VERIFIED DIRECT TESTIMONY

OF

ADRIEN M. MCKENZIE, CFA

ON BEHALF OF

INDIANAPOLIS POWER & LIGHT COMPANY

D/B/A AES Indiana

Cause No. 45911

INCLUDING ATTACHMENTS 1-11

June 28, 2023

TABLE OF CONTENTS

ATTACHMENTS TO DIRECT TESTIMONY

VERIFIED DIRECT TESTIMONY OF ADRIEN M. MCKENZIE

I. INTRODUCTION

Q1. Please state your name and business address.

A1. Adrien M. McKenzie, 3907 Red River, Austin, Texas, 78751.

Q2. In what capacity are you employed?

A2. I am President of Financial Concepts and Applications, Inc. (FINCAP), a firm providing financial, economic, and policy consulting services to business and government.

Q3. Please describe your educational background and qualifications.

A3. A description of my background and qualifications, including a resume containing the details of my experience, is attached as AES Indiana Attachment AMM-1.

A. Overview

Q4. What is the purpose of your testimony in this case?

A4. The purpose of my testimony is to present to the Commission my independent assessment of the just and reasonable return on equity (ROE) applicable to the historical cost rate base of Indianapolis Power & Light Company (AES Indiana or the Company). In addition, I also examine the reasonableness of AES Indiana's common equity ratio, considering both the specific risks faced by the Company and other industry guidelines.

Q5. Please summarize the information and materials you rely on to support the opinions and conclusions contained in your testimony.

A5. To prepare my testimony, I use information from a variety of sources that would normally be relied upon by a person in my capacity. I am familiar with the organization, finances, and operations of AES Indiana from my participation in prior proceedings before the Indiana Utility Regulatory Commission (IURC). In connection with this filing, I consider and rely upon corporate disclosures, publicly available financial reports and filings, and other published information relating to AES Indiana. I also review information relating generally to capital market conditions and specifically to investor perceptions, requirements and expectations for utilities. These sources,

coupled with my experience in the fields of finance and utility regulation, have given me a working knowledge of the issues relevant to investors' required return for AES Indiana, and they form the basis of my analyses and conclusions.

Q6. How is your testimony organized?

A6. First, I summarize my conclusions and recommendations, giving special attention to the importance of financial strength and the implications of regulatory mechanisms and other risk factors. I also comment on the reasonableness of the Company's proposed capital structure.

Next, I briefly review AES Indiana's operations and finances. I then discuss current conditions in the capital markets and their implications in evaluating a just and reasonable return for the Company. Next, I explain the development of the proxy group of electric utilities used as the basis for my quantitative analyses. With this as a background, I discuss well-accepted quantitative analyses to estimate the current cost of equity for the proxy group of electric utilities. These include the discounted cash flow (DCF) model, the Capital Asset Pricing Model (CAPM), the empirical CAPM (ECAPM), an equity risk premium approach based on allowed ROEs, and reference to expected earned rates of return for electric utilities, which are all methods that are commonly relied on in regulatory proceedings.

Based on the results of my analyses, I evaluate a fair ROE for AES Indiana. My evaluation takes into account the specific risks for the Company's electric operations in Indiana and AES Indiana's requirements for financial strength. Further, consistent with the fact that utilities must compete for capital with firms outside their own industry, I corroborate my utility quantitative analyses by applying the DCF model to a group of low-risk non-utility firms.

B. Summary and Conclusions

Q7. What is your recommended ROE for AES Indiana?

A7. I apply the DCF, CAPM, ECAPM, risk premium, and expected earnings analyses to a proxy group of electric utilities, with the results being summarized on AES Indiana Attachment AMM-2. As shown there, based on the results of my analysis, I recommend a cost of equity range for the Company's electric operations of 10.1% to 11.1%. It is my conclusion that the 10.6% midpoint of this range represents a just and reasonable cost of equity that is adequate to compensate the Company's investors, while maintaining the Company's financial integrity and ability to attract capital on reasonable terms.

As my testimony documents, the electric utilities in my proxy group operate under a wide variety of regulatory mechanisms, including decoupling and infrastructure cost trackers. Similarly, the vast majority of these proxy firms operate in regulatory jurisdictions that allow for future test years, formula rates, and multi-year rate plans. As a result, there is no basis to distinguish AES Indiana's investment risks from the proxy group used as the basis of my analyses.

II. RETURN ON EQUITY FOR AES INDIANA

Q8. What is the purpose of this section?

A8. This section presents my conclusions regarding the fair ROE applicable to AES Indiana's jurisdictional electric utility operations. I also describe the relationship between ROE and preservation of a utility's financial integrity and the ability to attract capital. Finally, I discuss the reasonableness of the Company's capital structure request in this case.

A. Importance of Financial Strength

Q9. What is the role of the ROE in setting a utility's rates?

