), [https://brattlefiles.blob.core.windows.net/files/13896\\_20180420-pjm-2018-cost-of-new-entry-study.pdf](https://brattlefiles.blob.core.windows.net/files/13896_20180420-pjm-2018-cost-of-new-entry-study.pdf) ("We estimate the expected risk premium of the market to be 6.9% based on the long-term average of values provided by Duff and Phelps."); see *id.* at n.72 ("Duff and Phelps International Guide to Cost of Capital, 2017 (arithmetic average of excess market returns over 20-year risk-free rate from 1926 to 2016)."). See *Cost of New Entry Estimates for Combustion Turbine and Combined Cycle Plants in PJM*, The Brattle Group, at 35 (May 15, 2014),

1                   Certain excerpts from the Commission’s orders regarding the Brattle  
2                   Group’s cost of capital estimate are illuminating. In fact, the Commission  
3                   determined the Brattle approach – which used historically-experienced  
4                   Market Risk Premium estimates – to be just and reasonable and well  
5                   supported. In the 2014 Quadrennial Review Order, the Commission  
6                   determined:

7                   For the reasons discussed below, we find that PJM’s  
8                   proposed Cost of Capital of 8.0 percent, as supported by  
9                   Brattle, ***is a just and reasonable estimate*** for the purpose  
10                  of estimating Gross CONE. ***Brattle’s methodology is***  
11                  ***transparent and its assumptions are well-supported.***  
12                  Because a number of IPPs do not pay dividends, a value  
13                  required to perform a discounted cash flow analysis, we  
14                  find Brattle’s use of a CAPM to be appropriate.<sup>100</sup>

15                  In the 2019 Order, the Commission found this same methodology to be just  
16                  and reasonable, stating:

17                  We find PJM’s proposed 8.2 percent Cost of Capital to  
18                  be just and reasonable. In the instant filing, PJM relied  
19                  upon the same methodology that the Commission  
20                  accepted in the 2014 Quadrennial Review Order. The  
21                  United States Court of Appeals for the District of  
22                  Columbia recently upheld the Commission’s acceptance  
23                  of that methodology and resulting Cost of Capital.<sup>101</sup>

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[https://brattlefiles.blob.core.windows.net/files/6068\\_cost\\_of\\_new\\_entry\\_estimates\\_for\\_combustion\\_turbine\\_and\\_combined\\_cycle\\_plants\\_in\\_pjm.pdf](https://brattlefiles.blob.core.windows.net/files/6068_cost_of_new_entry_estimates_for_combustion_turbine_and_combined_cycle_plants_in_pjm.pdf) (“We estimated the expected risk premium of the market to be 6.5% based on the long-term average of values provided by Credit Suisse and Ibbotson.”); *see id.* at n.30 (“The Ibbotson market risk premium is 6.7% and the Credit Suisse market risk premium is 6.2%.”) (citations omitted).

<sup>100</sup> *See* 2014 Quadrennial Review Order at P 76 (emphasis added).

<sup>101</sup> *See* 2019 Quadrennial Review Order at P 101.

1           The above-quoted excerpts demonstrate the Commission’s consistent and  
2           continued acceptance of a CAPM model based on an ex-post Market Risk  
3           Premium. In these orders, the Commission did not express any explicit  
4           theoretical or conceptual concerns regarding the reliance on an ex-post  
5           assumption.

6           Dr. Morin, when discussing the dilemma of whether to rely on an ex-post or ex-  
7           ante Market Risk Premium in CAPM calculations, offers a pragmatic solution to resolving  
8           the issue by emphasizing the importance of providing equal weight to both the historically-  
9           experienced Market Risk Premium and forward-looking Market Risk Premiums. He  
10          concludes that “a regulatory body should rely on the results of both historical and  
11          prospective studies in arriving at an appropriate risk premium.”<sup>102</sup>

12          Given the lack of consensus as to how investors estimate the Market Risk Premium,  
13          the Commission’s acceptance of both approaches, and the other evidence presented above,  
14          I concur with Dr. Morin’s pragmatic solution. I recommend that the Commission place  
15          equal weight on ex-post and ex-ante Market Risk Premium methods in the CAPM.

16          **Risk Premium.** The Risk Premium method, also known as the Bond Yield Plus  
17          Risk Premium,<sup>103</sup> is based on “the simple idea that since investors in stocks take greater  
18          risk than investors in bonds, the former expect to earn a return on a stock investment that

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<sup>102</sup> Roger A. Morin, PhD, *New Regulatory Finance* 163 (Public Utilities Reports, Inc., 2006).

<sup>103</sup> See, e.g., Eugene F. Brigham and Louis C. Gapenski, *Intermediate Financial Management* 185 (The Dryden Press, 5th Ed. 1996); see also Roger A. Morin, PhD, *New Regulatory Finance* 107 (Public Utilities Reports, Inc., 2006).

1 reflects a ‘premium’ over and above the return they expect to earn on a bond investment”<sup>104</sup>  
2 There are many versions of the method that may be applied.<sup>105</sup> I address the merits of the  
3 common applications of the Risk Premium methods that have been advocated by ROE  
4 expert witnesses before FERC in response to question H.2.d.1. I also address there certain  
5 criticisms of the Risk Premium method.<sup>106</sup>

6 **E2. What role do current capital market conditions play in the choice of**  
7 **model used by investors to evaluate utility equities?**

8 **E2.a. If capital market conditions factor into the choice of model, how**  
9 **do investors determine and evaluate those conditions?**

10 I do not address these questions at this time, but reserve the right to do so in a reply  
11 affidavit.

12 **E3. Are any models thought to be superior or inferior to others? If so, why?**

13 Yes. The Expected Earnings method is inferior. It has been thoroughly discredited  
14 and has been replaced with market-based methods such as the DCF method.<sup>107</sup> My  
15 response to question E1. discusses these market-based methods. Here, I discuss the  
16 Expected Earnings method’s many flaws, and I explain why the Commission should not  
17 rely on this method.

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<sup>104</sup> Roger A. Morin, PhD, *New Regulatory Finance* 108 (Public Utilities Reports, Inc., 2006).

<sup>105</sup> Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 117 (Elsevier Inc., 2017).

<sup>106</sup> See Michael S. Pagano, Ph.D., and David E. Stout, Ph.D., *Calculating a Firm’s Cost of Capital*, 5 Management Accounting Quarterly 13, 15 (2004). See also Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 117 (Elsevier Inc., 2017) (“Unlike the CAPM, there is no well-specified theoretical model underlying either the risk premium or the appropriate cost of debt.”).

<sup>107</sup> See Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility’s Cost of Equity*, 14 Fin. Mgmt. 33 (1985).

1           The Expected Earnings method is a form of the Comparable Earnings method that  
2     examines a company's expected accounting return on the book value of its common equity.  
3     As the Commission states, it "provides an accounting-based approach that uses investment  
4     analysts estimates of return (net earnings) on book value (the equity portion of a company's  
5     overall capital, excluding long-term debt)." <sup>108</sup>

6           The Commission has long held that it is the investors' required rate of return, or  
7     market cost of capital, that is the standard for rate of return decisions, thus requiring the  
8     use of market-based measurement methods. One of the major flaws in the Expected  
9     Earnings method is that it does not measure the rate of return investors require to invest in  
10    the common equity capital of a utility, which is the utility's cost of equity capital, but,  
11    rather, it measures expectations of what the utility will earn on the book value of its  
12    common equity. Standing alone, the method is devoid of market or investor input, making  
13    it incapable of measuring investors' or the market-required rate of return. Since an investor  
14    cannot purchase a utility's common stock at book value, the utility's expected earned return  
15    on book value says nothing about what an investor could expect to earn on the utility's  
16    common stock or what return an investor requires to invest in the common stock, except in  
17    the unusual circumstance where the utility's common stock happens to be trading in the  
18    market at a price at or very near the utility's book value per share.

19          Placing any reliance on the Expected Earnings method clearly contradicts the  
20    Commission's long-standing view on how best to meet the standards set out in the *Bluefield*  
21    and *Hope* Supreme Court decisions. In Order No. 489, for example, the Commission stated:

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<sup>108</sup> MISO Order Directing Briefs at P 36.



1           There is compelling economic justification for relying on the  
2           market cost of capital as the standard for rate of return  
3           decisions. Furthermore, a market cost of capital approach  
4           addresses both the comparable earnings and attraction of  
5           capital standards of the *Hope* decision. In the Commission's  
6           judgment, the DCF method is the best available means of  
7           estimating the market cost of capital.<sup>109</sup>

8       Thus, the Commission has recognized that a market-based cost of capital methodology and,  
9       specifically the DCF methodology, is the best means of meeting the comparable earnings  
10      and capital attraction standards of *Hope* and *Bluefield*. The lack of any market input into  
11      the Expected Earnings method is a fatal flaw, and it should be given no weight by the  
12      Commission, let alone equal weight with the three market-oriented methods discussed  
13      above.

14           The Commission has previously recognized that accounting or book rates of return  
15      are not reliable measures of the market cost of capital. In its previous review of the  
16      appropriate method for determining a utility's cost of common equity capital, the  
17      Commission found that "[a]ccounting rates of return are not reliable measures of the  
18      current market cost of capital, since they do not reflect the current market prices that are  
19      determined in competitive capital markets."<sup>110</sup> Also, in Order No. 429, the Commission  
20      found:

21           Mr. Moul's Comparable Earnings Approach was also  
22           properly rejected by the presiding judge. The Commission  
23           currently favors market oriented methodologies (the DCF  
24           methodology in particular), and even Mr. Moul admits "[n]o  
25           direct market-determined cost rate can be derived from this

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<sup>109</sup> Order No. 489 at 30,993.

<sup>110</sup> Order No. 420 at 31,367.

1 approach because the nature of the analysis is related to book  
2 values.”<sup>111</sup>

3 In both the Coakley and MISO Orders Directing Briefs, the Commission provides  
4 very little support to justify a move away from reliance on a market-based cost of capital  
5 methodology. The Commission’s primary reason for relying on the Expected Earnings  
6 method as part of its proposed framework is that it found the analysis useful in determining  
7 a utility’s ROE “[b]ecause investors rely on Expected Earnings analyses to help estimate  
8 the opportunity cost of investing in a particular utility.”<sup>112</sup> However, the Expected Earnings  
9 analysis does not estimate the opportunity cost of investing in a particular utility.  
10 Forecasted earnings on a utility’s book value are not a measure of the opportunity cost of  
11 capital, because an investor cannot purchase the utility’s common equity at its book value,  
12 but, rather, must pay the prevailing market price for its common equity. Therefore, not  
13 only does the Expected Earnings method fail to measure the market cost of common equity  
14 capital, but, more importantly, it produces an erroneously inflated measure when the  
15 market-to-book ratios are above 1.0. This has been a regular occurrence for many decades,  
16 with the Commission observing in the NOI that “for the last three decades, the market-to-  
17 book ratios of the companies that the Commission uses in proxy groups have generally  
18 been substantially in excess of one.”<sup>113</sup>

19 When the investor must pay something more than book value to gain the right to  
20 the future expected earnings on book value, that investor must be expecting to earn (and

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<sup>111</sup> *Consumers Energy Co.*, 85 FERC ¶ 61,100, at 61,362 (1998) (“Opinion No. 429”) (citations omitted).

<sup>112</sup> MISO Order Directing Briefs, Appendix at 37.

<sup>113</sup> NOI at P 36.

1 thus requires) something less than the reported earned return on book value.<sup>114</sup> That is why  
2 the Commission in *Orange and Rockland* and other cases rejected use of earnings on book  
3 value as a measure of investors' required rates of return on equity.<sup>115</sup> Dr. Morin also makes  
4 this point:

5 Accounting rates of return are not opportunity costs in the  
6 economic sense, but reflect the average returns earned on  
7 past investments, and hence reflect past regulatory actions.  
8 The denominator of accounting return, book equity, is a  
9 historical cost-based concept, which is insensitive to  
10 changes in investor return requirements. Only stock market  
11 price is sensitive to a change in investor requirements.  
12 Investors can only purchase new shares of common stock at  
13 current market prices and not at book value.

14 More simply, the Comparable Earnings standard ignores  
15 capital markets.<sup>116</sup>

16 While Dr. Morin referenced historically-earned book returns, the key points are the  
17 same for projected book returns. Book returns are not opportunity costs. The denominator  
18 is book equity, which is insensitive to changes in investor return requirements. Only stock  
19 market price is sensitive to a change in investor requirements. Investors can only purchase  
20 new shares of common stock at current market prices and not at book value. And, simply  
21 stated, the Comparable Earnings standard ignores capital markets.

22 As an example, the Expected Earnings method's fatal flaw in misrepresenting an  
23 investor's required level of return can be observed when reviewing the Expected Earnings

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<sup>114</sup> See *Pub. Serv. Co. of Ind., Inc.*, Opinion No. 44, 7 FERC ¶ 61,319, at 61,709-10 (1979) (“[W]e agree with Intervenor that this high market-book ratio [market price significantly above book value] ‘suggests that PSCI currently is earning more on its common equity than it requires to attract capital.’”).

<sup>115</sup> See *Orange and Rockland Utils., Inc.*, 44 FERC ¶ 61,253, at 61,951-52 (1988) (“*Orange and Rockland*”).

<sup>116</sup> Roger A. Morin, PhD, *New Regulatory Finance* 393 (Public Utilities Reports, Inc., 2006).

1 analysis used by the Commission in its preliminary analysis prepared to demonstrate its  
2 proposed ROE framework. The Commission used the analysis presented by Dr. Avera<sup>117</sup>  
3 in Docket No. EL14-12 regarding the RTO-wide ROE for transmission owners in MISO.  
4 After applying its proposed outlier tests, the Commission determined that the resulting  
5 midpoint of Dr. Avera's analysis was 11.41%.<sup>118</sup> However, the market price-to-book value  
6 ratios of Dr. Avera's proxy group (as adjusted by the Commission in the MISO Order  
7 Directing Briefs) are well above 1.0, with a range of 1.17 to 2.55 and a median and  
8 midpoint of 1.65 and 1.86, respectively.<sup>119</sup> Therefore, Dr. Avera's Expected Earnings  
9 analysis demonstrates only that his 9.79% median and 11.41% midpoint expected earned  
10 returns are substantially higher than investors' required ROE.

11 Additional explanation and support for why an investor would not rely on the  
12 Expected Earnings method or the Comparable Earnings method is found in the book "Risk  
13 and Return for Regulated Industries" by Dr. Bente Villadsen, Dr. Michael J. Vilbert, Mr.  
14 Dan Harris, and Dr. A. Lawrence Kolbe. Dr. Villadsen and Dr. Vilbert have testified as  
15 expert witnesses for investor-owned utilities. The book discusses four practical problems  
16 with implementation of the Comparable Earnings method: (1) identifying comparable risk  
17 companies and the circularity concern if other regulated utilities are used; (2) selecting an  
18 appropriate time period to use in light of the fluctuations in earnings from year to year;

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<sup>117</sup> While the MISO Order Directing Briefs did not specifically cite the source, it is apparent that the Commission relied upon Dr. Avera's MISO Docket No. EL14-12 Expected Earnings analysis as presented in Exhibit No. MTO-31. *See* Cross-Answering Testimony of William E. Avera, Exh. No. MTO-31, *Ass'n of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Docket No. EL14-12-002 (filed June 15, 2015).

<sup>118</sup> MISO Order Directing Briefs at P 60.

<sup>119</sup> *See* Exhibit No. CIT-0004.

1 (3) calculating comparable ROEs for sample companies given concerns of varying  
 2 accounting procedures, investment patterns, and asset lives; and (4) adjusting for  
 3 differences in risks especially where unregulated companies are included in the sample.<sup>120</sup>  
 4 All of these are legitimate concerns, but the authors go on to explain that “such  
 5 implementation difficulties, however, are not the comparable earnings method’s biggest  
 6 problem.”<sup>121</sup> According to Dr. Villadsen, *et al.*, “the chief problem with the comparable  
 7 earnings approach is that” “book rates of return [are not] estimates of the cost of equity,”  
 8 which “has long been recognized in the academic literature.”<sup>122</sup> Dr. Villadsen, *et al.* use an  
 9 example from the Solomon paper to illustrate the point:

10 The Solomon article contains a simple example to illustrate  
 11 the point. It considers a very simple world, without taxes or  
 12 inflation, and a company that makes one \$1000 investment  
 13 every year. The investments last 6 years and are depreciated  
 14 on a straight-line basis. On a midyear basis, the company has  
 15 one asset 5.5 years old, one 4.5 years old, going down to one  
 16 0.5 years old. The corresponding net book values sum to  
 17 one-half of the \$6,000 gross book value, or \$3,000. The  
 18 \$1,000 investments each have a cost of capital of 10%,  
 19 recovered via level annual cash flows of \$226.91. That  
 20 makes the company’s annual cash flow  $6 \times \$226.91 =$   
 21  $\$1377.66$ . Annual depreciation is  $[6 \times (\$1000)/6] = \$1,000$ ,  
 22 so annual earnings are  $\$1377.66 - \$1000.00 = \$377.66$ . The  
 23 book rate of return is  $\$377.66/\$3000.00 = 12.6\%$ , materially  
 24 above the 10% cost of capital.

25 This result should be deeply troubling to anyone  
 26 contemplating use of the comparable earnings method. This  
 27 company is about as simple as one could imagine, without

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<sup>120</sup> See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 128-129 (Elsevier Inc., 2017).

<sup>121</sup> See *id.* at 129.

<sup>122</sup> *Id.* at 129-130, n.45 (citing Ezra Solomon, *Alternative Rate of Return Concepts and Their Implications for Utility Regulation*, 1 Bell J. Econ. Mgmt. Sci. 65 (1972); Franklin M. Fisher and John J. McGowan, *On the Misuse of Accounting Rates of Return to Infer Monopoly Profits*, 73 Am. Econ. Rev. 82 (1983)).

1           any complications due to uneven growth, inflation,  
2           alternative accounting conventions, or economic  
3           fluctuations. Yet its book rate of return will differ materially  
4           from its cost of capital every year, forever. Solomon goes on  
5           to show that the problem persists with alternatives to  
6           straight-line depreciation.<sup>123</sup>

7       The authors also quote conclusions from the Fisher and McGowan article, which considers  
8       additional factors beyond the Solomon article, including growth and taxes. Fisher and  
9       McGowan conclude that “only by accident will accounting rates of return be in one-to-one  
10      correspondence with economic rates of return” and “[o]ur computer examples show the  
11      effects [differences in accounting rates of return and economic rates of return] can be very  
12      large: the belief that they are small enough in practice to make accounting rates of return  
13      useful for analytic purposes rests on nothing but wishful thinking.”<sup>124</sup> While the Solomon  
14      example and Fisher/McGowan article dealt largely with unregulated firms in the sample  
15      group, the point that the accounting rates of return do not provide meaningful information  
16      on the cost of capital or economic rates of return is equally valid when regulated firms are  
17      considered.

18           Thus, it is clear that the Expected Earnings method has no role in determining just  
19      and reasonable ROEs for electric utilities. The Commission should not use the Expected  
20      Earnings method to establish the ROE for electric utilities

21           **E4.   How are alternative models redundant or complementary with each**  
22           **other and/or the DCF model?**

23           Please refer to my response to question E6.

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<sup>123</sup> See *id.* at 129-130 (quoting Franklin M. Fisher and John J. McGowan, *On the Misuse of Accounting Rates of Return to Infer Monopoly Profits*, 73 Am. Econ. Rev. 82 (1983)).

<sup>124</sup> See *id.* at 130.

1           **E5. To what extent do alternative models avoid any deficiencies of the DCF**  
2           **model and/or operate better in diverse capital market conditions?**

3           Please refer to my response to question E6.

4           **E6. To the extent that investors use multiple models, should the**  
5           **Commission combine them in its analysis or use the “best” one that**  
6           **would apply in all market conditions?**

7           Despite the concerns expressed by the Commission regarding exclusive reliance on  
8           the DCF methodology, I believe the DCF method is the preferable method for determining  
9           ROEs for Commission-regulated electric utilities. While the CAPM and Risk Premium  
10          methods have some capital market input, only the DCF method has direct, current utility  
11          stock investor input through use of recent, competitive, market-determined stock prices.  
12          By contrast, the Expected Earnings approach is completely devoid of any market input  
13          whatsoever.

14          The Commission has for several decades, since at least the early 1980s, relied  
15          exclusively on the DCF methodology to identify a zone of reasonableness and determine a  
16          just and reasonable ROE for public utilities. Despite its 2014 finding in Opinion No. 531  
17          that, based on the unique and anomalous capital market conditions prevailing at the time,  
18          the Commission needed to consider the ROE estimates from other methods in determining  
19          where within the DCF range of reasonableness to select the authorized ROE point estimate  
20          for the subject electric utilities, the Commission has continued to rely exclusively on the  
21          DCF method for determining the allowable ROEs for gas and oil pipeline companies even  
22          though it recognizes that all utilities face the same national macroeconomic and market

1 conditions.<sup>125</sup> Moreover, despite expressing concerns about the operation of the DCF  
2 model in the recent market environment, which I demonstrate to be unfounded in my  
3 response to question C2., the Commission proposes to continue to include the model in its  
4 newly-proposed ROE framework. Of the three methods the Commission proposes to use  
5 for determining a composite zone of reasonableness, the DCF model is the only one that  
6 incorporates direct input from investors on the market value of electric utility common  
7 equity capital.

8 In Opinion No. 531, the Commission suggested it was useful to examine the Risk  
9 Premium and CAPM methods because each method uses interest rates as a direct input.<sup>126</sup>  
10 The Commission stated that these two methods provide a “helpful indicator of how  
11 investors’ required returns on equity have been impacted by the interest rate  
12 environment.”<sup>127</sup> Although the DCF method does not directly incorporate interest rates as  
13 an input, it is difficult to see how the DCF model’s use of the market value of stock prices  
14 in the computation of the dividend yield is anything but a comprehensive indicator of  
15 investors’ views as to how interest rates (and other factors) impact their required returns  
16 for electric utilities in any capital market environment. The CAPM only captures the stock  
17 price of each proxy group utility through the backward-looking Beta value. As discussed  
18 further in the response to H.2.b.1., the Beta value is typically measured over a trailing five-  
19 year period. It is also important to note that a CAPM analysis that applies a DCF

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<sup>125</sup> See Opinion No. 551 at P 134 (noting that “capital market conditions apply across the entire economy and are not specific to individual utilities.”).

<sup>126</sup> Opinion No. 531 at P 147.

<sup>127</sup> *Id.*



1 methodology to a representative market index to estimate the forward-looking Market Risk  
2 Premium, a key assumption of the CAPM method, will arguably also share any perceived  
3 weaknesses, if any, of the DCF methodology more broadly.

4 In response to question H.2.d.1., I highlight significant concerns with the Risk  
5 Premium method. In particular, this method fails to incorporate the current market value  
6 of electric utilities in any manner. Rather, it relies heavily on previously-authorized ROEs,  
7 which have been based on the market-based DCF method since the early 1980s.

8 I consider the DCF method the most robust and instructive method to use for  
9 determining electric utilities' ROEs, and I believe that it should be exclusively relied on  
10 for this purpose. However, if the Commission decides to rely on other methods in addition  
11 to the DCF method, I recommend that it rely only on the market-oriented methods. As  
12 discussed further in response to question E3., the Expected Earnings approach is a  
13 fundamentally inappropriate method to determine a just and reasonable ROE for a public  
14 utility. It is not market-based, and it is wholly inconsistent with the standards employed  
15 by the Commission for many decades. I therefore recommend that no weight be placed on  
16 the Expected Earnings method. The results of the properly applied DCF, CAPM and Risk  
17 Premium models, if all are used, should be weighted more heavily toward the DCF method.

18 **E7. If the Commission were to consider multiple models, how should it**  
19 **weigh them?**

20 There are two prongs of the Commission's proposed ROE framework, which were  
21 outlined in the Orders Directing Briefs. The first prong seeks to determine whether an  
22 existing ROE remains just and reasonable. To determine this, the Commission proposes to  
23 rely on three models, the DCF, CAPM and Expected Earnings, to develop a single

1 composite zone of reasonableness, weighting each model equally by averaging the low-  
2 and high-end value produced by each method.<sup>128</sup> If the Commission determines that the  
3 existing ROE is unjust and unreasonable, the second prong establishes a process to  
4 determine a new just and reasonable ROE. The Commission proposes to rely on the cost  
5 of equity point estimate produced by the three models used in determining the range, along  
6 with the Risk Premium model result and to weight the output from each of the four models  
7 equally when determining the ROE.<sup>129</sup> While the Commission's proposed ROE framework  
8 specifically dealt with existing ROEs evaluated under Section 206 complaints, it can be  
9 reasonably inferred that it is the Commission's intent that a similar process to that proposed  
10 would also apply to determining the justness and reasonableness of a new ROE requested  
11 by a party in a Section 205 rate filing. In other words, a composite zone of reasonableness  
12 is established, and the just and reasonable ROE is determined from within that zone.

13 If the Commission decides to rely on other methods in addition to the DCF method  
14 to determine the ROE for electric utilities, I recommend that it rely only on the market-  
15 oriented methods. I recommend that no weight be placed on the Expected Earnings  
16 method. As discussed in response to question H.2.d.1, I find there are also significant  
17 concerns regarding the most common application of the Risk Premium method, and the  
18 Commission should not rely upon this method in determining just and reasonable ROEs.  
19 However, if it is used, the Commission should accord less weight to the Risk Premium

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<sup>128</sup> See MISO Order Directing Briefs at PP 17, 32.

<sup>129</sup> *Id.* at PP 18, 34.

1 method than the other market-based methods. The DCF model should be weighted most  
2 heavily.

3 In Table 2 below I present my suggested weights, which reflect my views in this  
4 affidavit.

5 *Table 2 Alternative Scenarios Suggested Weights*

Option	Zone of Reasonableness	ROE Determination
<b>Recommendation</b>	DCF – 100%	DCF – 100%
<b>Alternative One</b>	DCF – 60% CAPM – 40%	DCF – 60% CAPM – 40%
<b>Alternative Two</b>	DCF – 60% CAPM – 40%	DCF – 50% CAPM – 30% Risk Premium – 20%

6  
7  
8 If the Commission decides to rely on other methods in addition to the DCF method,  
9 beyond the appropriate weighting of each method, it is important to consider how to use  
10 the outputs from each model to establish the zone of reasonableness and to determine the  
11 ROE. In my view, the Commission's proposal raises concerns. The Commission proposes:

12 [T]o use the composite zone of reasonableness produced by  
13 the DCF, CAPM and Expected Earnings models. Each of  
14 these three methodologies relies on a proxy group to  
15 determine a zone of reasonableness, and thus the top and  
16 bottom of the zone of reasonableness produced by each  
17 methodology can be averaged to determine a single  
18 composite zone of reasonableness.<sup>130</sup>

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<sup>130</sup> *Id.* at P 32.

1 In practice this approach may not result in logical outcomes. For example, in  
2 examining the ROE analysis prepared by SoCal Edison's witness Dr. Villadsen, when  
3 applying the Commission's proposal, I observe that one of the proxy group companies,  
4 Avangrid, sets in part both the high-end and low-end of the composite zone of  
5 reasonableness.<sup>131</sup> In the two-step DCF analysis, Avangrid's estimated cost of equity of  
6 11.28% is the maximum value, but in the CAPM analysis, Avangrid's estimated cost of  
7 equity of 7.21% is the minimum value.

8 An alternative and more robust approach is to develop a single composite ROE  
9 array by calculating a composite ROE for each proxy group electric utility member, the  
10 composite ROE for each proxy company would be determined by combining the ROEs  
11 produced by each model. The ROE outputs from each method would be weighted in  
12 accordance with the Commission's determination as to weighting. As further discussed in  
13 response D4.b, it is critical that the low- and high-end outlier tests are first applied  
14 independently to each ROE method.

15 The D.C. Circuit previously explained "[t]o calculate the ROE for a utility that is  
16 not publicly traded, FERC relies on the ROEs for a 'proxy group' of comparable publicly  
17 traded companies," and "[a]fter adjusting that range of ROEs to exclude unrepresentative  
18 high or low rates, 'the Commission assembles a zone of reasonable ROEs on which to base  
19 a utility's ROE.'"<sup>132</sup> Therefore, it can be reasonably inferred that the underlying process

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<sup>131</sup> See SCE Transmission Owner Tariff Rate Filing (TO2019A) – Prepared Direct Testimony of Dr. Bente Villadsen, Exh. No. SCE-27:3, Table No. BV-3; Exh. No. SCE-27:8, Table No. BV-8, *S. Cal. Edison Co.*, Docket No. ER19-1553-000 (filed Apr. 11, 2019).

<sup>132</sup> *Emera Maine*, 854 F.3d at 21.

1 followed by the Commission has been to estimate the ROE for each respective proxy group  
2 member. However, the Commission's proposal is at odds with this practice and is arguably  
3 a disjointed approach. By combining the high and low ends of each method's estimated  
4 ROEs and by combining each method's cost of equity point estimate, the proposal treats  
5 each method's outputs as isolated events. It does not tie back to the underlying premise of  
6 the exercise, which is to estimate the ROE for each proxy group member and from that  
7 determine the just and reasonable ROE. Furthermore, the Commission has not explained  
8 why the use of multiple ROE analytical methods detracts from the process of estimating  
9 an ROE for each respective proxy group member. Moreover, in determining the just and  
10 reasonable ROE, the proposal is not truly measuring the point of central tendency of the  
11 composite zone of reasonableness given that it fails to create a single composite ROE array  
12 from which to measure the central point. My alternative recommendation addresses these  
13 concerns by combining the ROE estimates produced by each method for of each proxy  
14 group member to create a true composite cost of equity for each utility and a true composite  
15 zone of reasonableness.

16 **E8. To what extent is it reasonable for the Commission to use a simplified**  
17 **version of a model that does not reflect all the variables that investors**  
18 **consider?**

19 Please refer to my response to question E6.

20 **E8.a. Is the use of a simplified model justified for ease of**  
21 **administration and predictability of result?**

22 I do not address this question in my affidavit at this time, but reserve the right to do  
23 so in a reply affidavit.

24 **E9. How, if at all, should the Commission consider state ROEs?**

1                   **E9.a. How and why do state ROEs vary by state?**

2                   **E9.b. How are certain state ROEs more or less comparable to**  
 3                   **Commission ROEs?**

4                   I do not address these questions in my affidavit at this time, but reserve the right to  
 5 do so in a reply affidavit.

6                   **E10. If the Commission considers state ROEs, how should it compare**  
 7                   **FERC-jurisdictional transmission ROEs with state ROEs that apply to**  
 8                   **utilities that are (a) distribution and transmission companies; or (b)**  
 9                   **distribution, generation, and transmission companies?**

10                  I do not address this question in my affidavit at this time, but reserve the right to do  
 11 so in a reply affidavit.

12                  **E11. To what extent, if any, should the Commission exercise judgment in**  
 13                  **using financial models to set ROEs under various capital market**  
 14                  **conditions?**

15                  I do not address this question in my affidavit at this time, but reserve the right to do  
 16 so in a reply affidavit.

17                  **F. Mismatch Between Market-based ROE Determinations and Book-Value Rate**  
 18                  **Base**

19                  **F1. Does the mismatch between market-based ROE determinations and a**  
 20                  **book value rate base support current market values? Is this**  
 21                  **mismatch a problem?**  
 22

23                  No. The Commission's long-standing practice is to apply a market-based ROE  
 24 determination to an electric utility's book value rate base. This "mismatch" does not  
 25 present a problem, and it has been described by as "logically sound," by Dr. Stewart Myers,  
 26 an expert in the field.<sup>133</sup> Rather, it is problematic to apply a market-based ROE

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<sup>133</sup> Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*, 3 Bell J. Econ. Mgmt. Sci. 58, 74 (1972).

1 determination to a market value rate base. Such an approach suffers from a circularity  
2 problem – market value rate base would be influenced by the allowed ROE and investors’  
3 assessments as to whether this value is greater or less than their required return. All else  
4 being equal, where the allowed ROE is greater (less) than the investors’ required return,  
5 the market value will be greater (or less) than the book value. The market value is the end  
6 result. Therefore, it is inappropriate to apply the market value as an input in the process to  
7 determine the regulated revenue to be earned by the electric utility. Additionally, as  
8 discussed at length in my response to question E3. above, the use of a book/accounting  
9 return measure, such as the Expected Earnings method, is deficient and has been  
10 thoroughly discredited.

11 With regard to any purported “mismatch,” Dr. Myers states that ““consistency””  
12 does not require that a market-based cost of capital must be applied to market value rate  
13 base.”<sup>134</sup> Dr. Myers also highlights a number of issues with using a market value rate base:

14 Thus far, all I have said is that [stock market value or  
15 “SMV”] is not useful in defining a utility’s rate base. There  
16 are several reasons why. First, since SMV depends on how  
17 investors expect the regulators to act, it should be the “end  
18 result . . . not the starting point.” Second, adopting SMV as  
19 a rate base amounts to a commitment to confirm investors  
20 expectations regardless of what they are based on. Third, if  
21 SMV is maintained consistently above (below) BV [book  
22 value] then the utility will expect to earn a rate of return on  
23 its new investment which is greater than (less than) the cost  
24 of capital.<sup>135</sup>

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<sup>134</sup> See *id.*

<sup>135</sup> See *id.* at 85 (citing *Hope*, 320 U.S. at 601).

1 Dr. Morin also expresses concern with using a market value capital structure in the  
2 computation of an electric utility's weighted average cost of capital return in setting  
3 regulatory rates. Dr. Morin's concerns are equally relevant to the discussion here. He  
4 explains:

5 One serious drawback of using market values is the  
6 circularity issues, that is, by awarding a utility its market  
7 value-based [after-tax weighted average cost of capital], the  
8 regulator is forced to rubberstamp existing market values  
9 that may in turn reflect unfair and unreasonable rates. Since  
10 market value depends on how investors expect the regulators  
11 to act, it should be the end result and not the starting point.  
12 Adopting market values amounts to a commitment to  
13 confirm investors' expectations regardless of what they are  
14 based on. A regulator's fundamental responsibility is the  
15 setting of fair and reasonable rates and not the creation or  
16 destruction of shareholder value.<sup>136</sup>

17 The fallacy that a market value rate base is required to match the market-determined  
18 allowed ROE is further debunked by Alfred Kahn in his 1988 treatise, *The Economics of*  
19 *Regulation: Principles and Intuitions*.<sup>137</sup> Mr. Kahn posits the questions

20 [i]s there need for consistency between the basis on which  
21 the cost of equity capital is determined and the rate base to  
22 which it is then applied? If the cost of equity capital is  
23 determined on the basis of the ratio of earnings to the *market*  
24 *price* of the company's common stock, is there not some  
25 inconsistency in applying that rate of return to a rate base as  
26 valued in the company's *books* – that is, at original or  
27 historic costs – when, as has been true for well over a decade,

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<sup>136</sup> Roger A. Morin, PhD, *New Regulatory Finance* 452-453 (Public Utilities Reports, Inc., 2006) (citations omitted). Similarly, at page 376, Dr. Morin notes that “[t]he M/B ratio is the end result of regulation, and not its starting point.”

<sup>137</sup> See Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* 48-50 (The MIT Press, 1988).



1                   the market value of most public utility shares has far  
2                   exceeded their book value?<sup>138</sup>

3               Before reaching the answers, Mr. Kahn presents a straightforward example: “[i]f,  
4   for example, earnings per share were \$5, the market price \$100, and the book value \$50,  
5   the E/P ratio would suggest a 5% cost of capital; if that 5% were applied to the book value  
6   of (the equity portion of) the rate base, this would produce a return of only \$2.50 – thus  
7   eliminating the justification for the \$100 market price.”<sup>139</sup> Mr. Kahn’s answer illuminates  
8   a core difficulty with the claim that market value rate base is needed:

9                   The answer is that there would be an inconsistency in this  
10                  case, but only because it involves inconsistent assumptions  
11                  about regulatory policy.

12               That is, it assumes at one and the same time that the  
13               commission allows returns on equity ( $r$ ) in *excess* of and  
14               equal to the cost of capital ( $k$ ). The source of the discrepancy  
15               between market and book value has been that commissions  
16               have been allowing  $r$ ’s in excess of  $k$ ; if instead they had set  
17                $r$  equal to  $k$ , or proceeded at some point to do so, both the  
18               discrepancy between market and book value and the  
19               inconsistency would have disappeared, or would never have  
20               arisen. The fact that market value has remained above book  
21               value indicates that in most jurisdictions  $r$  has been high  
22               enough, relative to  $k$ , so that its application to the lower book  
23               value, in determining allowable earnings, has not destroyed  
24               the willingness of investors to continue to pay above book  
25               value for public utility company shares.<sup>140</sup>

26   Mr. Kahn explained that, “[i]n the foregoing example, once market value per share was  
27   reduced to book value – that is, to \$50 – because  $r$  was set at  $k$ , here assumed to be 5%,

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<sup>138</sup> *Id.* at 48-49.

<sup>139</sup> *Id.* at 49.

<sup>140</sup> *See id.* at 49-50 (citations omitted).

1 there would no longer be any inconsistency, provided, of course, the commission had  
2 correctly estimated  $k$  at 5%. Return per share would be \$2.50, and this would be 5% of  
3 both market and book value.”<sup>141</sup>

4 The Commission has correctly rejected arguments that it is inappropriate to apply  
5 a market-based ROE determination to a book value rate base. For example, in Order No.  
6 420, the Commission concluded:

7 Although the Commission recognizes that there is a  
8 difference between a rate of return reflective of market data  
9 and one based on book or accounting data, it does not believe  
10 that APPA adequately demonstrated why it is inappropriate  
11 to apply a DCF-based allowed rate of return to a book value  
12 rate base.<sup>142</sup>

13 Similarly, in Order No. 461, the Commission explained:

14 With respect to APPA’s argument that “economic returns  
15 and accounting returns are conceptually and numerically  
16 different,” the Commission notes that it has never disputed  
17 this particular point. What the Commission said in Order No.  
18 420 is that it has not been adequately demonstrated why this  
19 fact makes it inappropriate to apply a DCF-based allowed  
20 rate of return to a book value rate base...the Commission  
21 finds that APPA has not offered any new evidence that  
22 would cause the Commission to change its approach to  
23 setting allowed rates of return.<sup>143</sup>

24 Furthermore, in Order No. 489, the Commission expands on its rationale for  
25 rejecting arguments to apply a market-based ROE determinant to market value rate base.

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<sup>141</sup> See *id.* at 50, n.71.

<sup>142</sup> Order No. 420 at 31,376 (citations omitted).

<sup>143</sup> *Generic Determination of Rate of Return in Common Equity for Pub. Utils.*, FERC Stats. & Regs. ¶ 30,722, at 30,499-500 (“Order No. 461”).

1 The Commission provides an example that demonstrates the circularity in using an electric  
2 utility's market value and asserts that applying the market-based ROE to the book value  
3 rate base allows investors the opportunity to recover its cost of capital. The Commission  
4 explains:

5 The following example demonstrates the circularity of their  
6 claim . . . . During periods of rising equity cost, utilities  
7 generally file for rate increases to cover these higher costs.  
8 This action protects utility shareholders from declines in the  
9 value of their stock. The result is a tendency to maintain a  
10 utility's existing market-to-book ratio during periods of  
11 rising equity costs.

12 During periods of falling capital costs, the revenue required  
13 to meet shareholder capital cost requirements also declines.  
14 Until a utility files for new rates at the lower capital costs, it  
15 continues to charge rates based on the higher equity capital  
16 costs that existed when the current rates were set. The result  
17 is a tendency for the utility to earn more than its shareholders  
18 currently require and a concomitant increase in the price of  
19 the utility's common stock and market-to-book ratio.

20 When capital costs are below those of the previous filing,  
21 applying the allowed rate of return to a market value rate  
22 base would perpetuate the unnecessarily high revenues at the  
23 expense of a utility's customers. Applying the allowed rate  
24 of return to a book value rate base would reduce revenues to  
25 the level required by shareholders at the new lower cost of  
26 equity. These revenues will provide the utility with an  
27 opportunity to recover all costs including the cost of  
28 capital.<sup>144</sup>

29 Additionally, in the same Order No. 489, issued over thirty years ago, the  
30 Commission emphasized that this matter has long been settled, and the market value should

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<sup>144</sup> Order No. 489 at 30,993-94 (citations omitted).

1 be the end result of the ratemaking process and not an input at the beginning of the process.

2 The Commission stated:

3           The argument over the application of an allowed rate of  
4           return to a market value rate base is an old one and the  
5           problem of circularity inherent in that approach has been  
6           long and widely recognized. The Supreme Court’s statement  
7           in *Federal Power Commission v. Hope Natural Gas Co.* that  
8           “rates cannot be made to depend upon ‘fair value’ when the  
9           value of the going enterprise depends on earnings under  
10          whatever rates may be anticipated” reflects its recognition of  
11          that problem. The market value of an enterprise or its  
12          common stock depends upon its earnings or anticipated  
13          earnings, which in turn depend upon its rates allowed. Thus,  
14          market value is a result of the rate-making process and may  
15          not properly be the beginning of that process as well.<sup>145</sup>

16 Thus, the Commission once again concluded “that its policy of applying the allowed rate  
17 of return to a book value rate base is appropriate.”<sup>146</sup>

18           As explained above and as the Commission has previously determined, it is  
19 appropriate and logical to apply the market-based ROE determination to a book value rate  
20 base. The use of a market value rate base raises serious issues of circularity and has the  
21 potential to compromise the integrity of the ratemaking process.

22           **F2. Why have most or all utility market-to-book ratios consistently**  
23           **exceeded one?**

24           First, it is important to clarify that the term “book value of common equity,” which  
25 forms part of the commonly understood market-to-book ratio, differs from the term “book  
26 value rate base.” The book value of common equity represents the “dollar value remaining  
27

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<sup>145</sup> Order No. 489 at 30,994.

<sup>146</sup> *Id.*

1 for common shareholders after all assets are liquidated and all debtors are paid,”<sup>147</sup> whereas  
2 the book value rate base represents the original cost of assets, less depreciation, i.e., net  
3 plant. Differences between the two concepts can be influenced by depreciation versus  
4 financing policies and policies regarding the capitalization of an allowance for funds used  
5 during construction, among other reasons.

6 I infer that the reason electric utilities’ market-to-book ratios have been greater than  
7 1.0 is because the expected return earned by electric utilities is greater than the investors’  
8 required rate of return. Financial theory holds, and common sense confirms, that when  
9 companies are expected to earn reported (or accounting) book rates of return on common  
10 equity at or very near investors’ required rates of return, investors will bid the stock prices  
11 of such companies to at or very near the reported book value of the companies. However,  
12 when companies are expected to earn book rates of return on common equity above (or  
13 below) investors’ required rates of return, investors will bid the stock prices of such  
14 companies to above (or below) their book value; i.e., market-to-book ratios will be above  
15 (or below) 1.0. As the Commission has recognized:

16 when the price-to-book ratio is greater than one, the rate of  
17 return investors expect O&R to earn on common equity is  
18 greater than the rate of return investors require from their  
19 investment in O&R’s common stock. O&R’s proposal  
20 would, in effect, set the allowed rate of return on common  
21 equity at the rate of return investors expect O&R to earn on  
22 common equity (r), rather than the market cost of common  
23 equity (k).

24 O&R’s 1.62 price-to-book ratio implies that the rate of return  
25 investors expect O&R to earn on common equity is

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<sup>147</sup> See Adam Hayes, *Book Value Per Common Share – BVPS Definition*, Investopedia (Apr. 17, 2019),  
<https://www.investopedia.com/terms/b/bookvaluepercommon.asp>.

1 considerably more than the 10.9 percent rate of return they  
2 require from their investment in O&R's common stock. In  
3 fact, Staff's witness estimated that investors are expecting  
4 O&R to earn a 13.5% rate of return on common equity. An  
5 expected earnings level of that magnitude is sufficient reason  
6 for investors to bid the price of O&R's common stock up to  
7 62 percent above book value . . . .

8 . . . .

9 . . . . The cost of capital standard endorsed by this  
10 Commission . . . set[s] the allowed rate of return on common  
11 equity at the rate of return investors require on their  
12 investment.<sup>148</sup>

13 Dr. Morin further addresses the underlying logic, explaining that "[i]ntuitively, if  $r$   
14 [the allowed return on book equity]  $> K$  [the cost of equity capital], and is expected to  
15 remain so, then market price will exceed book value per share since shareholders are  
16 obtaining a return in excess of their opportunity cost. But if  $r < K$ , and is expected to  
17 remain so, market price will be below book value per share since the utility is failing to  
18 achieve its opportunity cost."<sup>149</sup> Dr. Morin adds that "[t]he condition that the M/B ratio  
19 will gravitate toward 1.0 if regulators set the allowed return equal to capital costs will be  
20 met only if the actual return expected to be earned by investors is at least equal to the cost  
21 of capital on a consistent long-term basis and absent inflation."<sup>150</sup> This view is also  
22 confirmed by Dr. Myers, who explains that "[a] firm's market value will equal book value  
23 if it consistently earns a book rate of return equal to the cost of capital."<sup>151</sup> Dr. Lesser and

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<sup>148</sup> *Orange and Rockland*, 44 FERC at 61,952.

<sup>149</sup> Roger A. Morin, PhD, *New Regulatory Finance* 359 (Public Utilities Reports, Inc., 2006).

<sup>150</sup> *See id.* at 376.

<sup>151</sup> Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*, 3 Bell J. Econ. Mgmt. Sci. 58, 73 (1972).

1 Dr. Giacchino likewise opine that “[u]nder ideal circumstances, with a rate of return set  
2 exactly equal to the firm’s [weighted average cost of capital], the market-to-book ratio  
3 would equal one.”<sup>152</sup>

4 A number of industry experts have outlined additional reasons for differences  
5 between the market value and book value of common equity. Dr. Myers highlights four  
6 factors that may lead utilities to earn more or less than is nominally allowed: (1) regulatory  
7 lag; (2) cost trends; (3) factors not under regulatory control; and (4) changes in rate base  
8 relative to capacity and output.<sup>153</sup> Dr. Morin suggests that “[i]t is quite plausible and likely  
9 that M/B ratios will exceed one if inflation increases the replacement cost of a firm’s assets  
10 at a faster pace than historical cost (book equity). Perhaps this explains in part why utility  
11 M/B ratios have remained well above 1.0 over the past two decades.”<sup>154</sup> Furthermore, the  
12 Supreme Court observed that “[a]ppreciations in the value of unregulated industry assets  
13 or excessive returns on regulated activities could account for the current market-to-book  
14 ratios.”<sup>155</sup>

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<sup>152</sup> Jonathan A. Lesser, Ph.D., Leonardo R. Giacchino, Ph.D., *Fundamentals of Energy Regulation* 240 (Public Utilities Reports, Inc., 2nd Ed. 2013).

<sup>153</sup> Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*, 3 Bell J. Econ. Mgmt. Sci. 58, 75-76 (1972). It is worth noting Mr. Myers’s explanation for the third factor – “[f]actors not under regulatory control” – which he explains as follows: “[c]learly if a utility has diversified into nonregulated fields, then restricting the profitability of the regulated portion is not sufficient to insure that the firm’s book rate of return equals the cost of capital for the firm as a whole. A similar problem arises when different parts of a firm’s operations are regulated by different bodies.” *Id.* at 76.

<sup>154</sup> Roger A. Morin, Ph.D., *New Regulatory Finance* 378 (Public Utilities Reports, Inc., 2006).

<sup>155</sup> *Ill. Bell Tel. Co.*, 988 F.2d at 1261.

1 Dr. Lesser and Dr. Giacchino provide a comprehensive outline of many factors that  
2 may create a divergence between the market and book value, some of which overlap with  
3 the other views expressed above:

4 When a firm owns both regulated and unregulated assets, the  
5 return on the unregulated assets may differ from the  
6 regulated return, causing market value to differ from the  
7 book value implied by the firm's cost of capital.  
8 Additionally, a firm's rates typically stay constant between  
9 rate cases, while its costs and volumes sold may fluctuate  
10 during that time (the problem of regulatory lag). Even if a  
11 regulator is able to perfectly set the firm's rate of return equal  
12 to its cost of capital, the two will diverge as the cost of capital  
13 changes in response to changing market conditions,  
14 implying the market and book values will differ.

15 A firm's market value is also sensitive to growth  
16 expectations in the market. Investors form their own  
17 expectations about market conditions, future regulatory  
18 proceedings, and other factors that may cause them to value  
19 the firm at a premium or discount to its book value (not to  
20 mention the effects of irrational or short-term price  
21 fluctuations that impact the price of any traded stock).  
22 Similarly, market value will likely differ from book value if  
23 investors' expectations differ from the regulator regarding  
24 future inflation, which affects a firm's cost of capital and  
25 thus how future earnings are discounted back to the present.