A9. The ROE is the cost of attracting and retaining common equity investment in the utility's physical plant and assets. This investment is necessary to finance the asset base needed

to provide utility service. Investors commit capital only if they expect to earn a return on their investment commensurate with returns available from alternative investments with comparable risks. Moreover, a just and reasonable ROE is integral in meeting sound regulatory economics and the standards established by the U.S. Supreme Court. The ***Bluefield*** case set the standard against which just and reasonable rates are measured:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. . . . The return should be reasonable, 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 money necessary for the proper discharge of its public duties.[1]

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

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

In summary, the Supreme Court's findings in ***Hope*** and ***Bluefield*** established that a just and reasonable ROE must be sufficient to 1) fairly compensate the utility's investors, 2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and 3) maintain the utility's financial integrity. These standards

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

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

should allow the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through necessary system replacement and expansion, but the Supreme Court's requirements can only be met if the utility has a reasonable opportunity to actually earn its allowed ROE.

While the *Hope* and *Bluefield* decisions did not establish a particular method to be followed in fixing rates (or in determining the allowed ROE),[3] these and subsequent cases enshrined the importance of an end result that meets the opportunity cost standard of finance. Under this doctrine, the required return is established by investors in the capital markets based on expected returns available from comparable risk investments. Coupled with modern financial theory, which has led to the development of formal risk-return models (*e.g.*, DCF and CAPM), practical application of the *Bluefield* and *Hope* standards involves the independent, case-by-case consideration of capital market data in order to evaluate an ROE that will produce a balanced and fair end result for investors and customers.

Q10. Throughout your testimony you refer repeatedly to the concepts of "financial strength," "financial integrity" and "financial flexibility." Would you briefly describe what you mean by these terms?

A10. These terms are generally synonymous and refer to the utility's ability to attract and retain the capital that is necessary to provide service at reasonable cost, consistent with the Supreme Court standards. AES Indiana's plans call for a continuation of capital investments to preserve and enhance service for its customers. The Company must generate adequate cash flow from operations, together with access to capital from external sources, to fund these requirements and for repayment of maturing debt.

Rating agencies and potential debt investors tend to place significant emphasis on maintaining strong financial metrics and credit ratings that support access to debt

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

capital markets under reasonable terms. This emphasis on financial metrics and credit ratings is shared by equity investors who also focus on cash flows, capital structure and liquidity, much like debt investors.

Q11. What part does regulation play in ensuring that AES Indiana has access to capital under reasonable terms and on a sustainable basis?

A11. Regulatory signals are a major driver of investors' risk assessment for utilities. Investors recognize that constructive regulation is a key ingredient in supporting utility credit ratings and financial integrity. Security analysts study commission orders and regulatory policy statements to advise investors about where to put their money. As Moody's Investors Service (Moody's) noted, "the regulatory environment is the most important driver of our outlook because it sets the pace for cost recovery."[4] Similarly, S&P Global Ratings (S&P) observed that, "Regulatory advantage is the most heavily weighted factor when S&P Global Ratings analyzes a regulated utility's business risk profile."[5] The Value Line Investment Survey (Value Line) summarizes these sentiments:

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

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

[4] Moody's Investors Service, *Regulation Will Keep Cash Flow Stable As Major Tax Break Ends*, Industry Outlook (Feb. 19, 2014).

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

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

Q12. Do customers benefit by enhancing the utility's financial flexibility?

A12. Yes. Providing an ROE sufficient to maintain the Company's ability to attract capital under reasonable terms, even in times of financial and market stress, is not only consistent with the economic requirements embodied in the U.S. Supreme Court's *Hope* and *Bluefield* decisions, but it is also in customers' best interests. Customers enjoy the benefits that come from ensuring that the utility has the financial wherewithal to take whatever actions are required to ensure safe and reliable service.

B. Conclusions and Recommendations

Q13. What are your findings regarding the fair ROE for AES Indiana?

A13. Considering the economic requirements necessary to support continuous access to capital under reasonable terms and the results of my analysis, I recommend a 10.6% ROE for AES Indiana's electric utility operations, which is consistent with the case-specific evidence presented in my testimony. The bases for my conclusion are summarized below:

- In order to reflect the risks and prospects associated with AES Indiana's electric utility operations, my analyses focus on a proxy group of twenty-two other electric utilities.
- Because investors' required ROE is unobservable and no single method should be viewed in isolation, I apply the DCF, CAPM, ECAPM, and risk premium methods to estimate a just and reasonable ROE for AES Indiana, as well as referencing the expected earnings approach.
- As summarized on AES Indiana Attachment AMM-2, considering the results of these analyses, and giving less weight to extremes at the high and low ends of the range, I conclude that the cost of equity for a regulated electric utility is in the 10.1% to 11.1% range.
- My ROE recommendation for AES Indiana's electric operations is the midpoint of this range, or 10.6%.[7]

[7] This ROE does not consider issuance costs associated with the sale of common stock. Flotation costs are legitimate business expenses and the lack of an upward adjustment to account for them further supports the reasonableness of my ROE recommendation.

Q14. What did the DCF results for your select group of non-utility firms indicate with respect to your evaluation?

A14. As shown on page 3 of AES Indiana Attachment AMM-11, average DCF estimates for a low-risk group of firms in the competitive sector of the economy ranged from 10.4% to 10.9%. While I did not base my recommendations on these results, they confirm that an ROE of 10.6% falls in a reasonable range to maintain AES Indiana's financial integrity, provide a return commensurate with investments of comparable risk, and support the Company's ability to attract capital.