26 The market-to-book ratio may also differ as a result of the  
27 regulator's conduct. The regulator may set a rate of return  
28 that differs from the firm's actual cost of capital, set a  
29 revenue requirement that is seen as insufficient to recoup  
30 costs, or use a different method to account for depreciation  
31 than the one employed by investors, all of which would  
32 cause market value to differ from book value. Regulators  
33 may also disallow investments, or exclude them from the  
34 rate base. If the firm sells these assets, the market-to-book  
35 ratio will be unaffected, but if it continues to operate them



1                   its income stream will be below that implied by the book  
2                   value of its assets.<sup>156</sup>

3           Therefore, it is clear that there are many factors that result in a divergence between  
4   the market value and book value of common equity, and some combination of these factors  
5   may explain why many electric utility market-to-book ratios consistently exceeded one  
6   during the last three decades. However, the straightforward conclusion is that the expected  
7   return earned by electric utilities has been greater than investors' required rate of return,  
8   resulting in a market value that is greater than book value.

9           **F3.   How should the ROE level be set relative to the cost of equity?**

10           The allowed ROE should be set at the cost of equity. Using a book return method  
11           that is devoid of capital market input, such as the Expected Earnings method, would result  
12   in windfall gains and losses for either shareholders or customers. A market-based cost of  
13   equity estimate is required in order to allow investors the opportunity to recover their costs.  
14   As explained in my response to question E3. above, one of the major flaws in the Expected  
15   Earnings method is that it does not measure the rate of return investors require to invest in  
16   the common equity capital of a utility, which is the utility's cost of equity capital. Rather,  
17   the Expected Earnings method measures expectations of what the utility will earn on the  
18   book value of its common equity. Standing alone, the Expected Earnings method is devoid  
19   of market or investor input and is, therefore, incapable of measuring investors' or the  
20   market-required rate of return. Because an investor cannot purchase a utility's common  
21   stock at book value, the utility's expected earned return on book value reveals nothing  
22

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<sup>156</sup> Jonathan A. Lesser, Ph.D., Leonardo R. Giacchino, Ph.D., *Fundamentals of Energy Regulation* 240 (Public Utilities Reports, Inc., 2nd Ed. 2013).

1 about what an investor could be expected to earn on an investment in the utility's common  
2 stock. Nor does it indicate what return an investor requires to invest in the utility's common  
3 stock, except in the rare circumstance where the utility's common stock happens to be  
4 trading in the market at a price at or very near the utility's book value per share.<sup>157</sup> In fact,  
5 when the market value of an electric utility is significantly greater than the book value of  
6 its common equity, it demonstrates that the expected earned book return on common equity  
7 is higher than the cost of equity. Therefore, setting the allowed ROE using the book return,  
8 in whole or in part, would result in windfall gains to shareholders. Moreover, placing any  
9 reliance on the Expected Earnings method contradicts the Commission's long-standing  
10 view that a market-based cost of capital methodology – namely the DCF method – is the  
11 best means of meeting the standards set out in the landmark *Bluefield* and *Hope* Supreme  
12 Court decisions.

13 **F4. Should the Commission revise our use of these models to account for**  
14 **the mismatch between market-based ROE determinations and book-**  
15 **value rate base? If so, how? For example, should the Commission**  
16 **adjust the dividend yield used in the DCF model to represent a yield**  
17 **on book value rather than a yield on stock price?**

18 No. The Commission's current practice of applying a market-based ROE  
19 determination to the book value rate base is logical and appropriate. This practice should  
20 not be altered. Please see my response to question F1 for further details.

21 **F5. Should the Commission consider adjusting ROEs to account for**  
22 **market-to-book ratios above or below one? Would doing so introduce**  
23 **circularity into Commission ROEs by setting the ROE at whatever**

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<sup>157</sup> The Commission notes in its preamble to Section F of the NOI that “[f]or the last three decades, the market-to-book ratios of the companies that the Commission uses in proxy groups have generally been substantially in excess of one.” NOI at P 36.

1                   **level of earnings the market expected, rather than making an**  
2                   **independent assessment of the appropriate ROE?**

3                   I do not address this question in my affidavit at this time, but reserve the right to do  
4                   so in a reply affidavit.

5                   **G.     First Prong of ROE Determination**

6                   **G1.     How should the Commission determine if existing ROEs are just and**  
7                   **reasonable?**

8                   I do not address this question at this time, but reserve the right to do so in a reply  
9                   affidavit.

10                  **G2.     Is the quartile approach that the Commission proposed in the *Coakley***  
11                  **and MISO Briefing Orders appropriate? If not, how should the**  
12                  **Commission revise this methodology?**

13                  I do not address this question at this time, but reserve the right to do so in a reply  
14                  affidavit.

15                  **G3.     When a successive complaint is filed while the current ROE is being**  
16                  **adjudicated (i.e., a pancake complaint), should the subsequent**  
17                  **complainant be required to make a prima facie showing of sufficient**  
18                  **change in market conditions to meet the *Coakley* and MISO Briefing**  
19                  **Order's proposed determination of whether an existing ROE remains**  
20                  **just and reasonable? If so, what type of information or showing**  
21                  **should the complainant provide to demonstrate that market**  
22                  **conditions have changed, and what standard should the Commission**  
23                  **apply when assessing whether to deny the subsequent complaint**  
24                  **without setting it for hearing?**

25                  I do not address this question at this time, but reserve the right to do so in a reply  
26                  affidavit.

27                  **G4.     In single utility rate cases, the Commission determines the central**  
28                  **tendency of the zone of reasonableness based on the median of the**  
29                  **proxy group ROEs. Is the approach outlined in the *Coakley* and**  
30                  **MISO briefing orders appropriate in single utility rate cases given**  
31                  **that the proxy company ROEs tend to cluster near the center of the**

1                    **zone of reasonableness, making the middle quartile relatively**  
 2                    **narrow?**

3                    **G4.a. Would it be reasonable to determine the central tendencies of**  
 4                    **the upper and lower halves of the zone of reasonableness for**  
 5                    **single utilities based on a midpoint analysis, so as to produce**  
 6                    **approximately equal ranges of presumptively just and**  
 7                    **reasonable ROEs for below average, average, and above**  
 8                    **average risk utilities?**

9                    I do not address these questions at this time, but reserve the right to do so in a reply

10 affidavit.

11    **H.    Model Mechanics and Implementation**

12                    **H1.    General issues/issues that affect multiple models**

13                    **H.1.1. Are IBES data a good proxy for “investor consensus?”**

14                    **H.1.1.a.    If not, are there better alternatives, such as Bloomberg,**  
 15                    **Zacks, S&P Capital, Morningstar, and Value Line?**

16                    **H.1.1.b.    Should the Commission combine data from multiple**  
 17                    **sources?**

18                    IBES growth rates are a good proxy for a consensus view of investors’ expectations.

19                    There are not better alternative sources for short-term growth rates, and the Commission  
 20                    should not combine data from multiple sources.

21                    IBES growth rates provide a consensus view of investors’ expectations. They are  
 22                    easily accessible and freely available. Yahoo! Finance continuously publishes analysts’  
 23                    consensus growth rates sourced from the IBES database and provides free access to these  
 24                    growth rates. Investopedia references IBES, among other sources, when discussing  
 25                    “common places” where consensus estimates can be retrieved.<sup>158</sup> Investopedia does not

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<sup>158</sup> See James Chen, *Consensus Estimate*, Investopedia (Mar. 29, 2019),

1 indicate concerns with IBES’s reliability and states that “IBES is a central location whereby  
2 investors are able to research the different analyst estimates for any given stock without  
3 necessarily searching for each individual analyst.”<sup>159</sup>

4 In Opinion No. 531, the Commission explained that “[t]he growth rate used in the  
5 DCF model should be the growth rate expected by the market,” which “may not necessarily  
6 prove to be the correct growth forecast.”<sup>160</sup> However, “the cost of common equity to a  
7 regulated enterprise depends upon what the market expects, not upon what ultimately  
8 happens.”<sup>161</sup> Thus, the objective is to rely upon a source that provides a reasonable  
9 representation of the growth rate expected by the market.

10 It has long been the Commission’s practice to rely on IBES growth projections as  
11 evidence of the growth rates expected by the investment community.<sup>162</sup> While the  
12 Commission has considered alternative sources for non-IBES, short-term growth rates on  
13 a number of occasions, the Commission did not change its practice of primary reliance on  
14 IBES short-term growth rates. For instance, regarding a proposal to use growth rates  
15 provided by Zacks or a historical growth rate study, the Commission concluded that, “while  
16 there is no perfect source of data, the Commission is satisfied that the evidence in this  
17 proceeding supports its reliance on IBES as the source of data for the short-term growth

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<https://www.investopedia.com/terms/c/consensusestimate.asp>.

<sup>159</sup> See Will Kenton, *Institutional Brokers’ Estimate System (IBES)*, Investopedia (May 8, 2018),  
<https://www.investopedia.com/terms/i/ibes.asp>.

<sup>160</sup> Opinion No. 531 at P 88.

<sup>161</sup> See *id.*

<sup>162</sup> *Id.* at P 89.

1 projection.”<sup>163</sup> Additionally, in Opinion No. 551, the Commission expressly rejected the  
2 use of Value Line growth rates because “Value Line does not publish such consensus  
3 growth rates estimates,” and Value Line growth rates “are updated only on a lagging,  
4 quarterly basis.”<sup>164</sup>

5 A significant concern with opening the door to using alternative sources is that  
6 witnesses may exercise discretion to select growth rates that are beneficial to their own  
7 requirements. The Commission notes that “the witness for each party is likely to choose  
8 ... those data and methodologies that most favor his or her client’s financial interest.”<sup>165</sup>  
9 The same witnesses could even choose different growth rates for use in different  
10 proceedings, depending upon the results produced by the various sources.

11 Combining growth rates from multiple sources can also lead to distorted results. In  
12 Opinion No. 551, the Commission has explained:

13 While the Commission stated that it is willing to allow the  
14 substitution of “comparable data,” the Commission  
15 explained that “an alternative source of growth rate data  
16 should only be used when that source can be used for the  
17 growth projections of all of the proxy group companies”  
18 because using different sources could “produce skewed  
19 results, because those sources may take different approaches  
20 to calculating growth rates.” For this reason, the  
21 Commission emphasized that it has “consistently used a

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<sup>163</sup> See *Transcon. Gas Pipeline Co.*, Opinion No. 414, 80 FERC ¶ 61,157 (1997), *order on reh'g*, Opinion No. 414-A, 84 FERC ¶ 61,084 (1998), *reh'g denied*, Opinion No. 414-B, 85 FERC ¶ 61,323, at 62,269 (1998).

<sup>164</sup> See Opinion No. 551 at P 64.

<sup>165</sup> *Nw. Pipeline Corp.*, 79 FERC ¶ 61,309, at 62,384 (1997); *Williston Basin Interstate Pipeline Co.*, 79 FERC ¶ 61,311, at 62,390 (1997), *review granted in part and denied in part sub nom. Williston Basin Interstate Pipeline Co. v. FERC*, 165 F.3d 54 (D.C. Cir. 1999).

1 single investor service such as IBES for the investment  
2 analysts' growth rate estimates."<sup>166</sup>

3 The Commission also addressed its concern with relying on a mix-and-match  
4 approach in Opinion No. 531, explaining that "while the sources of growth rate data often  
5 rely on many of the same analysts in publishing their estimates, the different sources may  
6 use slightly different time periods from one another."<sup>167</sup> Dr. Morin confirms that "[t]he  
7 earnings growth rates published by Zacks, First Call, Reuters, Value Line, and IBES  
8 contain significant overlap since all rely on virtually the same population of intuitional  
9 analysts who provide such forecasts."<sup>168</sup> The Commission's concern with combining  
10 multiple growth rates is equally applicable to using multiple sources in one individual DCF  
11 analysis or some combination of DCF analyses that each used discrete sources of short-  
12 term growth rates.

13 Furthermore, the Commission previously rejected a proposal to "revis[e] IBES  
14 growth rates by averaging them with the comparable growth forecasts reported by Zacks  
15 Investment," to "help remove anomalous or outlying growth rates."<sup>169</sup> In response to this  
16 suggestion, the Commission determined that it "will not require that IBES growth rates be  
17 averaged with the corresponding company's growth rates as reported for Zacks Investment  
18 at this time."<sup>170</sup>

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<sup>166</sup> See Opinion No. 551 at P 63 (citations omitted).

<sup>167</sup> Opinion No. 531 at P 90.

<sup>168</sup> Roger A. Morin, PhD, *New Regulatory Finance* 302, n.13 (Public Utilities Reports, Inc., 2006).

<sup>169</sup> See *Composition of Proxy Group for Determining Gas and Oil Pipeline Return on Equity Policy Statement*, 123 FERC at P 83.

<sup>170</sup> See *id.* at P 84.

1           A further consideration in determining the appropriate source of short-term growth  
2 rates is whether the short-term growth rates are readily available to stakeholders impacted  
3 by the rates charged for the regulated service at issue. As described above, IBES growth  
4 rates are available for free through Yahoo! Finance, as well as via [www.reuters.com](http://www.reuters.com). Zacks  
5 also makes its analysts' consensus short-term growth rate estimates freely available on its  
6 website. However, access to the growth rates published by S&P Capital and Bloomberg,  
7 among others, is only available via expensive subscription services. While electric utilities  
8 may have the means to acquire access to these sources, the substantial expense may pose a  
9 significant obstacle for some stakeholders, creating an unlevel playing field in regulatory  
10 proceedings. Moreover, where access to growth rates requires a subscription, their use by  
11 individual investors is likely to be limited. For these reasons, and the fact that reputable  
12 consensus, short-term growth rates are available at no cost, it is both inappropriate and  
13 unnecessary to rely on sources that require subscription. Notwithstanding the public  
14 availability of other free sources of analysts' consensus estimates, however, consistent use  
15 of a single source of short-term growth rates, as the Commission has historically done with  
16 IBES-reported growth rate estimates, offers the benefits of predictability, consistency, and  
17 objectivity.

18           Based on the foregoing, I find that the exclusive use of IBES short-term growth  
19 rates, without reference to alternative sources of growth rates, helps ensure ROE analyses  
20 are internally consistent, does not introduce unnecessary points of contention or bias, and  
21 meets the objective of providing a reasonable representation of short-term growth expected  
22 by the market.



1                   **H.1.1.c. What weight, if any, should be given to an estimate if**  
2                   **the number and identity of analysts contributing to the**  
3                   **estimate is not available?**

4                   I do not address this question, but reserve the right to do so in a reply affidavit.

5                   **H.1.2. To what extent does model risk affect all ROE methodologies?**

6                   I do not address this question, but reserve the right to do so in a reply affidavit.

7                   **H.1.3. The DCF model incorporates data at the parent/holding**  
8                   **company level (e.g., stock price). The Commission adjudicates**  
9                   **cases at the operating company level, for which there is no**  
10                  **public data like stock prices, growth rates, and betas. What**  
11                  **impact does this disparity have on the results of the DCF and**  
12                  **other models?**

13                  I do not address this question, but reserve the right to do so in a reply affidavit.

14                  **H.1.4. Should the Commission continue to rely on the efficient market**  
15                  **hypothesis, which underlies the DCF and CAPM models?**  
16                  **Why or why not?**

17                  I do not address this question, but reserve the right to do so in a reply affidavit.

18                  **H.1.4.a. If yes, should the Commission continue to employ**  
19                  **outlier screens, M&A screens, etc., for the DCF and**  
20                  **CAPM models since these models need to incorporate**  
21                  **all relevant information?**

22                  I do not address these questions at this time, but reserve the right to do so in a reply  
23                  affidavit.

24                  **H.1.5. Should growth rates be based on Value Line, IBES, or**  
25                  **alternative estimates?**

26                  Please refer to my response to question H.1.1.a, above.

27                  **H.1.6. Should the same growth rate sources be used across models, if**  
28                  **more than one model is used to determine the ROE?**

29                  I do not address this question at this time, but reserve the right to do so in a reply  
30                  affidavit.

1       **H2. Model-Specific Questions**

2

3

**a. DCF**

4

5

6

**H.2.a.1   Should the Commission continue to use a dividend DCF  
                          model or should the Commission use a different DCF  
                          model, for example, one based on free cash flow?**

7

      My response here answers questions H.2.a.1. and H.2.a.5., with both questions  
8 asking whether the Commission should apply a different DCF model than the two-step  
9 DCF model. In my view, the Commission should continue to apply the two-step DCF  
10 method to electric utilities. The alternative DCF models, such as one using free cash flow  
11 as opposed to dividends or a multi-stage DCF method, require additional uncertain  
12 assumptions beyond those required by the two-step DCF method. Using these methods  
13 would likely result in further controversy and introduce unnecessary matters of dispute.

14

      The standard DCF method assumes that the value of a utility's stock is the present  
15 value of all future dividends, discounted by investors' required rate of return, which is  
16 influenced by a myriad of factors in addition to expected growth in earnings and  
17 dividends.<sup>171</sup> Industry experts Stephen A. Ross, Randolph W. Westerfield, and Jeffrey  
18 Jaffe explain that "[p]roponents of using the DDM point out that returns in the long run  
19 can only come from the current dividend yield and future dividend growth" and that  
20 "[a]nyone who thinks that long-run stock returns will exceed the sum of these two

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<sup>171</sup> For a discussion of the theory underlying the DCF method please refer to my response to question C3.

1 components is fooling himself.”<sup>172</sup> In contrast, the theory of a free cash flow DCF<sup>173</sup>  
2 method is that the free cash flow, rather than dividends, is a better representation of the  
3 ultimate return that will be accrued by shareholders.<sup>174</sup> However, there remains a question  
4 of how comparable this information is between electric utilities, which employ different  
5 accounting conventions in their respective financial reporting.

6 Additionally, regarding the expected growth in cash flow, Dr. Villadsen, Dr.  
7 Vilbert, Mr. Harris, and Dr. Kolbe state that it is common to rely on earnings growth given  
8 that there are few forecasts of cash flow growth available.<sup>175</sup> However, they also express  
9 concern with this assumption:

10 Cash flow differs from earnings most sharply in the  
11 treatment of capital investment, where cash flow growth  
12 looks at the actual financing and investment flows, while  
13 earnings allocates the cost of the investment over the life of  
14 the asset via noncash depreciation charges. Whether  
15 earnings growth is a good proxy for cash flow growth is a  
16 matter that would have to be considered case by case, with  
17 recognition of just how “cash flow” was being defined.<sup>176</sup>

18 In contrast, the reliance on expected earnings growth rates as a substitute for dividend  
19 growth rates in the standard dividend DCF model is a well-established and accepted  
20 practice. When discussing the DDM, Ross, *et al.* state that “[t]he estimate for the growth

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<sup>172</sup> See Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 405 (McGraw-Hill Irwin, 10th Ed. 2013).

<sup>173</sup> Free cash flow “is commonly defined as net income plus the depreciation and the deferred income tax minus capital expenditures (including changes in working capital).” See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 107 (Elsevier Inc., 2017).

<sup>174</sup> See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 106 (Elsevier Inc., 2017).

<sup>175</sup> *Id.*

<sup>176</sup> See *id.*

1 rate in earnings,  $g$ , is also the estimate for the growth rate in dividends under the common  
2 assumption that the ratio of dividends to earnings is held constant.”<sup>177</sup> Dr. Morin explains  
3 that “[t]he assumption of a constant dividend payout is realistic,” and “[m]ost firms,  
4 including utilities, tend to maintain a fixed payout rate when it is averaged over several  
5 years.”<sup>178</sup>

6 A multi-stage DCF method (also known as a non-constant DCF method) and the  
7 two-step DCF method share the same goal of managing the DCF method’s perpetual  
8 assessment time horizon. Both methods seek to manage the problem that analysts’  
9 earnings-per-share growth rate estimates, which typically do not exceed a five-year  
10 horizon, are unrealistic for use as the sole growth rate in a perpetuity model.<sup>179</sup> Dr. Morin  
11 notes that “[a] transition must occur between the first stage of growth forecast by analysts  
12 for the first five years and the company’s long-term sustainable growth rate.”<sup>180</sup>

13 The Commission’s preferred two-step DCF method, which blends a short-term and  
14 long-term growth forecast and inputs this blended “ $g$ ” value into the constant growth DCF  
15 method, can be described as one form of the multi-stage DCF method.<sup>181</sup> Other forms of  
16 multi-stage DCF methods involve an effort to explicitly estimate different stages of growth.  
17 For instance, a three-stage, non-constant growth DCF analysis typically seeks to estimate

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<sup>177</sup> See Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 279 (McGraw-Hill Irwin, 10th Ed. 2013).

<sup>178</sup> See Roger A. Morin, PhD, *New Regulatory Finance* 258 (Public Utilities Reports, Inc., 2006).

<sup>179</sup> See Roger A. Morin, PhD, *New Regulatory Finance* 308 (Public Utilities Reports, Inc., 2006); more broadly, see my response to questions H.2.a.3. and H.2.b.1.

<sup>180</sup> See *id.*

<sup>181</sup> *Id.* at 309.

1 the growth for the first five years (Stage 1) based on analysts' short-term earnings-per-  
2 share growth rates. In Stage 2, the method assumes a transition period whereby an  
3 industry-wide growth rate or some other growth rate may be applied. Stage 3 involves the  
4 assumption that the company will continue to grow at a rate of the wider economy, which  
5 can be measured by a GDP growth projection. The assumptions underlying each stage,  
6 e.g., the growth rates assumed and the length of time that each Stage will last, are open to  
7 debate. For instance, the Ibbotson three-stage DCF method, which is a free-cash flow DCF  
8 method, covers years one through five in Stage 1, years six through ten in Stage 2, and  
9 years eleven and beyond in Stage 3.<sup>182</sup> The Ibbotson method assumes the following growth  
10 rates:

11 [t]he growth rate for Years 1-5 is from equity analysts'  
12 forecasted growth rates. For Years 6-10, the growth rate is  
13 the industry growth rate, which Ibbotson, determines as the  
14 average of the individual companies in the industry's growth  
15 rates. The economy-wide growth rate in stage 3 is the [GDP]  
16 growth rate that Ibbotson expects.<sup>183</sup>

17 In *New Regulatory Finance*, Dr. Morin provides an alternative three-stage DCF  
18 method, which uses different years and growth rates for each stage than those adopted by  
19 Ibbotson. Under Dr. Morin's approach, "[f]or the first five years (Stage 1), dividends are  
20 assumed to grow at the analyst consensus long-term earnings growth forecast."<sup>184</sup> For  
21 Stage 2, from years 5 through 25, "the growth rate is assumed to converge linearly from

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<sup>182</sup> See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 107-108 (Elsevier Inc., 2017).

<sup>183</sup> See *id.* at 108.

<sup>184</sup> Roger A. Morin, PhD, *New Regulatory Finance* 311 (Public Utilities Reports, Inc., 2006).

1 the analyst forecast to the long-term forecast.”<sup>185</sup> In Stage 3, year 25 and forward,  
2 “dividends are assumed to grow at the same nominal rate as the national economy, using  
3 either the long-term economic forecast and/or the long-term historical growth rate of the  
4 U.S. economy, as above.”<sup>186</sup> With regard to the Stage 2 growth rate, Dr. Morin explains  
5 that “[t]he procedure can easily be adjusted by altering the convergence assumption,” and  
6 “[o]ther convergence patterns may be assumed, as long as the notion that eventually all  
7 company growth rates settle to a level consistent with the growth of the macroeconomy is  
8 maintained.”<sup>187</sup> Thus, it is clear that there are a number of different approaches one can  
9 take when developing a multi-stage DCF method.

10 Importantly, in Opinion 396-B, the Commission considered but ultimately rejected  
11 the use of the three-stage DCF method and “chose to use the constant growth DCF model  
12 and average the short and long-term growth data.”<sup>188</sup> The Commission highlighted the  
13 uncertainty and subjective nature of the method’s assumptions – i.e., with regard to Stage  
14 2, the Commission stated that “[t]he determination of the Stage 2 growth rate requires a  
15 judgment by the analyst of the length of time Stage 2 will last, and whether the growth will  
16 decline slowly, quickly, or at a steady rate.”<sup>189</sup> The Commission explained further, stating:

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<sup>185</sup> *Id.*

<sup>186</sup> *Id.*

<sup>187</sup> *Id.*

<sup>188</sup> Opinion No. 396-C at 61,191. Note that the Commission later adopted a two-thirds weighting for the short-term growth rate and one-third weighting for the long-term growth rate. The Commission summarized this change in Opinion No. 531 at P 21 and explained “When the Commission first required use of a long-term growth estimate, the Commission simply averaged the short-term five-year IBES growth estimate with the long-term GDP growth estimate in determining the overall dividend growth rate. However, in 1998, in Opinion No. 414-A, the Commission changed the weighting scheme in order to give two-thirds weight to short-term forecasts and one-third weight to long-term forecasts.” (citations omitted).

<sup>189</sup> *See* Opinion No. 396-C at 61,191.

1 [t]he Commission did not adopt this approach, because the  
2 calculations are more involved and require attempts to  
3 predict the future that “are not well suited to litigation where  
4 the witness for each party is likely to choose from among  
5 reasonable alternatives, those data and methodologies that  
6 most favor his or her client’s financial interest and there are  
7 no objective criteria for the Commission to make distinctions  
8 between what will be the equally well-reasoned and well-  
9 supported judgments of the equally well-credentialed  
10 experts.”<sup>190</sup>

11 Thus, there are concerns with the multi-stage DCF method that remain valid today,  
12 and there are significant limitations with a free-cash flow DCF method. If the Commission  
13 were to adopt these alternative DCF methods, it would introduce additional and  
14 unnecessary points of contention in regulatory proceedings. Therefore, I conclude it is  
15 appropriate that the Commission continues to employ its preferred two-step DCF method.

16 **H.2.a.2. Could terminal stock value be used in place of long-**  
17 **term growth projections? If so, how should terminal**  
18 **stock value be determined?**

19 I do not address this question at this time, but reserve the right to do so in a reply  
20 affidavit.

21 **H.2.a.3. Do investment analysts project earnings/dividends**  
22 **growth beyond five years, and if not, why not, and is**  
23 **GDP an appropriate proxy for long-term growth?**

24 Yes, it is reasonable to infer that investment analysts and investors, as part of their  
25 internal assessments, incorporate projections of earnings and dividends growth beyond five  
26 years, despite the maximum 3-5 year horizon for general earnings-per-share consensus  
27 forecasts.<sup>191</sup> It is commonly understood that stock investment is a long-term investment.

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<sup>190</sup> See *id.* at 61,192 (citing Opinion No. 396-B at 62,384).

<sup>191</sup> Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 412 (McGraw-Hill

1 When discussing the appropriate risk-free rate to use in the CAPM method, Dr. Avera  
2 stated that “yields on long-term Treasury bonds, not a short-term interest rate, provide the  
3 appropriate risk-free rate in applying the CAPM because they have an investment horizon  
4 that is closer to that of common stocks.”<sup>192</sup> Mr. Robert J. Keyton, a witness for FERC  
5 Trial Staff, stated in the same proceeding that “common equity is generally considered a  
6 long-term investment.”<sup>193</sup>

7 Investors and analysts must logically account for the long-term economic value that  
8 a stock is expected to generate even if the intention is only to retain ownership of the stock  
9 in the short-term. Dr. Morin makes this abundantly clear in *New Regulatory Finance*,  
10 where he states that “[t]he expected common stock return is based on long-term cash flows,  
11 regardless of an individual’s holding time period.”<sup>194</sup> Ross *et al.* further expand on this  
12 point, explaining:

13 Thus the price of a share of common stock to the investor is  
14 equal to the present value of all of the expected future  
15 dividends.

16 This is a very useful result. A common objection to apply  
17 present value analysis to stocks is that investors are too  
18 shortsighted to care about the long-run stream of dividends.  
19 These critics argue that an investor will generally not look  
20 past his or time horizon. Thus, prices in a market dominated  
21 by short-term investors will reflect only near-term

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Irwin, 10th Ed. 2013) (“However, analysts’ estimates are generally for five-year growth rates in earnings, while the DDM requires long-term growth rates in dividends.”).

<sup>192</sup> Cross-Answering Testimony of William E. Avera, Exh. No. MTO-23 at 93:10-12, *Ass’n of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Docket No. EL14-12-002 (filed June 15, 2015).

<sup>193</sup> Prepared Direct and Answering Testimony of Robert J. Keyton, Exh. No. S-1 at 16:5-6, *Ass’n of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Docket No. EL14-12-002 (filed May 15, 2015).

<sup>194</sup> Roger A. Morin, PhD, *New Regulatory Finance* 151 (Public Utilities Reports, Inc., 2006).



1 dividends. However, our discussion shows that a long-run  
2 dividend discount model holds even when investors have  
3 short-term time horizons. Although an investor may want to  
4 cash out early, she must find another investor who is willing  
5 to buy. The price this second investor pays is dependent on  
6 dividends *after* his date of purchase.<sup>195</sup>

7 This explanation is confirmed by Dr. Avera, who states that

8 because common equity is a perpetual asset, investors are  
9 concerned with expectations for the firm's long-term risks  
10 and prospects. This does not mean that every investor will  
11 buy and hold a particular common stock forever. Rather, it  
12 recognizes that even an investor with a relatively short  
13 holding period will consider the long-term because of its  
14 influence on the price that he or she ultimately receives from  
15 the stock when it is sold.<sup>196</sup>

16 In other words, even if investors do not intend to retain stock ownership indefinitely, they  
17 must account for the remaining expected value of the stock at the end of their investment  
18 horizon.

19 It is also evident that investors and analysts turn to economy-wide indicators, like  
20 the GDP, to estimate expected growth beyond the maximum 3-5 year horizon for consensus  
21 growth rates. For instance, a senior manager at Charles Swab Investment Advisory  
22 describes the manner in which he calculates a long-term market return forecast as follows:

23 For U.S. and international large-cap stocks, we use analyst  
24 earnings estimates and macroeconomic forecast data to  
25 estimate two key cash-flow drivers of investment returns:  
26 recurring investment income (earnings) and capital gains

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<sup>195</sup> Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 274 (McGraw-Hill Irwin, 10th Ed. 2013).

<sup>196</sup> Direct Testimony of William E. Avera, Exh. No. PNR-700 at 52:16-21, *Pioneer Transmission, LLC*, Docket No. ER09-75-000 (filed Oct. 15, 2008).

1 generated by selling the investment at the end of the forecast  
2 horizon of 10 years.<sup>197</sup>

3 In the absence of reliable company-specific long-term forecasts, relying on a  
4 macroeconomic indicator, such as the GDP, is a logical choice for measuring long-term  
5 growth. Indeed, it has been found that “[e]arnings growth is primarily driven by economic  
6 growth,”<sup>198</sup> “GDP growth, less the economic dilution associated with entrepreneurial  
7 capitalism, basically defines sustainable growth in per share earnings and dividends,”<sup>199</sup>  
8 and “over the long run, aggregate corporate earnings tend to grow at the same pace as  
9 GDP.”<sup>200</sup> This logic is further expanded on by Mr. Peng Chen, CFA and President, Global  
10 Investment Management Division Morningstar Investment Management:

11 Long-term expected equity returns can be forecasted by  
12 using supply-side models. The supply of stock market  
13 returns is generated by the productivity of corporations in the  
14 real economy. Investors should not expect a much higher or  
15 lower return than that produced by the companies in the real  
16 economy. Thus, over the long run, equity returns should be  
17 close to the long-run supply estimate.

18 Earnings, dividends, and capital gains are supplied by  
19 corporate profitability. Figure 3 illustrates that earnings and  
20 dividends have historically grown in tandem with the overall  
21 economy (GDP per capita), adjusting for inflation. So, if one  
22 assumes that the economy will continue to grow, dividends

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<sup>197</sup> Veerapan Perianan, *Why Market Returns May Be Lower and Global Diversification More Important in the Future*, Charles Schwab (Feb. 19, 2019), <https://www.schwab.com/resource-center/insights/content/why-market-returns-may-be-lower-in-the-future>.

<sup>198</sup> John Mauldin, *It's Not Over Till the Fat Lady Goes on a P/E Diet*, Mauldin Economics (July 10, 2015), <https://www.mauldineconomics.com/frontlinethoughts/its-not-over-till-the-fat-lady-goes-on-a-p-e-diet>.

<sup>199</sup> Robert D. Arnott, *Equity Risk Premium Myths*, The Research Foundation of CFA Institute, at 97 (2011).

<sup>200</sup> *Is There a Link Between GDP Growth and Equity Returns?*, MSCI Barra at 2 (2010), <https://www.msci.com/documents/10199/a134c5d5-dca0-420d-875d-06adb948f578>.

1 and earnings should also continue to grow, thus continuing  
2 to drive stock performance.<sup>201</sup>

3 Further, the use of GDP as a proxy for long-term growth is not controversial. The  
4 Commission has long adopted the use of the GDP forecast as part of its two-step DCF  
5 analysis for oil and gas pipelines.<sup>202</sup> The Commission explained that part of its rationale  
6 for choosing the GDP growth rate was that “the record showed that as companies reach  
7 maturity over the long-term, their growth slows, and their growth rate will approach that  
8 of the economy as a whole” and “the long-term growth of GDP is used as the long-term  
9 growth rate by investment houses for both regulated and unregulated companies.”<sup>203</sup> The  
10 Commission further found that “in the absence of a reliable, industry-specific long-term  
11 growth projection, the best economy-wide approach to projecting long-term growth is to  
12 use growth in GDP.”<sup>204</sup> More recently, the Commission observed, as part of the paper  
13 hearing process initiated in Opinion No. 531, that “[a]ll participants in the paper hearing  
14 agree that the estimated long-term growth in GDP is the appropriate growth rate to use as  
15 the long-term growth component of the two-step DCF methodology for public utilities.”<sup>205</sup>  
16 And, as summarized in Opinion No. 531,

17 the D.C. Court of Appeals affirmed the Commission’s  
18 decision to use GDP to estimate long-term growth in  
19 dividends, finding that “[t]he testimony adduced at the  
20 hearing demonstrated that major investment houses used an  
21 economy-wide approach to project long-term growth, that

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<sup>201</sup> Peng Chen, *Will Bonds Outperform Stocks over the Long run? Not Likely*, The Research foundation of CFA Institute, at 125 (2011).

<sup>202</sup> See generally Opinion No. 396-C.

<sup>203</sup> See *id.* at 61,192, 61,197.

<sup>204</sup> See *Williston Basin Interstate Pipeline Co.*, 87 FERC ¶ 61,264 at 62,006 (1999).

<sup>205</sup> See Opinion No. 531-A at P 6.

1           such an approach was supported by practical economic  
2           considerations, and that existing industry-specific  
3           approaches imperfectly reflected investor expectations and  
4           made unfounded economic assumptions.”<sup>206</sup>

5           In Opinion No. 396-C, the Commission addressed arguments that “no evidence  
6           shows investors rely upon these analyses”, holding that “the record showed that the long-  
7           term growth of the economy is used by two large investment houses as their long-term  
8           figure in conducting DCF analyses for investment purposes” and “the very fact that major  
9           investment houses, whose business depends upon providing advice to investors, commit  
10          staff and resources to producing DCF analyses is evidence that such analyses have value  
11          as investment tools.”<sup>207</sup>

12          Fidelity Investments also acknowledges the role of GDP growth forecasts, along  
13          with other important factors, in investment decisions, stating “while GDP forecasts can  
14          provide guidance for investors seeking to set realistic expectations for future returns from  
15          their portfolios, other factors such as stock market leverage and valuation dynamics will  
16          also play a role in how stocks perform.”<sup>208</sup> Investopedia reports that “[i]nvestors often pay  
17          attention to both positive and negative GDP growth when assessing an investment idea or  
18          devising an investment strategy.”<sup>209</sup> Thus, it is reasonable to infer, as the Commission  
19          previously did, that investors do incorporate long-term GDP growth in their analysis.

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<sup>206</sup> See Opinion No. 531 at P 20 (quoting *Williston Basin Interstate Pipeline Co., v. FERC*, 165 F.3d 54, 64 (D.C. Cir. 1999)).

<sup>207</sup> Opinion No. 396-C at 61,192, 61,194.

<sup>208</sup> *Investing for the Next 20 Years: Will Slower Economic Growth Mean Lower Returns?*, Fidelity Viewpoints (Mar. 11, 2019), <https://www.fidelity.com/viewpoints/market-and-economic-insights/investing-for-the-next-20-years> (emphasis added).

<sup>209</sup> Leslie Kramer, *What is GDP and Why is it so Important to Economists and Investors?*, Investopedia (Feb. 21, 2019), <https://www.investopedia.com/ask/answers/what-is-gdp-why-its-important-to-economists->

1           Based on the foregoing, I conclude that investors and analysts assess the long-term  
2   economic value expected from a stock and GDP is an appropriate measure of long-term  
3   growth.

4                           **H.2.a.4.   How should the Commission weight short-term and**  
5                           **long-term earnings/dividend growth projections?**

6           I do not address this question at this time, but reserve the right to do so in a reply  
7   affidavit.

8                           **H.2.a.5.   The Commission uses a constant growth DCF model.**  
9                           **Should the Commission consider using a multi-stage**  
10                          **DCF model? If so, how would the Commission**  
11                          **determine the length of each stage of a proxy company's**  
12                          **growth?**

13          Please reference my response to question H.2.a.1, above.

14                          **H.2.a.6.   Are six months of average high/low historical monthly**  
15                          **stock prices an appropriate measure for the current**  
16                          **stock price "P"?**

17          I do not address this question at this time, but reserve the right to do so in a reply  
18   affidavit.

19                          **b.       CAPM**  
20

21                          **H.2.b.1.   If the market risk premium is determined by applying**  
22                          **the DCF methodology to a representative market index,**  
23                          **should a long-term growth rate be used, as in the**  
24                          **Commission's two-step DCF methodology?**

25          Yes. It is appropriate and necessary to estimate the Market Risk Premium using  
26   the two-step DCF methodology, which applies a long-term growth rate,<sup>210</sup> to a

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[investors/](#).

<sup>210</sup> In response to question H.2.a.3, I explain that a GDP projection is an appropriate estimate to use for long-term growth.

1 representative market index. There is no dispute that companies cannot grow in perpetuity  
2 at a rate above the growth rate of the general economy. Dr. Villadsen, *et al.* describe this  
3 as a “fact,”<sup>211</sup> and Ross, *et al.* note that “firms simply cannot maintain an abnormally high  
4 growth rate *forever*.”<sup>212</sup> The corollary of this is that an aggregation or index of companies  
5 will similarly be grounded in this reality. A number of authoritative sources and  
6 commenters have affirmed this intrinsic relationship. For example, John Mauldin, in an  
7 article from his regularly-issued “Thoughts from the Frontline” series, explained that:

8 Earnings growth is primarily driven by economic growth.  
9 Although profit margins vary across the business cycle and  
10 by industry and company, earnings for the stock market as a  
11 whole over the long term tend to track sales growth.  
12 Measures of the economy, including gross domestic product  
13 (GDP), tend to measure the aggregate sales of all companies  
14 in the economy. As a result, earnings growth has historically  
15 been similar to GDP growth. In reality, earnings growth for  
16 large-company indexes like the S&P 500 has been slightly  
17 lower than overall economic growth. The economy includes  
18 faster-growth small companies and start-ups that tend to  
19 outpace the more stable giants.<sup>213</sup>

20 The close relationship between long-run growth in the stock market and GDP  
21 growth has been evident since at least 1871. Specifically, Mr. Robert D. Arnott, Chair and  
22 Founder of Research Affiliates, LLC notes that “real per share prices, earnings, and  
23 dividends grew at a pace similar to that of per capita GDP (with some slippage associated  
24 with the ‘entrepreneurial’ stock rewards to management),” and that “since 1871, these

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<sup>211</sup> Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 100, n.12 (Elsevier, Inc., 2017).

<sup>212</sup> Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 282 (McGraw-Hill Irwin, 10th Ed. 2013).

<sup>213</sup> John Mauldin, *It's Not Over Till the Fat Lady Goes on a P/E Diet*, Mauldin Economics (July 10, 2013), <https://www.mauldineconomics.com/frontlinethoughts/its-not-over-till-the-fat-lady-goes-on-a-p-e-diet>.

1 growth rates have been 1.8 percent for real per share prices, 1.4 percent for earnings, 1.1  
2 percent for dividends, and 1.9 percent for GDP.”<sup>214</sup> With regard to “[w]hy [] these rates  
3 [should] be so tightly linked,” Mr. Arnott explains:

4 Per capita GDP is a measure of productivity (with slight  
5 differences for changes in the workforce, hours worked, and  
6 so forth). And aggregate GDP per capita must grow in  
7 reasonably close alignment with productivity growth.  
8 Productivity growth is also the key driver for per capita  
9 income growth and for per share earnings and dividends.  
10 Accordingly any difference in the growth rates of GDP and  
11 the other three measures will mean that capital is deriving  
12 outsized benefits from productivity growth relative to labor  
13 (and vice versa). If share prices, earnings, and dividends  
14 grow faster than productivity, return on labor migrates to  
15 return on capital; if slower by a margin larger than the value  
16 of stock awards to management, then the economy is  
17 migrating from rewarding capital to rewarding labor. Either  
18 way, such a change in the orientation of the economy cannot  
19 continue indefinitely.<sup>215</sup>

20 While cyclical conditions may cause a company’s growth rate or an index such as  
21 the S&P 500 to deviate from that of the wider economy, it cannot be reasonably expected  
22 to continue indefinitely. Indeed, Mr. Arnott comments on the specific differences that may  
23 arise between analysts’ consensus growth rates and the sustainable GDP growth rate. In his  
24 2011 article, Mr. Arnott stated that

25 [t]he current consensus growth rate for earnings on the S&P  
26 500, according to the Zacks Investment Research survey, is  
27 10 percent, which, if we assume a consensus inflation  
28 expectation of 2–3 percent, corresponds to 7–8 percent real  
29 growth. Real earnings growth of 8 percent is six times the  
30 real earnings growth of the past century, however, and three

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<sup>214</sup> Robert D. Arnott, *Equity Risk Premium Myths*, The Research foundation of CFA Institute, at 93 (2011).

<sup>215</sup> *Id.* at 93-94.

1 times the consensus long-term GDP growth rate. This  
2 growth is not possible.<sup>216</sup>

3 Mr. Arnott concludes that “GDP growth, less the economic dilution associated with  
4 entrepreneurial capitalism, basically defines sustainable growth in per share earnings and  
5 dividends.”<sup>217</sup> He further opines that “[e]ven the most aggressive, intellectually honest  
6 forecasts of long-term earnings or dividend growth assume GDP growth as an upper  
7 bound.”<sup>218</sup>

8 Similarly, when estimating the Market Risk Premium, Mr. Antti Ilmanen,  
9 Managing Director of AQR Capital Management (Europe) LLP, prefers a long-term  
10 growth rate such as the GDP over short-term analyst growth rates, recognizing this intrinsic  
11 relationship between stock market returns and the wider economy. Mr. Ilmanen states:

12 Some studies use growth estimates based on analyst  
13 expectations for earnings growth or on P/Es, for which they  
14 use analyst forecasts of next-year operating earnings. Both  
15 approaches embed analyst overoptimism and result in  
16 upwardly biased estimates of the ERP.

17 A more conservative approach is to use the trend of the rate  
18 of growth in real GDP or corporate profits. Even this  
19 approach turns out to be overoptimistic. Although many  
20 practitioners think that the GDP growth rate is a *floor* for  
21 earnings and dividend growth, the rate has historically been  
22 a *ceiling* that has been broken only during benign decades.  
23 Arnott and Bernstein (2002), Bernstein and Arnott (2003),  
24 and Cornell (2010) showed that growth rates of per share  
25 earnings and dividends have, over long histories, lagged the  
26 pace of GDP growth and sometimes even per capita GDP  
27 growth. As Table 2 shows, between 1950 and 2009, growth  
28 rates of earnings and dividends per share almost matched the

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<sup>216</sup> See *id.* at 97.

<sup>217</sup> *Id.*

<sup>218</sup> *Id.*



1 1.9 percent real growth rate of GDP per capita but clearly  
2 lagged real GDP growth (3.1 percent).<sup>219</sup>

3 Many other experts also have commented on the need to include a long-term growth  
4 rate when applying the DCF method more broadly and also in the specific instance of  
5 applying the DCF method to a representative market index. For example, Dr. Morin states  
6 “DCF estimates of the return on equity comprise the dividend yield plus investor  
7 expectations of *long-term growth*.”<sup>220</sup> Brigham, Shome and Vinson explain, “[s]ince DCF  
8 theory calls for a truly long-term (infinite horizon) growth rate, we concluded that it was  
9 better to develop and use such a forecast than to use the five-year prediction.”<sup>221</sup>  
10 Additionally, Ross, *et al.*, when commenting on the use of security analysts’ forecasts of  
11 earnings growth in a DDM study, state that “analysts’ estimates are generally for five-year  
12 growth rates in earnings, while the DDM requires long-term growth rates in dividends.”<sup>222</sup>  
13 Ross, *et al.* also comment on the inappropriateness of relying on a short-term estimate for  
14 growth assumptions in a perpetuity model, explaining that “firms simply cannot maintain  
15 an abnormally high growth rate *forever*,” and it would be error to “to use a short-run  
16 estimate of *g* in a model requiring a perpetual growth rate.”<sup>223</sup> When using their DCF  
17 model to estimate Market Risk Premium, Tim Koller, *et al.*, “us[ed] the long-run return on

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<sup>219</sup> Antti Ilmanen, *Time Variation in the Equity Risk Premium*, The Research foundation of CFA Institute, at 108-109 (2011) (citations omitted).

<sup>220</sup> Roger A. Morin, PhD, *New Regulatory Finance* 110, n.2 (Public Utilities Reports, Inc., 2006) (emphasis added).

<sup>221</sup> See Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility’s Cost of Equity*, 14 Fin. Mgmt. 33, 36-37 (1985).

<sup>222</sup> Stephen A. Ross, Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 412 (McGraw-Hill Irwin, 10th Ed. 2013).

<sup>223</sup> See *id.* at 282.

1 equity of 13.5 percent and the long-run growth in real gross domestic product (GDP) of 3.5  
2 percent to convert a given year's S&P 500 median P/E into the cost of equity.”<sup>224</sup>

3 In Opinion No. 531, after concluding that capital market conditions were  
4 anomalous during the study period at issue, the Commission relied in part on a CAPM  
5 method that applied a one-step DCF model to the dividend-paying companies of the S&P  
6 500 index as corroborative evidence to support the placement of the ROE within the zone  
7 of reasonableness produced by a two-step DCF model applied to a proxy group of electric  
8 utilities.<sup>225</sup> The Commission sought to explain its position, stating “[w]hile an individual  
9 company cannot be expected to sustain high short term growth rates in perpetuity, the same  
10 cannot be said for a stock index like the S&P 500 that is regularly updated to contain only  
11 companies with high market capitalization, and the record in this proceeding does not  
12 indicate that the growth rate of the S&P 500 stock index is unsustainable.”<sup>226</sup> This  
13 conclusion is erroneous for a number of reasons.

14 First, the DCF method assumes a time horizon of perpetuity. Importantly, as  
15 discussed in response to question C2., “[t]he DCF model is used to estimate the return  
16 required by investors at the time the analysis is performed.”<sup>227</sup> Therefore, based on the  
17 evidence discussed above and the intrinsic relationship between stock market returns and

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<sup>224</sup> See Tim Koller, Marc Goedhart and David Wessels, *Valuation, Measuring and Managing the Value of Companies* 276-277 (McKinsey & Company, 6th Ed. 2015).

<sup>225</sup> Opinion No. 531 at PP 146-147.

<sup>226</sup> See Opinion 531-B at P 113.

<sup>227</sup> See Order No. 489 at 30,991.

1 GDP, it is appropriate and necessary to incorporate a long-term growth rate, such as GDP,  
2 in a perpetuity model using data from a single point in time.

3 Second, while the S&P 500 index is updated over time to retain companies with  
4 high market capitalization, updating does not guarantee that the index replaces companies  
5 that currently have high growth rates with companies that will have similarly high short-  
6 term growth rates in the future. If it did, this might lend support to an argument that  
7 exclusive reliance on short-term growth rates reflects expectations for the S&P 500 index.  
8 However, this substitution argument runs counter to the objective of estimating a Market  
9 Risk Premium that reflects contemporary capital market conditions at the time the analysis  
10 is conducted. It is also important not to lose sight of the fact that the S&P 500 index acts  
11 only as a representative sample of the wider market. Moreover, the Market Risk Premium  
12 estimate produced by the DCF model is only the sum of its parts, i.e., a composition of the  
13 individual companies' costs of equity as estimated by the model, regardless of whether  
14 such estimates are weighted by market capitalization. Given that the objective is to  
15 measure the wider economy over the long-term and the model is a function of individual  
16 companies that cannot grow at an abnormally high growth rate forever, it is logical to  
17 incorporate a long-term growth rate into the analysis.

18 Further, the reliance on a DCF method that uses only short-term growth rates  
19 directly contradicts a long-standing Commission finding that “[w]ith respect to analyst  
20 forecasts, however, the Commission’s evaluation suggests that they should be viewed as  
21 essentially short-term expectations, which is what they in fact purport to be, and that such

1 expectation overstated investors' long-term growth expectations during the base year.”<sup>228</sup>

2 Additionally, in Opinion 396-C, the Commission explained that it found the “approach of  
3 relying principally on short-term data [to be] inconsistent with the DCF analysis and could  
4 result in a long-run forecast that is too influenced by the current position of the industry.”<sup>229</sup>

5 The use of the two-step DCF method to estimate an ex-ante Market Risk Premium  
6 ensures logical consistency with the Commission's preferred two-step DCF used to  
7 determine the just and reasonable ROEs for electric utilities and natural gas and oil  
8 pipelines. In response to question H.2.a.3, I provide evidence supporting my conclusion  
9 that investors and analysts assess the long-term economic value expected from a stock, and  
10 GDP growth is an appropriate measure of long-term growth. Additionally, the Commission  
11 has made clear that the GDP is an appropriate measure of long-term growth for both  
12 regulated and non-regulated companies, stating that “the long-term growth of GDP is used  
13 as the long-term growth rate by investment houses for both regulated and unregulated  
14 companies.”<sup>230</sup>

15 Based on the evidence presented above, I conclude that it is appropriate and  
16 necessary to apply a two-step DCF methodology, one that includes a long-term growth rate  
17 reflective of the wider economy,<sup>231</sup> to a representative market index to estimate the Market  
18 Risk Premium for use in the CAPM.

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<sup>228</sup> Order No. 420 at 31,362.

<sup>229</sup> See Opinion 396-C at 61,197.

<sup>230</sup> See Opinion 396-C at 61,197; see also *id.* at 61,192.

<sup>231</sup> In response to question H.2.a.3 I explain that a GDP projection is an appropriate estimate to use for long-term growth.

1                   **H.2.b.2. Beta is a measure of a security's risk relative to the**  
2                   **broader market, such as the S&P 500, not of its**  
3                   **absolute risk. Do CAPM's assumptions break down if**  
4                   ***both* utility stocks and the broader market become**  
5                   **riskier over time on an absolute basis, but the relative**  
6                   **increase in risk in utility stocks rises more slowly?**

7                   I do not address this question at this time, but reserve the right to do so in a reply  
8                   affidavit.

9                   **H.2.b.3. What are appropriate data sources for the beta value?**

10                  Several commercial entities provide estimates of Beta, including Yahoo! Finance,  
11                  Reuters and Value Line, among other providers. The estimates provided by Yahoo!  
12                  Finance and Reuters are readily available at no charge, and Value Line's estimate can be  
13                  acquired for a modest fee. However, each provider calculates the Beta value using different  
14                  analytical methods, which can result in quite different estimates of Beta. For example, from  
15                  a review of the estimates available for Sempra Energy on June 4, 2019, one can see an  
16                  estimate of 0.31 from Yahoo! Finance, 0.63 from Reuters, and 0.75 from Value Line.<sup>232</sup>

17                  Given the options available, a number of witnesses in FERC regulatory proceedings  
18                  have used the estimates provided by Value Line for proxy group electric utilities as part of  
19                  their CAPM analysis.<sup>233</sup> As Dr. Morin points out, "Value Line betas are widely and well-

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<sup>232</sup> The values from Yahoo! Finance and Reuters were directly sourced from their respective websites on June 4, 2019. The Value Line estimate was sourced from the April 26, 2019 report for Sempra Energy, which is the most recently available report as of June 4, 2019.

<sup>233</sup> See e.g., Prepared Direct Testimony and Exhibits of Adrien M. McKenzie, Exh. No. GPC-0001 at 75:13-14, *Gulf Power Co.*, Docket No. ER18-1953-000 (filed July 3, 2018); Affidavit of Michael P. Gorman, Exh. No. ICG-200 at 10:9-11, *Ark. Elec. Coop. Corp. v. ALLETE, Inc.*, Docket No. EL15-45-000 (filed Feb. 13, 2019).

1 known to investors.”<sup>234</sup> Value Line explains its methodology for calculating its Beta  
2 estimates as follows:

3 In finance, the Beta of a security (or portfolio) is used as an  
4 indicator of its historical volatility in regards to a benchmark,  
5 generally the New York Stock Exchange (NYSE)  
6 Composite Index or the S&P 500 Index. At Value Line, we  
7 derive the Beta coefficient from a regression analysis of the  
8 relationship between weekly percentage changes in the price  
9 of a stock and weekly percentage changes in the NYSE  
10 Composite Index over a period of five years. In the case of  
11 shorter price histories, a shorter time period is used, but two  
12 years is the minimum. Value Line then adjusts these Betas  
13 to account for their long-term tendency to converge toward  
14 1.00. (Though the scope of this convergence is beyond our  
15 purposes here, readers can refer to M. Blume, “On the  
16 Assessment of Risk,” *Journal of Finance*, March 1971 for  
17 further details.)<sup>235</sup>

18 Regarding Value Line’s use of the Blume Adjustment,<sup>236</sup> which adjusts a stock’s  
19 Beta toward 1.0, it may be inappropriate to make such an adjustment to the Beta for  
20 utilities.<sup>237</sup> The use of historical data in computing the Beta estimate is not unique to Value  
21 Line. As Dr. Morin explains, “Beta ... is generally computed from a linear regression  
22 analysis based on past realized returns over some past time period.”<sup>238</sup> Therefore, inclusion

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<sup>234</sup> Roger A. Morin, PhD, *New Regulatory Finance* 70 (Public Utilities Reports, Inc., 2006).

<sup>235</sup> Andrew J. Cueter, *Using Beta*, Value Line (Oct. 2, 2012),  
[http://www.valueline.com/Tools/Educational\\_Articles/Stocks/Using\\_Beta.aspx#.XQz-AyhKiUk](http://www.valueline.com/Tools/Educational_Articles/Stocks/Using_Beta.aspx#.XQz-AyhKiUk).

<sup>236</sup> See Affidavit of Dr. J. Randall Woolridge, Exh. No. CAP-500 at Section III, CAPM Approach, Subsection B., Beta, *Martha Coakley v. Bangor Hydro-Elec. Co.*, Docket No. EL11-66-001, et al. (filed Jan. 11, 2019) (“The so-called Blume adjustment cited by Value Line adjusts Betas calculated using historical returns data to reflect the tendency of stock Betas to regress toward 1.0 over time, which means that the Betas of typical low Beta stocks tend to increase toward 1.0, and the Betas of typical high Beta stocks tend to decrease toward 1.0”).

<sup>237</sup> See *id.* (referencing a study that “utilities are different from unregulated companies in several areas which may result in Betas not regressing toward 1.0”).

<sup>238</sup> Roger A. Morin, PhD, *New Regulatory Finance* 70 (Public Utilities Reports, Inc., 2006).

1 by the Commission of the CAPM analysis as part of its ROE framework, as proposed in  
2 the Coakley Order Directing Briefs, would signal acceptance that realized returns should  
3 form part of the determination of allowed ROE for electric utilities.

4 As I explained in more detail in my response to Question E1., the Commission has  
5 accepted the use of analyses that incorporate historically-experienced Market Risk  
6 Premiums as well as forward-looking Market Risk Premiums in CAPM applications.  
7 Moreover, in my response to question E1., I conclude that, given the lack of consensus as  
8 to how investors estimate the Market Risk Premium and the Commission's acceptance of  
9 both approaches and considering other evidence presented, I concur with Dr. Morin's  
10 pragmatic solution and recommend that the Commission place equal weight on ex-post and  
11 ex-ante Market Risk Premium methods if it were to no longer solely rely on the two-step  
12 DCF method. The use of historically-experienced Beta typically applied in CAPM analyses  
13 lends additional support to my recommendation.

14 **H.2.b.4. Should the Commission employ more sophisticated**  
15 **versions of the CAPM model that consider more**  
16 **variables instead of only beta, such as the Fama-French**  
17 **Model?**

18 No. If the Commission is to rely on the CAPM, it should not rely on models that  
19 incorporate additional factors over and above the standard single-factor CAPM.<sup>239</sup> Industry  
20 experts have raised serious questions regarding the reliability of additional factors,  
21 rendering them unfit for use in regulatory proceedings for determining ROEs for electric

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<sup>239</sup> Please refer to my response to E.1 for a further explanation of the standard single-factor CAPM method.

1 utilities. In my response below, I focus on why the Fama-French model and the so-called  
2 “size premium” adjustment are inappropriate distortions to the CAPM.

### 3 **Fama-French Model**

4 I have a number of concerns with the use of Fama-French factor models to  
5 determine ROEs for electric utilities. The Fama-French factor models were developed  
6 through empirical research that has sought to identify additional factors not included in the  
7 standard CAPM model that purport to better measure and explain stock returns.

8 For example, Dr. Villadsen explains that the Fama-French three-factor model  
9 “captures the excess average returns earned by investors in small stocks and in value stocks,  
10 in addition to the return on the market.”<sup>240</sup> However, the standard CAPM model has sound  
11 theoretical foundations.<sup>241</sup> Empirical CAPM models such as the Fama-French model, on  
12 the other hand, do not,<sup>242</sup> which undermines the rational connection one can infer from the  
13 model’s inputs and results. When discussing an application of the Fama-French model to  
14 United Parcel Service of America, Inc. (“UPS”), Koller, *et al.* provide an illuminating  
15 example of the unexplainable results that may arise:

16           Given that UPS is a large company with a strong [Return on  
17           Invested Capital], it is surprising that UPS is positively  
18           correlated with the small-stock portfolio and companies with  
19           high book-to-market ratios. Is a large, stable company such  
20           as UPS really more risky than the average stock?  
21           Unfortunately, the Fama-French model does not provide

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<sup>240</sup> See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 124 (Elsevier Inc., 2017).

<sup>241</sup> See Roger A. Morin, PhD, *New Regulatory Finance* 167 (Public Utilities Reports, Inc., 2006) (“...the CAPM provides a valid and rigorous conceptual framework to determine capital costs...”).

<sup>242</sup> See Tim Koller, Marc Goedhart and David Wessels, *Valuation: Measuring and Managing the Value of Companies* 282 (McKinsey & Company, 6th Ed. 2015); see also Michael S. Pagano, Ph.D., and David E. Stout, Ph.D., *Calculating a Firm’s Cost of Capital*, 5 Management Accounting Quarterly 13, 15 (2004).



1 much guidance on the reasons behind the regression results.  
2 Whereas the CAPM is based on solid theory about risk and  
3 return (albeit with strong assumptions), the Fama-French  
4 model is based purely on empirical evidence. Although the  
5 latter model has been loosely tied to risk factors such as  
6 illiquidity (size premium) and default risk (book-to-market  
7 premium), no theory has gained universal acceptance.<sup>243</sup>

8 Koller, *et al.*'s concluding remarks on CAPM also undermine reliance on the Fama-  
9 French model. They state that "[i]t takes a better theory to kill an existing theory, and we  
10 have yet to see the better theory. Therefore, we continue to use the CAPM while keeping  
11 a watchful eye on new research in the area."<sup>244</sup> With regard to Fama-French factors as add-  
12 ons to the CAPM, Jonathan B. Berk and Jules H. van Binsbergen determined that  
13 "[e]xtensions to the CAPM perform poorly, implying that investors do not use these models  
14 to compute discount rates," and conclude that "[n]either factor model statistically  
15 significantly outperforms the CAPM at any horizon, suggesting that the additional factors  
16 add no explanatory power for flows."<sup>245</sup> They also conclude that "the CAPM outperforms  
17 all extensions to the model at all horizons."<sup>246</sup> Dr. Villadsen, *et al.* conclude that the Fama-  
18 French model is most useful in assessing portfolios, rather than individual stocks – i.e., for  
19 a purpose other than how it would be used by the Commission.<sup>247</sup> They explain that "[o]ur  
20 understanding is that it is widely used in practice to test for superior performance of

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<sup>243</sup> See Tim Koller, Marc Goedhart and David Wessels, *Valuation: Measuring and Managing the Value of Companies* 281-282 (McKinsey & Company, 6th Ed. 2015).

<sup>244</sup> *Id.* at 282.

<sup>245</sup> See Jonathan B. Berk and Jules H. van Binsbergen, *How Do Investors Compute the Discount Rate? They Use the CAPM*, 73 *Fin. Analysts J.* 25, 29 (2017).

<sup>246</sup> *Id.*

<sup>247</sup> See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 126 (Elsevier Inc., 2017) (citations omitted).

1 actively managed portfolios,” noting that “a thorough analysis of the performance of  
2 pension or mutual funds is likely to correct for the funds’ exposures to the Fama-French  
3 factors.”<sup>248</sup> I also note that the Commission has previously rejected use of the Fama-French  
4 CAPM model.<sup>249</sup> Due to these serious concerns, it is inappropriate to rely upon the Fama-  
5 French model to determining a just and reasonable ROE.

### 6 Size Premium

7 Proponents of the Size Premium adjustment claim that the CAPM does not fully  
8 account for differences in the rate of return due to firm size, and they therefore propose a  
9 modification to account for this size effect. Witnesses may rely on a study published by  
10 Duff & Phelps (formerly Morningstar)<sup>250</sup> examines the long-run, historically-realized  
11 excess returns earned by stocks over and above that earned on bonds against an estimate  
12 of excess returns. The study then organizes the results by high-to-low market capitalization  
13 values, with ten differently-sized buckets known as deciles.<sup>251</sup> The results purportedly  
14 demonstrate that

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<sup>248</sup> *Id.*

<sup>249</sup> *ITC Holdings Corp. v. Interstate Power and Light Co. and Midwest Indep. Trans. Sys. Operator, Inc.*, 121 FERC ¶ 61,229, at P 43, n.37 (2007) (“We also are not persuaded to adopt ITC Midwest’s analysis using the Fama-French variant of the Capital Asset Pricing Model (CAPM). The Commission has found that the problems of estimating the betas on which the CAPM methodology relies make betas, in isolation, unreliable predictors of risk. They therefore make the CAPM methodology, alone, inappropriate for determining the ROE for an individual company.”).

<sup>250</sup> *Duff & Phelps Cost of Capital Navigator*; 2018 Cost of Capital; Annual U.S. Guidance and Examples, cited in Answering Testimony and Exhibits of Adrien M. McKenzie, Exh. No. AEP-0013 at 164-191, *E. Tex. Elec. Coop., Inc. v. Pub. Serv. Co. of Okla.*, Docket No. EL17-76-001 (filed Aug. 24, 2018)..

<sup>251</sup> For a detailed explanation please refer to Clifford S. Ang, *Why We Shouldn’t Add a Size Premium to the CAPM Cost of Equity*, National Association of Certified Valuators and Analysts (Feb. 15, 2017), <https://quickreadbuzz.com/2017/02/15/shouldnt-add-size-premium-capm-cost-equity/>.

1 companies with lower market capitalization values are expected to earn a higher return than  
2 those with higher market capitalization values, which seemingly justifies a greater cost of  
3 equity for smaller companies.

4 The empirical studies on this subject began in the 1970s/1980s, with Dr. Rolf  
5 Werner Banz's 1981 paper<sup>252</sup> popularizing the concept, and it has been a subject of debate  
6 ever since. More recent research shows that the size effect is no longer evident, if it ever  
7 truly existed in the first place, and that practitioners and investors should "consider  
8 adjusting the expected cash flows in the DCF analysis for whatever risk they believe the  
9 size premium may be reflecting."<sup>253</sup> This view is similarly held by Dr. Morin. In *New*  
10 *Regulatory Finance*, Dr. Morin argues that applying a Size Premium adder to the CAPM  
11 analysis:

12 opens the door to a whole series of similar adjustments  
13 reflecting numerous market inefficiencies (e.g., dividend  
14 yield, skewness, low M/B ratio, etc.) In order to resist this  
15 temptation, a superior alternative to considering the size  
16 premium explicitly is to identify the economic reasons for  
17 the premium and develop more direct measures of risk.<sup>254</sup>

18 In Opinion No. 531-B, the Commission stated that it was not persuaded that reliance  
19 on a CAPM analysis incorporating a Size Premium was inappropriate based on the record  
20 in that particular case.<sup>255</sup> However, the evidence presented here makes it clear that the

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<sup>252</sup> Rolf W. Banz, *The Relationship Between return and Market Value of Common Stocks*, 9 J. Fin. Econ. 3 (1981).

<sup>253</sup> See Clifford S. Ang, *Why We Shouldn't Add a Size Premium to the CAPM Cost of Equity*, National Association of Certified Valuators and Analysts (Feb. 15, 2017), <https://quickreadbuzz.com/2017/02/15/shouldnt-add-size-premium-capm-cost-equity/>.

<sup>254</sup> Roger A. Morin, PhD, *New Regulatory Finance* 187, n.8 (Public Utilities Reports, Inc., 2006).

<sup>255</sup> See Opinion No. 531-B at P 117.

1 Commission should not rely on a CAPM analysis that includes the Size Premium, given  
2 “serious questions that can be raised about whether the [size effect] exists and if so, what  
3 exactly is it measuring.”<sup>256</sup>

4 Regarding the lack of need for the Size Premium adder, in 2017, Mr. Clifford Ang,  
5 citing an earlier article from 2014,<sup>257</sup> states “[t]he size effect – that small stocks outperform  
6 large stocks – was brought to investors’ attention by Banz in 1981 and reached its peak  
7 after that . . . Since the mid-1980s, however, there has been no size premium after adjusting  
8 for market risk.” Mr. Ang quotes Mr. John H. Cochrane,<sup>258</sup> stating, “[m]any of the  
9 anomalous risk premia seem to be declining over time. The small-firm effect completely  
10 disappeared in 1980; you can date this as the publication of the first small-firm effect papers  
11 or the founding of small-firm mutual funds that made diversified portfolios of small stocks  
12 available to average investors.” Mr. Aswath Damodaran also shares the view that:

13 Small cap stocks have earned higher returns than large cap  
14 stocks between 1928 and 2014 but the premium has been  
15 volatile over history, disappearing for decades and  
16 reappearing again. While the premium was strong prior to  
17 1980, it seems to have dissipated since 1981. One reason  
18 may be that the small cap premium studies drew attention  
19 and investor money to small cap stocks, and in the process  
20 led to a repricing of these stocks. Another is that the small  
21 cap premium is a side effect of larger macroeconomic  
22 variables (inflation, real growth etc.) and that the behavior  
23 of those variables has changed since 1980.<sup>259</sup>

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<sup>256</sup> See Aswath Damodaran, *The Small Cap Premium: Where’s the Beef?*, Musings on Markets (Apr. 11, 2015), <http://aswathdamodaran.blogspot.com/2015/04/the-small-cap-premium-fact-fiction-and.html>.

<sup>257</sup> Andrew Ang, *Asset Management: A Systematic Approach to Factor Investing* 457 (Oxford University Press, 2014).

<sup>258</sup> John H. Cochrane, *Asset Pricing: Revised Edition* 452 (Princeton University Press, Revised Ed. 2005).

<sup>259</sup> See Aswath Damodaran, *The Small Cap Premium: Where’s the Beef?*, Musings on Markets (Apr. 11,

1 In addition to his findings that the size effect is no longer evident, Mr. Ang  
2 identified two specific issues with the Duff & Phelps methodology – first, the estimated  
3 Size Premium value “is not arrived at using the same method by which practitioners  
4 estimate their CAPM cost of equity,” and second, it “does not appropriately measure the  
5 relevant ‘size premium’ for use in a DCF analysis.”<sup>260</sup> Mr. Ang corrected for these issues,  
6 finding that many of the excess return values computed are not statistically significant, and  
7 for those that were – which were in the largest and smallest deciles – the results were  
8 inconsistent with the concept of the Size Premium, because the largest decile’s excess  
9 return was twice the size of the return for the smallest decile.

10 Further, Mr. Ang observed from reviewing the Duff & Phelps Size Premium results  
11 that there were a number of examples that cut against the logic of the Size Premium  
12 argument. He found:

13 For example, the 2002 Ibbotson SBBI Yearbook reported  
14 Decile 6 had a size premium of 1.36% while Decile 7 had a  
15 size premium of 1.26%, the 2006 Ibbotson SBBI yearbook  
16 reported Decile 6 had a size premium of 2.14% while Decile  
17 7 had a size premium of 2.06%, and the 2015 Ibbotson SBBI  
18 Yearbook reported that Decile 5 had a size premium of  
19 1.65% while Decile 6 had a size premium of 1.63%. Had the  
20 Ibbotson methodology been reliable and robust, we would  
21 observe that deciles with smaller firms would always have a  
22 larger Size Premium in Excess of CAPM than deciles with  
23 larger firms.<sup>261</sup>

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2015), <http://aswathdamodaran.blogspot.com/2015/04/the-small-cap-premium-fact-fiction-and.html>.

<sup>260</sup> See Clifford S. Ang, *Why We Shouldn't Add a Size Premium to the CAPM Cost of Equity*, National Association of Certified Valuers and Analysts (Feb. 15, 2017), <https://quickreadbuzz.com/2017/02/15/shouldnt-add-size-premium-capm-cost-equity/>.

<sup>261</sup> *Id.*

1 From my review of a Duff & Phelps study,<sup>262</sup> I also observe some inconsistency in what  
2 one may expect. For instance, decile 7 has a Size Premium of 1.58%, whereas the decile 6  
3 group, which have a greater market capitalization than the decile 7 group, had a reported  
4 Size Premium of 1.63%.

5 Mr. Damodaran questions the reliability of the data used to support the Size  
6 Premium, expressing his concern that “[h]istorical equity returns are noisy and any  
7 estimates of risk premium from the data will reflect the noise in the form of large standard  
8 errors on estimates.”<sup>263</sup> His analysis of the standard errors in excess returns by decile class  
9 “reinforce[s] the notion that the small cap premium is fragile, barely making the threshold  
10 for statistical significance over the entire period.”<sup>264</sup> Mr. Damodaran notes a further  
11 concern that “[o]ne of the most puzzling aspects of the small cap premium is that almost  
12 all of it is earned in one month of the year, January, and removing that month makes it  
13 disappear,” causing him to question “why that risk shows up only in the first month of  
14 every year.”<sup>265</sup> Mr. Damodaran also found that forward-looking estimates “are yielding no  
15 premiums.”<sup>266</sup>

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<sup>262</sup> *Duff & Phelps Cost of Capital Navigator*; 2018 Cost of Capital; Annual U.S. Guidance and Examples, CRSP Deciles Size Premiums, *cited in* Answering Testimony and Exhibits of Adrien M. McKenzie, Exh. No. AEP-0013 at 164, *E. Tex. Elec. Coop., Inc. v. Pub. Serv. Co. of Okla.*, Docket No. EL17-76-001 (filed Aug. 24, 2018).

<sup>263</sup> Aswath Damodaran, *The Small Cap Premium: Where’s the Beef?*, Musings on Markets (Apr. 11, 2015), <http://aswathdamodaran.blogspot.com/2015/04/the-small-cap-premium-fact-fiction-and.html>.

<sup>264</sup> *Id.*

<sup>265</sup> *Id.*

<sup>266</sup> *Id.*

1           Mr. Damodaran also describes an underlying fallacy of the small company  
2 premium, stating “if the proponents of small cap premiums are right, bundling together  
3 small companies into a larger company should instantly generate a bonus, since you are  
4 replacing the much higher required returns of smaller companies with the lower expected  
5 return of a larger one. In fact, small companies should disappear from the market.”<sup>267</sup> This  
6 simple logic certainly has a ring of truth to it.

7           As mentioned above, in Opinion No. 531-B, the Commission was not persuaded  
8 that it was inappropriate to use the size adjustment as part of a CAPM analysis.<sup>268</sup> However,  
9 the Commission has simultaneously accepted and relied on CAPM analyses that did not  
10 incorporate a Size Premium. For example, the Commission has found that the CAPM-  
11 based cost of capital estimate was “just and reasonable” for purposes of determining the  
12 CONE in PJM.<sup>269</sup> The Commission held that this CAPM method, which did not include a  
13 Size Premium, was “transparent and its assumptions are well-supported.”<sup>270</sup> I discuss the  
14 Commission’s acceptance of the CAPM analysis for purpose of determining PJM’s CONE  
15 value more generally in response to question E.1.

16           In support of its acceptance of the Size Premium, the Commission further explained  
17 that “[t]he purpose of the NETOs’ size adjustment is to render the CAPM analysis useful  
18 in estimating the cost of equity for companies that are smaller than the companies that were

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<sup>267</sup> *Id.*

<sup>268</sup> Opinion No. 531-B at P 117.

<sup>269</sup> 2019 Quadrennial Review Order at P 101; 2014 Quadrennial Review Order at P 76.

<sup>270</sup> 2014 Quadrennial Review Order at P 76.

1 used to determine the market risk premium in the CAPM analysis.”<sup>271</sup> However, while the  
2 S&P 500 index includes companies that have a much greater market capitalization than the  
3 Value Line electric utilities, large portions of the S&P 500 companies have comparable  
4 market capitalization values. For instance, as of the end of March 2019, 49% of the S&P  
5 500 companies had a market capitalization value less than or equal to the average Value  
6 Line electric utility market capitalization of \$21.0 billion and 40% of the S&P 500  
7 companies have a market capitalization value less than or equal to the median Value Line  
8 electric utility market capitalization value of \$16.8 billion.<sup>272</sup> This evidence rebuts the  
9 Commission’s statement that the Size Premium is “useful in estimating the cost of equity  
10 for companies that are smaller than the companies that were used to determine the market  
11 risk premium in the CAPM analysis,”<sup>273</sup> and provides further evidence that the Size  
12 Premium is not justified.

13 Further, given the nature and characteristics of regulated electric utilities, experts  
14 have questioned the applicability of a Size Premium adjustment when determining rates  
15 for public utilities. Ms. Annie Wong performed a regression analysis examining market  
16 returns, Beta, and firm size for a sample of 152 electric and gas utilities and 304 industrial  
17 firms over four sub-periods from 1968 through 1987.<sup>274</sup> Ms. Wong found that “there is  
18 some weak evidence that firm size is a missing factor from the CAPM for the industrial

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<sup>271</sup> See Opinion 531-B at P 117.

<sup>272</sup> See Exhibit No. CIT-0002 at 1.

<sup>273</sup> Opinion No. 531-B at P 117.

<sup>274</sup> See Annie Wong, *Utility Stocks and the Size Effect: An Empirical Analysis*, J. Midwest Fin. Ass’n 96-101 (1993).



1 but not for the utility stocks” and concluded that “the findings suggest that there is no need  
2 to adjust for the firm size in utility rate regulations.”<sup>275</sup>

3 I find, as a result of the serious questions regarding the soundness of the Size  
4 Premium, that it is an unreliable measure, and its application in a CAPM analysis for  
5 electric utilities is inappropriate and unsupported. The Commission should confirm, to the  
6 extent it determines to use CAPM methods to set electric utility ROEs, that a Size Premium  
7 adder should not be used.

8 **c. Expected Earnings**  
9

10 **H.2.c.1. Should the use of utilities in the proxy group for the**  
11 **Expected Earnings model be predicated on the**  
12 **Expected Earnings analysis being forward-looking?**

13 I do not address this question at this time, but reserve the right to do so in a reply  
14 affidavit.

15 **H.2.c.2. What, if any, concerns regarding circularity are there**  
16 **with using the Expected Earnings analysis to determine**  
17 **the base ROE, as opposed to using the analysis for**  
18 **corroborative purposes?**

19 Placing any reliance, in whole or in part, on the results produced by the Expected  
20 Earnings method to determine a electric utility ROEs is inappropriate due to circularity.  
21 Dr. Morin provides a cautionary note regarding this issue:

22 It would be circular to set a fair return based on the past  
23 actions of other regulators, much like observing a set of  
24 duplicate images in multiple mirrors. The rates of return  
25 earned by other regulated utilities may very well have been  
26 reasonable under historical conditions, but they are still

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<sup>275</sup> See *id.* at 98.

1 subject to tests of reasonableness under current and  
2 prospective conditions.<sup>276</sup>

3 Placing reliance on Value Line's projected, or forward-looking, accounting returns  
4 on book value does not avoid the issue of circularity. For regulated utilities, expected future  
5 earned returns are heavily influenced by returns previously authorized by regulators. Of  
6 necessity, Value Line's projections must take into consideration existing ROEs.<sup>277</sup> Unless  
7 a rate case has been filed, past allowed ROEs provide the basis for future earnings, and,  
8 even when cases are pending or expected, the timing of decisions is uncertain and the ROEs  
9 that will be granted are unknown. The Value Line reports do not provide projections of  
10 future authorized ROEs.

11 Value Line does in many instances cite the prevailing allowed ROE(s) in  
12 connection with its reported historical and projected accounting return on book value  
13 estimates. For example, in the March 15, 2019 Value Line report for Fortis Inc. ("Fortis"),  
14 a footnote connected with the historical and projected ROE line states "[r]ates all'd on com.  
15 Eq.: 8.3%-10.32%."<sup>278</sup> This range includes the MISO-wide base ROE of 10.32% that  
16 pertains to Fortis' subsidiary ITC Holdings.<sup>279</sup> Furthermore, Value Line often cites the  
17 average return earned on common equity for the year immediately preceding its forecast

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<sup>276</sup> Roger A. Morin, PhD, *New Regulatory Finance* 383 (Public Utilities Reports, Inc., 2006).

<sup>277</sup> Value Line's projected accounting returns reflect the return expected for the whole utility or holding company and not simply the expected return for the regulated operations of the utility or holding company; thus, these projected returns are often affected by unregulated and non-utility operations as well.

<sup>278</sup> See Exhibit No. CIT-0003 at 1.

<sup>279</sup> See MISO Order Directing Briefs at P 11 ("In the meantime, MISO TOs are continuing to collect their 10.32 percent ROE.").

1 period.<sup>280</sup> Because Value Line earnings-per-book projections are based on ROEs that were  
2 approved by regulators, reliance on Value Line earnings-per-book is directly circular.

3         Setting aside the unregulated and non-utility operations of the Value Line-  
4 designated industry group of electric utilities, if the authorized ROEs for electric utilities  
5 were determined using the Expected Earnings approach, not only would the results suffer  
6 from circularity issues, but Value Line's accounting return projections would effectively  
7 become a self-fulfilling prophecy. Using the Value Line-projected ROEs as the authorized  
8 ROEs would provide the utilities the opportunity to earn those ROEs and virtually  
9 guarantee such earnings when the utility's rates are based on formula rates that use forward  
10 projections of investment and costs with true-ups to provide for the recovery of actual costs,  
11 including the authorized ROE. Moreover, Value Line then would have significant influence  
12 over the direction of this self-fulfilling prophecy, as the Commission would be placing sole  
13 reliance on its forecasts. The fact that the Commission proposes to use the Expected  
14 Earnings approach in combination with other models is not redemptive. Using a fatally-  
15 flawed circular and potentially self-fulfilling methodology, even in part, is inappropriate  
16 regulatory policy.

17         Importantly, the Commission has not yet directly addressed these issues in  
18 determining allowed electric utility ROEs, despite its proposals in the Coakley and MISO  
19 Orders Directing Briefs. The Commission previously rejected claims that the "MISO TOs"  
20 expected earnings analysis will nevertheless raise issues of circularity or lead to the

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<sup>280</sup> For example, the March 15, 2019 Value Line for American Electric Power refers to "earn. on avg. com. eq., '18." *See* Exhibit No. CIT-0003 at 2.

1 convergence of Commission-approved ROEs and the Value Line projections,” because the  
2 Expected Earnings analysis was “merely used as corroborative evidence,” and the  
3 Commission concluded that “we are not persuaded that our acceptance of the expected  
4 earnings analysis, which at most can corroborate the Commission’s decision to place an  
5 ROE above the midpoint of the zone of reasonableness, will raise issues of circularity or  
6 lead to a convergence of Commission-approved ROEs to the Value Line projections.”<sup>281</sup>  
7 Now that the Commission has proposed to use the Expected Earnings approach as a direct  
8 input into the determination of an allowed ROE, the Commission is faced with a new  
9 imperative to address these significant concerns.

10 **H.2.c.2.i. If there are circularity concerns, are there ways to**  
11 **mitigate these concerns for the Expected Earnings**  
12 **analysis? If these concerns exist, are these concerns**  
13 **more significant than those surrounding the DCF**  
14 **methodology, which effectively separates Expected**  
15 **Earnings and ROE into its dividend yield and**  
16 **growth rate subcomponents?**

17 In my response to H.2.c.2, I explain that the Expected Earnings analysis suffers  
18 from circularity issues that render it unsuitable for use in ratemaking. In addition, in  
19 response to question E3., I explain that the numerous other flaws inherent in the Expected  
20 Earnings analysis also make it inappropriate for use in determining ROEs for electric  
21 utilities. Even if it were possible to mitigate this method’s circularity problems, doing so  
22 will not rehabilitate a wholly flawed methodology.

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<sup>281</sup> See Opinion No. 551 at P 233.

1           The Expected Earnings analysis' circularity issue is significantly greater than any  
 2   potential circularity issue associated with the DCF methodology. Dr. Morin explains that  
 3   the DCF method self-corrects, at least to a certain degree, any potential circularity issues:

4           The circularity problem is somewhat dampened by the self-  
 5   correcting nature of the DCF model. If a high equity return  
 6   is granted, the stock price will increase in response to the  
 7   unanticipated favorable return allowance, lowering the  
 8   dividend yield component of market return in compensation  
 9   for the high g induced by the high allowed return. At the next  
 10   regulatory hearing, more conservative forecasts of r would  
 11   prevail. The impact on the dual components of the DCF  
 12   formula, yield and growth, are at least partially offsetting.<sup>282</sup>

13   The Expected Earnings analysis, on the other hand, does not self-correct.

14           **d.       Risk premium**

15                   **H.2.d.1.   Should the analysis be historical or forward-looking?**

16           The Risk Premium method, otherwise known as the Bond Yield Plus Risk  
 17   Premium,<sup>283</sup> is based on "the simple idea that since investors in stocks take greater risk  
 18   than investors in bonds, the former expect to earn a return on a stock investment that  
 19   reflects a 'premium' over and above the return they expect to earn on a bond  
 20   investment."<sup>284</sup> The method is considered "essentially an ad hoc empirical relation with no  
 21   investment."

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<sup>282</sup> Roger A. Morin, PhD, *New Regulatory Finance* 307 (Public Utilities Reports, Inc., 2006). While Dr. Morin is specifically discussing the DCF variation that the Commission previously adopted for electric utilities known as the one-step DCF methodology or sustainable growth DCF method, the self-correcting nature he highlights is equally applicable to the Commission's two-step DCF methodology.

<sup>283</sup> See Eugene F. Brigham and Louis C. Gapenski, *Intermediate Financial Management* 185 (The Dryden Press, 5th Ed. 1996); Roger A. Morin, PhD, *New Regulatory Finance* 107 (Public Utilities Reports, Inc., 2006).

<sup>284</sup> Roger A. Morin, PhD, *New Regulatory Finance* 108 (Public Utilities Reports, Inc., 2006).

1 solid theoretical justification,”<sup>285</sup> and there are many variants of the method.<sup>286</sup> Thus, a  
2 review of the specific application of the Risk Premium method is important. In my  
3 response, I limit my comments to addressing the most common application of the Risk  
4 Premium method known as the Allowed ROE Risk Premium, which measures the risk  
5 premium by examining the Commission’s historical ROE decisions.

6 The Allowed ROE Risk Premium approach first calculates the average annual  
7 implied equity risk premium for each year of the dataset by subtracting the average annual  
8 yield on Moody’s Baa public utility bonds from the average annual allowed FERC ROE.  
9 Second, a linear regression analysis is performed, measuring the relationship between the  
10 implied equity risk premium and the Moody’s Baa public utility bond yield. This  
11 regression is undertaken to account for claims of an inverse relationship between equity  
12 risk premiums and interest rates and that there is not a one-for-one relationship between  
13 equity risk premiums and interest rates. Third, the implied risk premium is adjusted to  
14 reflect current interest rates by accounting for the average change in interest rates over the  
15 historical study period to contemporary yields together with the computed inverse  
16 relationship between implied equity risk premiums and bond yields. Fourth, the adjusted  
17 implied risk premium is then added to contemporary bond yields to determine an estimated  
18 cost of equity.

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<sup>285</sup> See Michael S. Pagano, Ph.D., CFA, and David E. Stout, Ph.D., Calculating a Firm’s Cost of Capital, 5 Management Accounting Quarterly 13, 15 (2004). See also Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 117 (Elsevier, Inc., 2017) (“Unlike the CAPM, there is no well-specified theoretical model underlying either the risk premium or the appropriate cost of debt.”).

<sup>286</sup> See Dr. Villadsen, Dr. Vilbert, Mr. Harris and Dr. Kolbe, *Risk and Return for Regulated Industries* 117 (Elsevier, Inc., 2017).

1           In Opinion Nos. 531 and Opinion No. 551, the Commission relied in part on an  
2   Allowed ROE Risk Premium method as corroborative evidence to support the placement  
3   of the ROE within the zone of reasonableness produced by a two-step DCF model that was  
4   applied to a proxy group of electric utilities.<sup>287</sup> However, the Commission made clear in  
5   Opinion No. 531-B that it only found the “risk premium analysis sufficiently reliable – not  
6   to set the ROE itself – but rather to corroborate our decision.”<sup>288</sup> This message was  
7   reiterated in Opinion No. 551 and in the Coakley Order Directing Briefs.<sup>289</sup> Therefore, the  
8   method warrants a thorough review if it is to be directly used to determine the ROE. Here,  
9   I outline a number of concerns with the Allowed ROE Risk Premium analysis, which I find  
10   render the method unreliable, such that use of the method will compromise the integrity of  
11   a just and reasonable ROE decision.

12           Consideration of the Allowed ROE Risk Premium method raises the critical  
13   question of exactly what data this method is intended to provide. In determining the ROE  
14   for electric utilities, the pertinent matter at hand is to determine the ROE that is informed  
15   by estimates of investors’ *required* rate of return. The Allowed ROE Risk Premium does  
16   not reveal this required return. It simply seeks to measure a relationship between ROEs  
17   previously authorized by the Commission and utility bond yields, amounting to a short-  
18   hand approach for estimating how changes in yields may have impacted the Commission’s  
19   allowed-ROEs, which have been based on the market-based DCF method since the early

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<sup>287</sup> See Opinion No. 531 at P 147; Opinion No. 551 at P 195.

<sup>288</sup> Opinion No. 531-B at P 98.

<sup>289</sup> See Opinion No. 551 at P 195; *see also* Coakley Order Directing Briefs at P 39.

1 1980s. In other words, it is largely a derivative measure of more comprehensively  
2 determined market-based estimates of the cost of equity. In contrast, the DCF method  
3 directly estimates the required rates of return by examining current market-based  
4 information.

5 The value of the regression analysis used as part of this methodology is limited  
6 because the analysis only uses interest rates and equity risk premiums as inputs. It cannot  
7 account for historic volatility in risk premiums, which are influenced by a myriad of other  
8 factors, as the Commission has stated:

9 *ex post* and *ex ante* public utility common stock and bond  
10 returns comprise a variety of components, including:  
11 anticipated and unanticipated inflation; the risk of default,  
12 duration; interest rate risk, business risk, call protection (in  
13 the case of bonds); liquidity risk and purchasing power risk.  
14 These risks directly affect capital cost for both common  
15 stock and bonds. As economic conditions change, so does  
16 the impact of different risk components.<sup>290</sup>

17 Of further concern are the clear and inescapable circularities inherent in the  
18 Allowed ROE Risk Premium method. The Risk Premium method strictly relies on past  
19 ROE determinations. While the method also seeks to update the implied risk premium to  
20 the contemporary interest rate environment, at its core, the Allowed ROE Risk Premium  
21 method still relies on past Commission decisions. The Commission previously made clear  
22 its concern regarding such an occurrence and explained “[e]ven were the analyses limited  
23 to Commission equity allowances, the results of such a study would remain inherently

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<sup>290</sup> See Order No. 489 at 31,005.



1 circular. For this reason, the Commission rejects [Boston Edison Company's] risk  
2 premium analysis.”<sup>291</sup>

3 Additionally, if the Allowed ROE Risk Premium method is used, in part, to  
4 determine a just and reasonable ROE, a second circularity arises when the method is  
5 applied in proceedings over multiple years, given that the method's resulting ROE becomes  
6 part of the ROE decisions data set. As discussed above, the Risk Premium method seeks  
7 to capture the implied risk premium of FERC ROEs allowed starting some number of years  
8 in the past through the most recent ROE decisions that are available and adjusts the implied  
9 risk premiums for contemporary interest rates. However, when the method is applied  
10 subsequently as part of a separate proceeding, it will also seek to capture the adjusted  
11 implied risk premium in prior ROEs determined in part by a previous Allowed ROE Risk  
12 Premium. Therefore, there is effectively a double counting of implied risk premium results  
13 from prior FERC data set assessment periods and the interest rate adjustment.

14 Despite the concerns raised above, if the Commission were to use the Allowed ROE  
15 Risk Premium method, a thorough case-by-case review of the allowed ROEs used in the  
16 data set is required. As discussed above, the premise of FERC Allowed Risk Premium  
17 method is to estimate how changing utility bond yields may impact the Commission's  
18 allowed-ROEs as determined through market-based methods. The Commission previously  
19 determined that its ROE estimate reflects the investors required return at the time the  
20 analysis was performed.<sup>292</sup> Therefore, developing an implied risk premium by comparing

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<sup>291</sup> See Order No. 489 at 31,005.

<sup>292</sup> See Order No. 489 at 30,991 (“The DCF model is used to estimate the return required by investors at the time the analysis is performed.”).

1 bond yields to allowed ROEs that were not determined through market-based methods for  
2 the same time period as the underlying bond yield will not be informative. For example,  
3 the Commission first granted a 12.38% RTO-wide ROE for the MISO transmission owners  
4 in 2004, which was determined using data for the six-month study period ending January  
5 2002. This RTO-wide ROE was later applied to new transmission owners that  
6 subsequently joined MISO.<sup>293</sup> However, using allowed ROEs that are merely  
7 reapplications of previously authorized ROEs is problematic, because the reapplied ROEs  
8 do not reflect a cost of equity estimate based upon relevant data from the time the  
9 reapplication was authorized.

10 I conclude, based on the concerns raised above, that the Allowed ROE Risk  
11 Premium is an unreliable method and should not be used to determine electric utility ROEs.  
12 If the Commission adopts the Allowed ROE Risk Premium method in some form, I  
13 recommend that a thorough case-by-case review be undertaken to ensure the integrity of  
14 the data that the method uses.

15 **H.2.d.2. Is a Risk Premium analysis compatible with a finding of**  
16 **anomalous capital market conditions? Why or why**  
17 **not?**

18 I do not address this question in my affidavit at this time, but reserve the right to do  
19 so in a reply affidavit.

20 **H.2.d.3. Unlike the financial models discussed above, the Risk**  
21 **Premium analysis produces a single ROE rather than a**  
22 **zone of reasonableness. Does this characteristic**  
23 **require the Commission to use the Risk Premium model**  
24 **differently than the other models?**

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<sup>293</sup> See *Ameren Service Co.*, 135 FERC ¶ 61,142, at P 94 (2011).

1 I do not address this question in my affidavit at this time, but reserve the right to do  
2 so in a reply affidavit.

3 **H.2.d.3.i. Is there a method by which the Risk Premium ROE**  
4 **could be adjusted upward for an above average**  
5 **utility or downward for a below average risk utility?**  
6 **If not, is it reasonable to consider the results of a**  
7 **Risk Premium analysis when determining the ROE**  
8 **of an above or below average risk utility?**

9 The Commission's proposed ROE framework, as presented in the Coakley Order  
10 Directing Briefs, gives equal weight to the Risk Premium, DCF, CAPM, and Expected  
11 Earnings methods in determining the just and reasonable ROE for electric utilities.<sup>294</sup> As  
12 part of its proposed framework, the Commission applies the Allowed ROE Risk Premium  
13 method. This method seeks to measure the average annual implied equity risk premium  
14 by subtracting the average annual yield on Moody's Baa public utility bonds from the  
15 average annual allowed FERC ROE over a prior period and to adjust the implied risk  
16 premium for contemporary bond yields. I discuss the merits of the method in H.2.d.1.

17 The Commission's proposed treatment of the Allowed ROE Risk Premium  
18 indicates a view that the utilities with Moody's "Baa" credit ratings are of average risk.  
19 Correspondingly, under this view, a utility with a Moody's "A" rating would be below-  
20 average risk, and those below a "Baa" rating, which is considered non-investment grade,  
21 would be above-average risk. Clearly, the Commission's credit rating screen for formation  
22 of an electric utility proxy group of comparably-risked companies is a better, more refined  
23 way of addressing risk.

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<sup>294</sup> See Coakley Order Directing Briefs at P 32.

1           That said, it is commonly understood that the utility with a higher credit rating will  
2   have a lower risk premium and vice versa. Dr. Morin recognizes this when discussing a  
3   study completed by Brigham, Shome and Vinson, which “examined the relationship  
4   between risk premium and bond rating and found, unsurprisingly, that the risk premiums  
5   are higher for lower rated firms than for higher rated firms.”<sup>295</sup> He then presents a figure  
6   based on data from that study that shows that Moody’s “A” rated electric utilities had lower  
7   risk premiums (by approximately 100 basis points) than those rated “A/BBB.”<sup>296</sup>  
8   Therefore, I suggest that the Commission could adjust the Allowed ROE Risk Premium  
9   result downward by 100 basis points if the subject utility has a Moody’s “A” credit rating  
10   as opposed to a Moody’s “Baa” credit rating, which is the method’s default bond yield. An  
11   adjustment for electric utilities with above-average risk, which, as discussed above would  
12   be utilities with a non-investment rating, is beyond the scope of this response given that  
13   such a situation brings to fore many difficult questions that may impact a Risk Premium  
14   analysis.

15                           **H.2.d.3.ii. Is it appropriate to use a Risk Premium analysis**  
16                           **when conducting the first prong of the section 206**  
17                           **evaluation?**

18           I do not address this question in my affidavit at this time, but reserve the right to do  
19   so in a reply affidavit.

20           This concludes my affidavit.

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<sup>295</sup> Roger A. Morin, PhD, *New Regulatory Finance* 129 (Public Utilities Reports, Inc., 2006).

<sup>296</sup> *Id.* at 129, Figure 4-5.

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

**Inquiry Regarding the Commission's    Docket No. PL19-4-000**  
**Policy for Determining Return on**  
**Equity**

**AFFIDAVIT OF BREANDAN T. MAC MATHUNA**

STATE OF GEORGIA

)

)

ss.

COBB COUNTY

)

I, Breandan T. Mac Mathuna, being duly sworn, certify under penalty of perjury that the statements contained in the foregoing affidavit are true and correct to the best of my information, knowledge, and belief.

Breandan T. Mac Mathuna  
Breandan T. Mac Mathuna

Subscribed and sworn before me this 25<sup>th</sup> day of June, 2019.

Lisa D. Wilson  
Notary Public



**Exhibit No. CIT-0002**

**Market Capitalization Analysis**

**Market Capitalization Analysis****Docket No. PL19-4-000**

	<b>Market Cap (\$ million)</b>	
<b>Average Market Cap of Value Line Electric Utilities</b>	<b>\$ 20,996</b>	
<b>Median Market Cap of Value Line Electric Utilities</b>	<b>\$ 16,803</b>	
	<b><u>Number of Companies</u></b>	<b><u>Percent of Total</u></b>
<b>Total Number of Dividend-Paying Companies in S&amp;P 500</b>	<b>414</b>	
<b>Number with Market Caps less than \$21.0 billion</b>	<b>201</b>	<b>49%</b>
<b>Number with Market Caps less than \$16.8 billion</b>	<b>164</b>	<b>40%</b>

Source: Value Line Investment Analyzer, Data Weekly as of March 28, 2019

**Market Capitalizations of Value Line Electric Utilities****Source: Value Line Investment Analyzer, Data Weekly as of March 28, 2019**

<b><u>Number</u></b>	<b><u>Ticker</u></b>	<b><u>Company Name</u></b>	<b><u>Market Cap</u></b> <b><u>(\$ million)</u></b>
1	ALE	ALLETE	\$ 4,221
2	LNT	Alliant Energy	\$ 11,071
3	AEP	Amer. Elec. Power	\$ 41,329
4	AEE	Ameren Corp.	\$ 17,961
5	AGR	AVANGRID, Inc.	\$ 15,453
6	AVA	Avista Corp.	\$ 2,653
7	BKH	Black Hills	\$ 4,406
8	CNP	CenterPoint Energy	\$ 15,201
9	CMS	CMS Energy Corp.	\$ 15,645
10	ED	Consol. Edison	\$ 27,051
11	D	Dominion Energy	\$ 49,564
12	DTE	DTE Energy	\$ 22,519
13	DUK	Duke Energy	\$ 63,728
14	EIX	Edison Int'l	\$ 20,252
15	EE	El Paso Electric	\$ 2,373
16	ETR	Entergy Corp.	\$ 17,972
17	EVRG	Evergy, Inc.	\$ 14,796
18	ES	Eversource Energy	\$ 22,290
19	EXC	Exelon Corp.	\$ 48,177
20	FE	FirstEnergy Corp.	\$ 21,193
21	FTS.TO	Fortis Inc.	\$ 21,284
22	HE	Hawaiian Elec.	\$ 4,434
23	IDA	IDACORP, Inc.	\$ 4,979
24	MGEE	MGE Energy	\$ 2,341
25	NEE	NextEra Energy	\$ 91,738
26	NWE	NorthWestern Corp.	\$ 3,528
27	OGE	OGE Energy	\$ 8,555
28	OTTR	Otter Tail Corp.	\$ 1,977
29	PCG	PG&E Corp.	\$ 8,976
30	PNW	Pinnacle West Capital	\$ 10,659
31	PNM	PNM Resources	\$ 3,768
32	POR	Portland General	\$ 4,602
33	PPL	PPL Corp.	\$ 22,755
34	PEG	Public Serv. Enterprise	\$ 29,630
35	SRE	Sempra Energy	\$ 34,076
36	SO	Southern Co.	\$ 53,085
37	WEC	WEC Energy Group	\$ 24,756
38	XEL	Xcel Energy Inc.	\$ 28,868
<b>Average Market Cap of the Value Line Electric Utilities</b>			<b>\$ 20,996</b>
<b>Median Market Cap of the Value Line Electric Utilities</b>			<b>\$ 16,803</b>



**Market Capitalizations of Dividend-Paying S&P 500 Companies****Source: Value Line Investment Analyzer, Data Weekly as of March 28, 2019**

<u>Number</u>	<u>Ticker</u>	<u>Company Name</u>	<u>Market Cap (\$ million)</u>
1	MSFT	Microsoft Corp.	\$ 898,373
2	AAPL	Apple Inc.	\$ 892,608
3	JNJ	Johnson & Johnson	\$ 372,637
4	XOM	Exxon Mobil Corp.	\$ 341,853
5	JPM	JPMorgan Chase	\$ 334,902
6	V	Visa Inc.	\$ 311,041
7	WMT	Walmart Inc.	\$ 282,188
8	BAC	Bank of America	\$ 269,426
9	PG	Procter & Gamble	\$ 259,039
10	VZ	Verizon Communic.	\$ 244,120
11	MA	MasterCard Inc.	\$ 243,080
12	INTC	Intel Corp.	\$ 242,394
13	PFE	Pfizer, Inc.	\$ 241,772
14	CSCO	Cisco Systems	\$ 236,065
15	CVX	Chevron Corp.	\$ 235,063
16	UNH	UnitedHealth Group	\$ 232,541
17	WFC	Wells Fargo	\$ 231,291
18	T	AT&T Inc.	\$ 225,803
19	HD	Home Depot	\$ 214,958
20	MRK	Merck & Co.	\$ 214,223
21	BA	Boeing	\$ 212,548
22	KO	Coca-Cola	\$ 198,804
23	ORCL	Oracle Corp.	\$ 183,133
24	CMCSA	Comcast Corp.	\$ 182,939
25	PEP	PepsiCo, Inc.	\$ 172,038
26	DIS	Disney (Walt)	\$ 166,065
27	C	Citigroup Inc.	\$ 151,364
28	MCD	McDonald's Corp.	\$ 146,001
29	ABT	Abbott Labs.	\$ 139,523
30	LLY	Lilly (Eli)	\$ 136,305
31	PM	Philip Morris Int'l	\$ 135,684
32	NKE	NIKE, Inc. 'B'	\$ 132,531
33	IBM	Int'l Business Mach.	\$ 124,876
34	UNP	Union Pacific	\$ 121,838
35	MMM	3M Company	\$ 121,424
36	MDT	Medtronic plc	\$ 120,600
37	ABBV	AbbVie Inc.	\$ 120,273
38	AVGO	Broadcom Inc.	\$ 118,432
39	AMGN	Amgen	\$ 118,144
40	HON	Honeywell Int'l	\$ 115,589
41	ACN	Accenture Plc	\$ 111,731
42	UTX	United Technologies	\$ 109,641
43	TMO	Thermo Fisher Sci.	\$ 108,694

44	NVDA	NVIDIA Corp.	\$ 108,123
45	MO	Altria Group	\$ 106,259
46	COST	Costco Wholesale	\$ 106,134
47	TXN	Texas Instruments	\$ 99,156
48	UPS	United Parcel Serv.	\$ 94,748
49	AXP	Amer. Express	\$ 93,223
50	SBUX	Starbucks Corp.	\$ 91,954
51	NEE	NextEra Energy	\$ 91,738
52	DHR	Danaher Corp.	\$ 91,083
53	LOW	Lowe's Cos.	\$ 87,346
54	GE	Gen'l Electric	\$ 86,024
55	AMT	Amer. Tower 'A'	\$ 85,920
56	LMT	Lockheed Martin	\$ 83,064
57	GILD	Gilead Sciences	\$ 82,415
58	CAT	Caterpillar Inc.	\$ 78,112
59	BMJ	Bristol-Myers Squibb	\$ 78,084
60	COP	ConocoPhillips	\$ 77,571
61	USB	U.S. Bancorp	\$ 77,264
62	SYK	Stryker Corp.	\$ 73,386
63	ANTM	Anthem, Inc.	\$ 72,676
64	MDLZ	Mondelez Int'l	\$ 71,907
65	MS	Morgan Stanley	\$ 71,649
66	GS	Goldman Sachs	\$ 70,406
67	ADP	Automatic Data Proc.	\$ 69,081
68	QCOM	Qualcomm Inc.	\$ 68,426
69	BLK	BlackRock, Inc.	\$ 67,501
70	INTU	Intuit Inc.	\$ 67,166
71	BDX	Becton, Dickinson	\$ 66,459
72	TJX	TJX Companies	\$ 65,431
73	CB	Chubb Ltd.	\$ 64,130
74	DUK	Duke Energy	\$ 63,728
75	CSX	CSX Corp.	\$ 62,850
76	SLB	Schlumberger Ltd.	\$ 60,405
77	EL	Lauder (Estee)	\$ 59,497
78	WBA	Walgreens Boots	\$ 58,975
79	CL	Colgate-Palmolive	\$ 58,134
80	CME	CME Group	\$ 58,077
81	SPG	Simon Property Group	\$ 57,054
82	SCHW	Schwab (Charles)	\$ 56,881
83	PNC	PNC Financial Serv.	\$ 56,761
84	EOG	EOG Resources	\$ 55,223
85	CVS	CVS Health	\$ 54,374
86	SO	Southern Co.	\$ 53,085
87	CCI	Crown Castle Int'l	\$ 52,800
88	SPGI	S&P Global	\$ 52,102
89	GM	Gen'l Motors	\$ 51,884
90	RTN	Raytheon Co.	\$ 51,031
91	ECL	Ecolab Inc.	\$ 50,827
92	NSC	Norfolk Southern	\$ 50,763
93	DE	Deere & Co.	\$ 50,347

94	OXY	Occidental Petroleum	\$	50,193
95	LIN	Linde plc	\$	50,001
96	BK	Bank of New York Mellon	\$	49,824
97	D	Dominion Energy	\$	49,564
98	AGN	Allergan plc	\$	49,521
99	GD	Gen'l Dynamics	\$	48,432
100	EXC	Exelon Corp.	\$	48,177
101	ZTS	Zoetis Inc.	\$	47,664
102	ITW	Illinois Tool Works	\$	47,398
103	MMC	Marsh & McLennan	\$	46,794
104	FDX	FedEx Corp.	\$	46,356
105	NOC	Northrop Grumman	\$	45,552
106	PLD	Prologis	\$	45,408
107	KMI	Kinder Morgan Inc.	\$	45,130
108	WM	Waste Management	\$	44,178
109	PSX	Phillips 66	\$	44,116
110	HCA	HCA Healthcare	\$	44,050
111	KMB	Kimberly-Clark	\$	42,742
112	ICE	Intercontinental Exch.	\$	42,694
113	BAX	Baxter Int'l Inc.	\$	42,497
114	MAR	Marriott Int'l	\$	42,327
115	PGR	Progressive Corp.	\$	42,228
116	TGT	Target Corp.	\$	41,912
117	APD	Air Products & Chem.	\$	41,767
118	EMR	Emerson Electric	\$	41,603
119	CTSH	Cognizant Technology	\$	41,516
120	MPC	Marathon Petroleum	\$	41,446
121	AEP	Amer. Elec. Power	\$	41,329
122	AON	Aon plc	\$	40,804
123	MET	MetLife Inc.	\$	40,712
124	SHW	Sherwin-Williams	\$	40,373
125	KHC	Kraft Heinz Co.	\$	40,093
126	CI	Cigna Corp.	\$	38,890
127	COF	Capital One Fin'l	\$	38,347
128	ADI	Analog Devices	\$	38,330
129	AIG	Amer. Int'l Group	\$	38,128
130	PSA	Public Storage	\$	38,074
131	PRU	Prudential Fin'l	\$	37,658
132	AFL	Aflac Inc.	\$	37,538
133	AMAT	Applied Materials	\$	36,561
134	FIS	Fidelity Nat'l Info.	\$	36,356
135	TRV	Travelers Cos.	\$	36,251
136	HUM	Humana Inc.	\$	36,026
137	VLO	Valero Energy	\$	36,023
138	EQIX	Equinix, Inc.	\$	35,994
139	EBAY	eBay Inc.	\$	35,419
140	BBT	BB&T Corp.	\$	35,350
141	CCL	Carnival Corp.	\$	35,238
142	ROP	Roper Tech.	\$	35,166
143	F	Ford Motor	\$	34,886

144	ATVI	Activision Blizzard	\$	34,808
145	WMB	Williams Cos.	\$	34,694
146	ETN	Eaton Corp. plc	\$	34,611
147	DAL	Delta Air Lines	\$	34,500
148	VFC	V.F. Corp.	\$	34,469
149	MCO	Moody's Corp.	\$	34,373
150	ROST	Ross Stores	\$	34,104
151	SRE	Sempra Energy	\$	34,076
152	SYY	Sysco Corp.	\$	34,026
153	JCI	Johnson Ctrls. Int'l plc	\$	33,679
154	STZ	Constellation Brands	\$	32,751
155	LYB	LyondellBasell Inds.	\$	32,469
156	ALL	Allstate Corp.	\$	32,409
157	XLNX	Xilinx Inc.	\$	32,043
158	DG	Dollar General	\$	31,378
159	YUM	Yum! Brands	\$	31,031
160	GIS	Gen'l Mills	\$	30,822
161	PEG	Public Serv. Enterprise	\$	29,630
162	HPQ	HP Inc.	\$	29,248
163	WELL	Welltower Inc.	\$	29,211
164	FTV	Fortive Corp.	\$	29,012
165	XEL	Xcel Energy Inc.	\$	28,868
166	OKE	ONEOK Inc.	\$	28,540
167	TEL	TE Connectivity	\$	28,431
168	PAYX	Paychex, Inc.	\$	28,387
169	APH	Amphenol Corp.	\$	28,328
170	LUV	Southwest Airlines	\$	27,879
171	EQR	Equity Residential	\$	27,833
172	AVB	AvalonBay Communities	\$	27,746
173	ED	Consol. Edison	\$	27,051
174	LRCX	Lam Research	\$	27,048
175	PPG	PPG Inds.	\$	26,800
176	STI	SunTrust Banks	\$	26,503
177	RSG	Republic Services	\$	26,166
178	PXD	Pioneer Natural Res.	\$	26,065
179	IR	Ingersoll-Rand	\$	25,985
180	GLW	Corning Inc.	\$	25,925
181	ZBH	Zimmer Biomet Hldgs.	\$	25,900
182	HAL	Halliburton Co.	\$	25,570
183	A	Agilent Technologies	\$	25,345
184	TSN	Tyson Foods 'A'	\$	25,214
185	STT	State Street Corp.	\$	25,179
186	CMI	Cummins Inc.	\$	25,036
187	WEC	WEC Energy Group	\$	24,756
188	HLT	Hilton Worldwide Hldgs.	\$	24,710
189	DLR	Digital Realty Trust	\$	24,582
190	TROW	Price (T. Rowe) Group	\$	24,039
191	HSY	Hershey Co.	\$	23,978
192	DFS	Discover Fin'l Svcs.	\$	23,898
193	PCAR	PACCAR Inc.	\$	23,881

194	ADM	Archer Daniels Midl'd	\$	23,880
195	HRL	Hormel Foods	\$	23,722
196	RCL	Royal Caribbean	\$	23,500
197	VTR	Ventas, Inc.	\$	23,176
198	SYF	Synchrony Financial	\$	22,877
199	MSI	Motorola Solutions	\$	22,758
200	PPL	PPL Corp.	\$	22,755
201	WLTW	Willis Towers Wat. plc	\$	22,727
202	DTE	DTE Energy	\$	22,519
203	ES	Eversource Energy	\$	22,290
204	CXO	Concho Resources	\$	22,289
205	MTB	M&T Bank Corp.	\$	22,265
206	APC	Anadarko Petroleum	\$	22,260
207	MCK	McKesson Corp.	\$	22,136
208	PH	Parker-Hannifin	\$	21,935
209	VRSK	Verisk Analytics	\$	21,889
210	GPN	Global Payments	\$	21,379
211	FE	FirstEnergy Corp.	\$	21,193
212	CTAS	Cintas Corp.	\$	21,091
213	HPE	Hewlett Packard Ent.	\$	21,028
214	O	Realty Income Corp.	\$	20,995
215	ROK	Rockwell Automation	\$	20,791
216	CLX	Clorox Co.	\$	20,662
217	BXP	Boston Properties	\$	20,618
218	APTV	Aptiv PLC	\$	20,490
219	SWK	Stanley Black & Decker	\$	20,328
220	EIX	Edison Int'l	\$	20,252
221	NTRS	Northern Trust Corp.	\$	19,941
222	WY	Weyerhaeuser Co.	\$	19,861
223	MKC	McCormick & Co.	\$	19,630
224	K	Kellogg	\$	19,590
225	KR	Kroger Co.	\$	19,503
226	BLL	Ball Corp.	\$	19,425
227	BBY	Best Buy Co.	\$	19,339
228	MCHP	Microchip Technology	\$	19,230
229	ESS	Essex Property Trust	\$	19,167
230	NEM	Newmont Mining	\$	18,959
231	AWK	Amer. Water Works	\$	18,849
232	HRS	Harris Corp.	\$	18,836
233	AME	AMETEK, Inc.	\$	18,675
234	FCX	Freeport-McMoRan Inc.	\$	18,446
235	IP	Int'l Paper	\$	18,427
236	FAST	Fastenal Co.	\$	18,231
237	NUE	Nucor Corp.	\$	18,089
238	HES	Hess Corp.	\$	18,060
239	ETR	Entergy Corp.	\$	17,972
240	AEE	Ameren Corp.	\$	17,961
241	KLAC	KLA-Tencor	\$	17,781
242	EXPE	Expedia Group	\$	17,766
243	CHD	Church & Dwight	\$	17,763

244	AMP	Ameriprise Fin'l	\$	17,756
245	CBS	CBS Corp. 'B'	\$	17,734
246	HIG	Hartford Fin'l Svcs.	\$	17,704
247	MSCI	MSCI Inc.	\$	17,421
248	DXC	DXC Technology	\$	17,356
249	TSS	Total System Svcs.	\$	16,923
250	BEN	Franklin Resources	\$	16,828
251	NTAP	NetApp, Inc.	\$	16,645
252	FRC	First Republic Bank	\$	16,567
253	ABC	AmerisourceBergen	\$	16,437
254	FITB	Fifth Third Bancorp	\$	16,424
255	OMC	Omnicom Group	\$	16,418
256	GWW	Grainger (W.W.)	\$	16,411
257	GPC	Genuine Parts	\$	16,290
258	LLL	L3 Technologies	\$	16,249
259	GRMN	Garmin Ltd.	\$	16,220
260	LEN	Lennar Corp.	\$	16,134
261	KEY	KeyCorp	\$	16,006
262	ARE	Alexandria Real Estate	\$	15,900
263	CMS	CMS Energy Corp.	\$	15,645
264	DHI	Horton D.R.	\$	15,553
265	CFG	Citizens Fin'l Group	\$	15,376
266	VMC	Vulcan Materials	\$	15,274
267	CNP	CenterPoint Energy	\$	15,201
268	DVN	Devon Energy	\$	15,082
269	L	Loews Corp.	\$	15,073
270	DRI	Darden Restaurants	\$	14,961
271	HCP	HCP Inc.	\$	14,876
272	EVERG	Evergy, Inc.	\$	14,796
273	RMD	ResMed Inc.	\$	14,715
274	SYMC	Symantec Corp.	\$	14,659
275	COO	Cooper Cos.	\$	14,542
276	RF	Regions Financial	\$	14,522
277	MXIM	Maxim Integrated	\$	14,416
278	CAH	Cardinal Health	\$	14,280
279	AAL	Amer. Airlines	\$	14,233
280	NDAQ	Nasdaq, Inc.	\$	14,221
281	XYL	Xylem Inc.	\$	14,209
282	PFG	Principal Fin'l Group	\$	14,183
283	AJG	Gallagher (Arthur J.)	\$	14,169
284	MRO	Marathon Oil Corp.	\$	14,095
285	EFX	Equifax, Inc.	\$	14,084
286	SWKS	Skyworks Solutions	\$	14,022
287	HST	Host Hotels & Resorts	\$	14,021
288	CINF	Cincinnati Financial	\$	13,901
289	TFX	Teleflex Inc.	\$	13,800
290	DOV	Dover Corp.	\$	13,683
291	ROL	Rollins, Inc.	\$	13,646
292	MGM	MGM Resorts Int'l	\$	13,543
293	CAG	Conagra Brands	\$	13,472

294	CTXS	Citrix Sys.	\$	13,392
295	APA	Apache Corp.	\$	13,389
296	HBAN	Huntington Bancshs.	\$	13,367
297	CE	Celanese Corp.	\$	13,317
298	WDC	Western Digital	\$	13,313
299	SJM	Smucker (J.M.)	\$	13,206
300	STX	Seagate Technology	\$	13,021
301	CTL	CenturyLink Inc.	\$	13,016
302	TAP	Molson Coors Brewing	\$	12,986
303	EXR	Extra Space Storage	\$	12,948
304	EXPD	Expeditors Int'l	\$	12,937
305	VNO	Vornado R'lty Trust	\$	12,848
306	WYNN	Wynn Resorts	\$	12,789
307	TIF	Tiffany & Co.	\$	12,774
308	MAA	Mid-America Apartment	\$	12,458
309	NRG	NRG Energy	\$	12,397
310	MLM	Martin Marietta	\$	12,372
311	UHS	Universal Health `B'	\$	12,351
312	AAP	Advance Auto Parts	\$	12,301
313	UDR	UDR, Inc.	\$	12,186
314	TXT	Textron, Inc.	\$	12,169
315	CMA	Comerica Inc.	\$	12,130
316	DGX	Quest Diagnostics	\$	12,022
317	LNC	Lincoln Nat'l Corp.	\$	12,008
318	AES	AES Corp.	\$	11,994
319	NBL	Noble Energy	\$	11,942
320	CHRW	C.H. Robinson	\$	11,907
321	IFF	Int'l Flavors & Frag.	\$	11,897
322	BR	Broadridge Fin'l	\$	11,882
323	KSU	Kansas City South'n	\$	11,718
324	TSCO	Tractor Supply	\$	11,631
325	REG	Regency Centers Corp.	\$	11,623
326	CPB	Campbell Soup	\$	11,528
327	MAS	Masco Corp.	\$	11,497
328	COG	Cabot Oil & Gas 'A'	\$	11,440
329	KSS	Kohl's Corp.	\$	11,395
330	ETFC	E*Trade Fin'l	\$	11,324
331	RJF	Raymond James Fin'l	\$	11,241
332	BHGE	Baker Hughes, a GE co.	\$	11,190
333	LNT	Alliant Energy	\$	11,071
334	VIAB	Viacom Inc. 'B'	\$	11,065
335	JBHT	Hunt (J.B.)	\$	11,025
336	DRE	Duke Realty Corp.	\$	10,987
337	XRAY	Dentsply Sirona	\$	10,980
338	HAS	Hasbro, Inc.	\$	10,842
339	LW	Lamb Weston Holdings	\$	10,829
340	JKHY	Henry (Jack) & Assoc.	\$	10,663
341	PNW	Pinnacle West Capital	\$	10,659
342	FTI	TechnipFMC	\$	10,648
343	EMN	Eastman Chemical	\$	10,627

344	PKI	PerkinElmer Inc.	\$	10,581
345	JEC	Jacobs Engineering	\$	10,522
346	CBOE	Cboe Global Markets	\$	10,508
347	MOS	Mosaic Company	\$	10,473
348	NI	NiSource Inc.	\$	10,365
349	IRM	Iron Mountain	\$	10,198
350	RL	Ralph Lauren	\$	10,171
351	NOV	National Oilwell Varco	\$	10,159
352	FRT	Federal Rlty. Inv. Trust	\$	10,141
353	FANG	Diamondback Energy	\$	10,118
354	FMC	FMC Corp.	\$	10,065
355	GPS	Gap (The), Inc.	\$	9,870
356	AVY	Avery Dennison	\$	9,834
357	WRK	WestRock Co.	\$	9,693
358	PVH	PVH Corp.	\$	9,660
359	TPR	Tapestry Inc.	\$	9,486
360	ADS	Alliance Data Sys.	\$	9,413
361	PKG	Packaging Corp.	\$	9,402
362	ARNC	Arconic Inc.	\$	9,245
363	TMK	Torchmark Corp.	\$	9,175
364	JNPR	Juniper Networks	\$	8,999
365	CF	CF Industries	\$	8,993
366	AOS	Smith (A.O.)	\$	8,832
367	HFC	HollyFrontier Corp.	\$	8,766
368	RE	Everest Re Group Ltd.	\$	8,754
369	SNA	Snap-on Inc.	\$	8,687
370	COTY	Coty Inc.	\$	8,639
371	ALB	Albemarle Corp.	\$	8,619
372	HII	Huntington Ingalls	\$	8,594
373	ZION	Zions Bancorp.	\$	8,509
374	ALLE	Allegion plc	\$	8,500
375	WHR	Whirlpool Corp.	\$	8,451
376	SLG	SL Green Realty	\$	8,428
377	NLSN	Nielsen Hldgs. plc	\$	8,399
378	WU	Western Union	\$	8,220
379	IPG	Interpublic Group	\$	8,186
380	IVZ	Invesco Ltd.	\$	7,967
381	BWA	BorgWarner	\$	7,875
382	KIM	Kimco Realty	\$	7,855
383	PHM	PulteGroup, Inc.	\$	7,842
384	RHI	Robert Half Int'l	\$	7,823
385	AIV	Apartment Investment	\$	7,708
386	LB	L Brands	\$	7,684
387	PNR	Pentair plc	\$	7,530
388	JWN	Nordstrom, Inc.	\$	7,486
389	M	Macy's Inc.	\$	7,438
390	XRX	Xerox Corp.	\$	7,350
391	UNM	Unum Group	\$	7,340
392	NWS	News Corp. 'B'	\$	7,259
393	NWSA	News Corp. 'A'	\$	7,241



394	SEE	Sealed Air	\$	7,227
395	FL	Foot Locker	\$	6,847
396	ALK	Alaska Air Group	\$	6,797
397	XEC	Cimarex Energy	\$	6,756
398	FBHS	Fortune Brands Home	\$	6,611
399	NWL	Newell Brands	\$	6,528
400	PRGO	Perrigo Co. plc	\$	6,442
401	FLIR	FLIR Systems	\$	6,414
402	HBI	Hanesbrands, Inc.	\$	6,391
403	PBCT	People's United Fin'l	\$	6,252
404	JEF	Jefferies Fin'l Group	\$	6,241
405	HP	Helmerich & Payne	\$	6,222
406	AMG	Affiliated Managers	\$	6,220
407	MAC	Macerich Comp. (The)	\$	6,130
408	AIZ	Assurant Inc.	\$	5,911
409	FLS	Flowserve Corp.	\$	5,841
410	HOG	Harley-Davidson	\$	5,802
411	PWR	Quanta Services	\$	5,561
412	LEG	Leggett & Platt	\$	5,519
413	FLR	Fluor Corp.	\$	5,123
414	HRB	Block (H&R)	\$	4,944

**Exhibit No. CIT-0003**  
**Value Line Reports**

<p>(A) Also trades on NYSE under the symbol FTS. All data in Canadian \$. (B) Diluted earnings. Excl. nonrec. gains (loss): '07, 3¢; '14, 2¢; '15, 48¢; '17, (35¢); '18, 7¢. Next earnings © 2019 Value Line. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.</p>	<p>report due early May. (C) Div'ds historically paid in early Mar., June, Sept., and Dec. ■ Div'd reinvest. plan avail. (2% disc.). (D) Incl. intang. In '18: \$38.70/sh. (E) In mill., adj. for split. (F) Rate base: varies. Rates all'd on com. eq.: 8.3%-10.32%; earned on avg. com. eq., '18: 7.6%. Regulat. Climate: FERC. Above Average; AZ, Average; NY, Below Average.</p>	<p><b>Company's Financial Strength</b> B++  <b>Stock's Price Stability</b> 100  <b>Price Growth Persistence</b> 25  <b>Earnings Predictability</b> 70</p>	<p><b>To subscribe call 1-800-VALUELINE</b></p>
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AMERICAN ELEC. PWR. NYSE-AEP					RECENT PRICE	81.03	P/E RATIO	20.6	(Trailing: 20.8 Median: 15.0)	RELATIVE P/E RATIO	1.20	DIV'D YLD	3.4%	VALUE LINE						
TIMELINESS	3	Lowered 3/8/19	High: 49.1	36.5	37.9	41.7	45.4	51.6	63.2	65.4	71.3	78.1	81.1	81.8		Target Price	Range			
SAFETY	1	Raised 3/17/17	Low: 25.5	24.0	28.2	33.1	37.0	41.8	45.8	52.3	56.8	61.8	62.7	72.3		2022	2023			
TECHNICAL	2	Raised 3/1/19	LEGENDS 0.67 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession														2024			
BETA	.55	(1.00 = Market)																		
2022-24 PROJECTIONS																				
High	Price	Gain	Ann'l Total																	
Low	95	(+15%)	Return																	
	75	(-5%)	8%																	
Insider Decisions																				
to Buy				M	J	J	A	S	O	N	D	J								
Options				0	0	0	0	0	0	0	0	0								
to Sell				1	0	0	0	0	0	1	0	0								
Institutional Decisions																				
to Buy				202018	3Q2018	4Q2018														
to Sell				357	397	485														
Hld's(000)				358261	359124	363168														
																		% TOT. RETURN 2/19		
																		THIS STOCK	VL ARITH.*	
																		1 yr.	28.2	3.9
																		3 yr.	46.1	49.2
																		5 yr.	93.8	39.6
© VALUE LINE PUB. LLC 22-24																				
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Revenues per sh	35.50	
36.82	35.51	30.76	31.82	33.41	35.56	28.22	30.01	31.27	30.77	31.48	34.78	33.51	33.31	31.35	32.84	33.35	33.85	"Cash Flow" per sh	11.00	
5.76	5.89	5.96	6.67	6.80	6.84	6.32	6.29	6.83	6.92	7.02	7.57	7.98	8.47	7.95	8.77	9.20	9.60	Earnings per sh A	5.00	
2.53	2.61	2.64	2.86	2.86	2.99	2.97	2.60	3.13	2.98	3.18	3.34	3.59	4.23	3.62	3.90	4.10	4.35	Div'd Decl'd per sh B ■	3.40	
1.65	1.40	1.42	1.50	1.58	1.64	1.64	1.71	1.85	1.88	1.95	2.03	2.15	2.27	2.39	2.53	2.72	2.88	Cap'l Spending per sh	12.50	
3.44	4.28	6.11	8.89	8.88	9.83	6.19	5.07	5.74	6.45	7.75	8.68	9.37	9.98	11.79	12.89	13.55	12.50	Book Value per sh C	48.00	
19.93	21.32	23.08	23.73	25.17	26.33	27.49	28.33	30.33	31.37	32.98	34.37	36.44	35.38	37.17	38.58	40.00	41.90	Common Shs Outst'g D	520.00	
395.02	395.86	393.72	396.67	400.43	406.07	478.05	480.81	483.42	485.67	487.78	489.40	491.05	491.71	492.01	493.25	495.00	502.00	Avg Ann'l P/E Ratio	17.0	
10.7	12.4	13.7	12.9	16.3	13.1	10.0	13.4	11.9	13.8	14.5	15.9	15.8	15.2	19.3	18.0	18.0	18.0	Relative P/E Ratio	.95	
.61	.66	.73	.70	.87	.79	.67	.85	.75	.88	.81	.84	.80	.80	.97	.97	.97	.97	Avg Ann'l Div'd Yield	4.0%	
6.1%	4.3%	3.9%	4.1%	3.4%	4.2%	5.5%	4.9%	5.0%	4.6%	4.2%	3.8%	3.8%	3.5%	3.4%	3.6%	3.6%	3.6%			
CAPITAL STRUCTURE as of 12/31/18																				
Total Debt \$25257 mill. Due in 5 Yrs \$9286.3 mill.																				
LT Debt \$21648 mill. LT Interest \$931 mill.																				
Incl. \$1109.2 mill. securitized bonds. Incl. \$289 mill. capitalized leases.																				
(LT interest earned: 2.9x)																				
Leases, Uncapitalized Annual rentals \$259.6 mill.																				
Pension Assets-12/18 \$4695.9 mill.																				
Oblig \$4810.3 mill.																				
Pfd Stock None																				
Common Stock 493,245,876 shs.																				
MARKET CAP: \$40 billion (Large Cap)																				
ELECTRIC OPERATING STATISTICS																				
2016 2017 2018																				
% Change Retail Sales (KWH) +.3 -1.6 +3.0																				
Avg. Indus. Use (MWH) NA NA NA																				
Avg. Indus. Revs. per KWH (¢) NA NA NA																				
Capacity at Peak (Mw) NA NA NA																				
Peak Load (Mw) NA NA NA																				
Annual Load Factor (%) NA NA NA																				
% Change Customers (yr-end) NA NA NA																				
Fixed Charge Cov. (%) 374 354 254																				
ANNUAL RATES Past Past Est'd '16-'18																				
of change (per sh) 10 Yrs. 5 Yrs. to '22-'24																				
Revenues -5.5% 1.0% 1.5%																				
"Cash Flow" 2.0% 4.0% 4.5%																				
Earnings 3.0% 5.0% 4.0%																				
Dividends 4.5% 5.0% 6.0%																				
Book Value 4.0% 3.5% 4.5%																				
QUARTERLY REVENUES (\$ mill.)																				
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year															
2016	4044	3892	4652	3790	16380															
2017	3933	3576	4104	3810	15424															
2018	4048	4013	4333	3801	16195															
2019	4150	4050	4500	3800	16500															
2020	4300	4200	4650	3850	17000															
EARNINGS PER SHARE A																				
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year															
2016	1.02	1.03	1.43	.76	4.23															
2017	.94	.76	1.11	.81	3.62															
2018	.92	1.07	1.17	.74	3.90															
2019	1.00	.90	1.30	.90	4.10															
2020	1.05	1.00	1.40	.90	4.35															
QUARTERLY DIVIDENDS PAID B ■																				
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year															
2015	.53	.53	.53	.56	2.15															
2016	.56	.56	.56	.59	2.27															
2017	.59	.59	.59	.62	2.39															
2018	.62	.62	.62	.67	2.53															
2019	.67																			

**American Electric Power has announced a significant acquisition.** The company has agreed to buy 724 megawatts of wind capacity from Semptra Energy for a cash payment of \$551 million, the assumption of \$343 million of project debt, and \$162 million in tax-equity obligations. The seven wind farms have long-term contracts with creditworthy counterparties, including two deals with utilities owned by AEP. The company plans to finance the transaction with a combination of debt and equity. This requires the approval of the Federal Energy Regulatory Commission, and is expected to close in the second quarter of 2019. AEP expects the purchase to be accretive to earnings by "a few cents" a share in the first full year. The deal would be a big step toward the company's goal of investing \$2.2 billion in contracted renewables by 2023. We will not include this in our figures until after it is completed. Even after this purchase, AEP will still be predominantly a regulated utility. **One utility received a rate hike, another has a settlement pending, a third just filed an application, and a fourth will soon initiate a case.** In

Pipeline '05; commercial barge operation in '15. Generating sources not available. Fuel costs: 36% of revenues. '18 reported depreciation rates (utility): 1.6%-9.8%. Has 17,600 employees. Chairman, President & CEO: Nicholas K. Akins. Incorporated: New York. Address: 1 Riverside Plaza, Columbus, Ohio 43215-2373. Telephone: 614-716-1000. Internet: www.aep.com.

West Virginia, Appalachian Power's settlement for a \$44 million increase, based on a 9.75% return on equity, was approved. New tariffs took effect on March 6th. Public Service of Oklahoma reached a settlement calling for a \$46 million hike, based on a 9.4% ROE, and awaits a ruling from the state commission (probably later this month). SWEPCO asked the Arkansas regulators for a \$46 million increase, based on a 10.5% ROE. New rates should take effect at the start of 2020. Finally, AEP Texas expects to put forth an application in the second quarter.

**We expect earnings growth this year and next in line with AEP's annual goal of 5%-7%.** Rate relief should help. Also, the company is investing heavily in its transmission system, and much of this spending is recovered concurrently, via a tracking mechanism. The utilities should see modest kilowatt-hour sales growth. Our 2019 estimate is at the midpoint of AEP's targeted range of \$4.00-\$4.20. **This stock has a dividend yield and 3- to 5-year total return potential that are similar to those of most utilities.**

Paul E. Debbas, CFA March 15, 2019

**Exhibit No. CIT-0004**

**Expected Earnings Misrepresentation of  
Investors' Required Return**

**Expected Earnings Misrepresentation of Investors' Required Return****Docket No. PL19-4-000****Market Price to Book Values**

Line	Company	Ticker	Value Line	2014-2015	M/B	Value Line		Value Line	
			2015 1st Half	Average		Book Values		2015 1st Half Market Price	
			Avg Price	Book Value		2014	2015	High	Low
1	ALLETE	ALE	53.75	36.06	1.49	35.06	37.05	59.70	47.80
2	Alliant Energy	LNT	64.30	31.42	2.05	31.09	31.75	70.80	57.80
3	Amer. Elec. Power	AEP	59.25	35.06	1.69	34.37	35.75	65.40	53.10
4	Ameren Corp.	AEE	42.30	28.14	1.50	27.67	28.60	46.80	37.80
5	Avista Corp.	AVA	35.20	24.17	1.46	23.84	24.50	38.30	32.10
6	Black Hills Corp.	BKH	50.65	31.35	1.62	30.80	31.90	53.40	47.90
7	CenterPoint Energy	CNP	21.40	10.63	2.01	10.60	10.65	23.70	19.10
8	CMS Energy	CMS	35.05	13.75	2.55	13.34	14.15	38.70	31.40
9	Consol. Edison	ED	65.50	43.65	1.50	42.94	44.35	72.30	58.70
10	DTE Energy	DTE	83.30	48.10	1.73	47.05	49.15	92.30	74.30
11	Duke Energy	DUK	81.80	58.23	1.40	57.81	58.65	90.00	73.60
12	Edison Int'l	EIX	65.00	34.57	1.88	33.64	35.50	69.60	60.40
13	El Paso Electric	EE	38.35	24.80	1.55	24.39	25.20	41.30	35.40
14	Empire Dist. Elect.	EDE	26.90	18.16	1.48	18.02	18.30	31.50	22.30
15	Entergy Corp.	ETR	80.60	56.89	1.42	55.83	57.95	90.30	70.90
16	Eversource Energy	ES	52.05	32.04	1.62	31.47	32.60	56.80	47.30
17	FirstEnergy Corp.	FE	37.75	30.02	1.26	29.49	30.55	41.70	33.80
18	G't Plains Energy	GXP	27.50	23.48	1.17	23.26	23.70	30.30	24.70
19	IDACORP, Inc.	IDA	64.85	39.78	1.63	38.85	40.70	70.50	59.20
20	NextEra Energy, Inc.	NEE	105.05	46.83	2.24	44.96	48.70	112.60	97.50
21	NorthWestern Corp.	NWE	55.25	32.08	1.72	31.50	32.65	59.70	50.80
22	OGE Energy Corp.	OGE	32.80	16.69	1.97	16.27	17.10	36.50	29.10
23	Otter Tail Corp.	OTTR	29.75	15.72	1.89	15.39	16.05	33.40	26.10
24	PG&E Corp.	PCG	55.65	33.82	1.65	33.09	34.55	60.20	51.10
25	Pinnacle West	PNW	67.40	40.23	1.68	39.50	40.95	73.30	61.50
26	PNM Resources, Inc.	PNM	29.15	21.86	1.33	21.61	22.10	31.20	27.10
27	Portland General	POR	37.85	25.12	1.51	24.43	25.80	41.00	34.70
28	Public Serv. Enterprise	PEG	41.70	24.72	1.69	24.09	25.35	44.40	39.00
29	SCANA Corp.	SCG	58.45	36.50	1.60	34.95	38.05	65.60	51.30
30	Sempra Energy	SRE	110.40	46.89	2.35	45.98	47.80	116.20	104.60
31	Southern Co.	SO	48.15	22.29	2.16	21.98	22.60	53.20	43.10
32	TECO Energy	TE	20.10	11.03	1.82	10.96	11.10	22.00	18.20
33	Vectren Corp.	VVC	44.65	19.98	2.24	19.45	20.50	49.50	39.80
34	Westar Energy	WR	39.10	25.31	1.54	25.02	25.60	44.00	34.20
35	Xcel Energy	XEL	35.85	20.53	1.75	20.20	20.85	38.30	33.40
36									
37				Low	1.17				
38				High	2.55				
39				Midpoint	1.86				
40				Median	1.65				
41				Average	1.72				

(1) The proxy group is sourced from *Ass'n of Bus. Advocating Tariff Equity et al. v. Midcontinent Indep. System Operator, Inc.* et al., Docket No. EL14-12-002, Cross-Answering Testimony of William E. Avera, PH.D., CFA, Exhibit No. MTO-31.

(2) In line with the Commission's preliminary application of its proposed framework, Dominion and ITC were both removed from this exhibit. Please refer to the *Ass'n of Bus. Advocating Tariff Equity et al. v. Midcontinent Indep. System Operator, Inc. et al.*, 165 FERC ¶ 61,118 (November 15, 2018) at P 55 and 57.

(3) Data from Value Line Reports Dated May 1, May 22, and June 19, 2015.

**Exhibit No. CIT-0005**

**Alternative High-End Outlier Test**

Alternative High-End Outlier Test  
Docket No. PL19-4-000Mac Mathuna Modifications to  
Exhibit No. MTO-31

## EXPECTED EARNINGS APPROACH (PROSPECTIVE)

## NATIONAL GROUP

		(a)	(b)	(c)	(d)	(e)
		Expected Return	Mid-Year	Adjusted Return	Applying Commission	Applying Alternative
	Company	on Common Equity	Adjustment Factor	on Common Equity	Proposed High-End Outlier Test	High-End Outlier Test
1	ALLETE	9.50%	1.0240	9.73%	9.73%	9.73%
2	Alliant Energy	12.00%	1.0113	12.14%	12.14%	12.14%
3	Ameren Corp.	9.50%	1.0238	9.73%	9.73%	9.73%
4	American Elec Pwr	10.50%	1.0198	10.71%	10.71%	10.71%
5	Avista Corp.	9.00%	1.0170	9.15%	9.15%	9.15%
6	Black Hills Corp.	8.50%	1.0205	8.67%	8.67%	8.67%
7	CenterPoint Energy	12.50%	1.0182	12.73%	12.73%	12.73%
8	CMS Energy Corp.	13.50%	1.0329	13.94%	13.94%	13.94%
9	Consolidated Edison	9.00%	1.0161	9.14%	9.14%	9.14%
10	Dominion Resources	17.50%	1.0421	18.24%	18.24%	18.24%
11	DTE Energy Co.	10.00%	1.0310	10.31%	10.31%	10.31%
12	Duke Energy Corp.	8.00%	1.0095	8.08%	8.08%	8.08%
13	Edison International	11.50%	1.0274	11.81%	11.81%	11.81%
14	El Paso Electric	9.00%	1.0212	9.19%	9.19%	9.19%
15	Empire District Elec	8.50%	1.0205	8.67%	8.67%	8.67%
16	Entergy Corp.	9.00%	1.0165	9.15%	9.15%	9.15%
17	Eversource Energy	10.00%	1.0210	10.21%	10.21%	10.21%
18	FirstEnergy Corp.	8.50%	1.0220	8.69%	8.69%	8.69%
19	Great Plains Energy	7.50%	1.0149	7.61%	7.61%	7.61%
20	IDACORP, Inc.	8.50%	1.0199	8.67%	8.67%	8.67%
21	ITC Holdings Corp.	15.50%	1.0561	16.37%	16.37%	16.37%
22	NextEra Energy, Inc.	12.00%	1.0367	12.44%	12.44%	12.44%
23	NorthWestern Corp.	10.00%	1.0200	10.20%	10.20%	10.20%
24	OGE Energy Corp.	11.00%	1.0237	11.26%	11.26%	11.26%
25	Otter Tail Corp.	13.00%	1.0281	13.37%	13.37%	13.37%
26	PG&E Corp.	9.50%	1.0301	9.79%	9.79%	9.79%
27	Pinnacle West Capital	9.50%	1.0247	9.73%	9.73%	9.73%
28	PNM Resources	9.50%	1.0169	9.66%	9.66%	9.66%
29	Portland General Elec.	9.00%	1.0357	9.32%	9.32%	9.32%
30	Pub Sv Enterprise Grp	10.50%	1.0232	10.74%	10.74%	10.74%
31	SCANA Corp.	9.50%	1.0306	9.79%	9.79%	9.79%
32	Sempra Energy	12.50%	1.0268	12.84%	12.84%	12.84%
33	Southern Company	13.50%	1.0171	13.73%	13.73%	13.73%
34	TECO Energy	11.00%	1.0135	11.15%	11.15%	11.15%
35	Vectren Corp.	15.00%	1.0139	15.21%	15.21%	15.21%
36	Westar Energy	9.50%	1.0128	9.62%	9.62%	9.62%
37	Xcel Energy Inc.	10.00%	1.0215	10.22%	10.22%	10.22%
Range of Reasonableness						
	Low			7.61%	7.61%	7.61%
	High			18.24%	18.24%	18.24%
	Midpoint			12.92%	12.92%	12.92%
	Median			10.20%	10.20%	10.20%
Adjusted Range of Reasonableness (eliminates highlighted values)						
	Low			7.61%	7.61%	7.61%
	High			16.37%	15.21%	13.94%
	Midpoint			11.99%	11.41%	10.78%
	Median			9.99%	9.79%	9.79%

Commission High-End Test	
Median of Full Array Times 1.5	15.30%
2 Standard Deviation High-End Test	
Median	10.20%
Standard Deviation	2.34%
Upper Limit	14.88%

(a) The Value Line Investment Survey ( Mar. 20, May 1, &amp; May 22, 2015).

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

(c) (a) x (b).

Data Source: Association of Businesses Advocating Tariff Equity, et al., Docket No. EL14-12-002, Cross-Answering Testimony of William E. Avera, PH.D., CFA, Exhibit No. MTO-31.



**Exhibit No. CIT-0006**

**Natural Break Standard Analysis**

Natural Break Standard Analysis  
Docket No. PL19-4-000Mac Mathuna Modifications to  
Exhibit No. MTO-31

## EXPECTED EARNINGS APPROACH (PROSPECTIVE)

NATIONAL GROUP

	(a)	(b)	(c)	(d)	(e)
	Expected Return	Mid-Year	Adjusted Return	Applying Commission	Applying Recommended
	on Common Equity	Adjustment	on Common Equity	Proposed High-End	Natural Break
		Factor		Outlier Test	Standard
1	ALLETE	9.50%	1.0240	9.73%	9.73%
2	Alliant Energy	12.00%	1.0113	12.14%	12.14%
3	Ameren Corp.	9.50%	1.0238	9.73%	9.73%
4	American Elec Pwr	10.50%	1.0198	10.71%	10.71%
5	Avista Corp.	9.00%	1.0170	9.15%	9.15%
6	Black Hills Corp.	8.50%	1.0205	8.67%	8.67%
7	CenterPoint Energy	12.50%	1.0182	12.73%	12.73%
8	CMS Energy Corp.	13.50%	1.0329	13.94%	13.94%
9	Consolidated Edison	9.00%	1.0161	9.14%	9.14%
10	Dominion Resources	17.50%	1.0421	18.24%	18.24%
11	DTE Energy Co.	10.00%	1.0310	10.31%	10.31%
12	Duke Energy Corp.	8.00%	1.0095	8.08%	8.08%
13	Edison International	11.50%	1.0274	11.81%	11.81%
14	El Paso Electric	9.00%	1.0212	9.19%	9.19%
15	Empire District Elec	8.50%	1.0205	8.67%	8.67%
16	Entergy Corp.	9.00%	1.0165	9.15%	9.15%
17	Eversource Energy	10.00%	1.0210	10.21%	10.21%
18	FirstEnergy Corp.	8.50%	1.0220	8.69%	8.69%
19	Great Plains Energy	7.50%	1.0149	7.61%	7.61%
20	IDACORP, Inc.	8.50%	1.0199	8.67%	8.67%
21	ITC Holdings Corp.	15.50%	1.0561	16.37%	16.37%
22	NextEra Energy, Inc.	12.00%	1.0367	12.44%	12.44%
23	NorthWestern Corp.	10.00%	1.0200	10.20%	10.20%
24	OGE Energy Corp.	11.00%	1.0237	11.26%	11.26%
25	Otter Tail Corp.	13.00%	1.0281	13.37%	13.37%
26	PG&E Corp.	9.50%	1.0301	9.79%	9.79%
27	Pinnacle West Capital	9.50%	1.0247	9.73%	9.73%
28	PNM Resources	9.50%	1.0169	9.66%	9.66%
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30	Pub Sv Enterprise Grp	10.50%	1.0232	10.74%	10.74%
31	SCANA Corp.	9.50%	1.0306	9.79%	9.79%
32	Sempra Energy	12.50%	1.0268	12.84%	12.84%
33	Southern Company	13.50%	1.0171	13.73%	13.73%
34	TECO Energy	11.00%	1.0135	11.15%	11.15%
35	Vectren Corp.	15.00%	1.0139	15.21%	15.21%
36	Westar Energy	9.50%	1.0128	9.62%	9.62%
37	Xcel Energy Inc.	10.00%	1.0215	10.22%	10.22%
<b>Range of Reasonableness</b>					
	Low		7.61%	7.61%	7.61%
	High		18.24%	18.24%	18.24%
	Midpoint		12.92%	12.92%	12.92%
	Median		10.20%	10.20%	10.20%
<b>Adjusted Range of Reasonableness (eliminates highlighted values)</b>					
	Low		7.61%	7.61%	7.61%
	High		16.37%	15.21%	13.94%
	Midpoint		11.99%	11.41%	10.78%
	Median		9.99%	9.79%	9.79%

**Commission High-End Test**

Median of Full Array Times 1.5 15.30%

**Natural Break Standard**

Subject Value 15.21%

**Part 1: Upper Limit Proximity Test**

Distribution's Average Jump 0.29%

One-Half of the Average Jump 0.14%

Subject Value Delta to Upper Limit 0.09%

Test Met: YES

**Part 2: Distance to Next Highest ROE Value**

Three Times Average Jump 0.86%

Subject Value Distance 1.26%

Test Met: YES

(a) The Value Line Investment Survey ( Mar. 20, May 1, &amp; May 22, 2015).

(b) Computed using the formula  $2 \times (1 + 5\text{-Yr. Change in Equity}) / (2 + 5\text{ Yr. Change in Equity})$ .(c) (a)  $\times$  (b).**Data Source:** Association of Businesses Advocating Tariff Equity, et al., Docket No. EL14-12-002, Cross-Answering Testimony of William E. Avera, PH.D., CFA, Exhibit No. MTO-31.

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