III. FUNDAMENTAL ANALYSES

Q15. What is the purpose of this section?

A15. This section briefly reviews the operations and finances of AES Indiana. As a predicate to my quantitative analyses, it examines conditions in the capital markets and the general economy. An understanding of the fundamental factors driving the risks and prospects of electric utilities is essential in developing an informed opinion of investors' expectations and requirements that are the basis of a fair rate of return.

A. AES Indiana

Q16. Briefly describe AES Indiana and its utility operations.

A16. AES Indiana is engaged primarily in the generation, transmission, and distribution of electric energy to approximately 519,000 customers in the city of Indianapolis and neighboring areas within the state of Indiana. AES Indiana's service area covers about 528 square miles with a population of approximately 971,000. AES Indiana is a wholly-owned subsidiary of IPALCO Enterprises, Inc. (IPALCO). IPALCO is owned by The AES Corporation (AES) and CDP Infrastructure Fund GP, a wholly-owned subsidiary of La Caisse de depot et placement du Quebec (CDPQ).

AES Indiana owns and operates four generating stations, all within the state of Indiana. AES Indiana's largest generating station, Petersburg, is coal-fired. The

Company retired Petersburg Unit 1 (230 MW) in 2021 and Petersburg Unit 2 (415 MW) in May 2023. In addition to Company-owned generation, AES Indiana helps meet its customers' energy needs with long-term contracts for the purchase of 300 MW of wind-generated electricity and 94 MW of solar-generated electricity. In July 2021, AES Indiana executed an agreement to acquire a 250 MW solar and 180 MWh energy storage facility, which is expected to be completed in 2025. In December 2021, AES Indiana completed the acquisition of Hardy Hills Solar Energy LLC, including the development of a 195 MW solar project that is expected to be completed in 2024. AES Indiana plans to add up to 1,300 MW of wind, solar, and battery energy storage by 2027.

During 2022, residential customers accounted for approximately 39% of the Company's total revenues, with 14% coming from small commercial and industrial customers, and 36% from large commercial and industrial consumers. Wholesale customers accounted for 8% of AES Indiana's total revenues during 2022, with the remaining 3% attributable to other sources. At year-end 2022, AES Indiana had total assets of $5.6 billion, and total revenues of approximately $1.8 billion.

Q17. What credit ratings have been assigned to AES Indiana?

A17. Moody's Investors Service (Moody's) has assigned the Company an issuer rating of Baa1, while S&P Global Ratings (S&P) has assigned a corporate credit rating of BBB to AES Indiana. Fitch Ratings Ltd. (Fitch) has assigned an issuer default rating of BBB+ to the Company.

Q18. Has AES Indiana made significant capital investments in its system?

A18. Yes. As documented in Company's testimony, including the testimony of AES Indiana witnesses Holtsclaw, Bigalbal, and Barbarisi, since the rate base cut-off date in its last rate case, AES Indiana has made significant new investments to replace and modernize its utility infrastructure, comply with environmental mandates and to otherwise meet customer demand and provide adequate and reliable service. In December 2021 and 2022, AES Indiana received equity capital contributions of $275 million and $253

million, respectively, from AES and CDPQ on a proportional share basis to fund replacement of electric utility infrastructure.

Q19. Does AES Indiana anticipate the need for capital going forward?

A19. Yes. The Company must undertake investments for necessary maintenance and expansion of its electric utility system as it continues to provide safe and reliable service to its customers. For 2023 to 2025, AES Indiana is estimating total capital expenditures of approximately $2.0 billion.[8] In addition, the Company remains obligated to repay maturing long-term debt. Continued support for AES Indiana's financial integrity and flexibility will be instrumental in attracting the capital necessary to fund these projects in an effective manner.

B. Outlook for Capital Costs

Q20. Please summarize current economic conditions.

A20. U.S. real GDP contracted 3.4% during 2020, but with the easing of lockdowns accompanying the COVID-19 vaccine rollout, the economic outlook improved significantly in 2021, with GDP growing at a pace of 5.7%. Regional increases in COVID-19 cases, expiration of government assistance payments, and declines in wholesale trade led GDP to contract in the first two quarters of 2022, while expanding exports and higher consumer spending during the last two quarters of 2022 resulted in GDP growth rates of 3.2% and 2.6%, respectively.[9] On a combined basis, these various influences produced a 2.1% increase in real GDP for 2022.[10] Meanwhile, indicators of employment remained stable, with the national unemployment rate falling slightly to 3.5% in March 2023.[11]

[8] IPALCO Enterprises, Inc., Form 10-K Report for Fiscal Year Ended December 31, 2022, at 50.

[9] https://www.bea.gov/news/2023/gross-domestic-product-fourth-quarter-and-year-2022-third-estimate-gdp-industry-and (last visited Apr. 22, 2023).

[10] *Id*.

[11] https://www.bls.gov/news.release/pdf/empsit.pdf (last visited Apr. 16, 2023).

The underlying risk and price pressures associated with the COVID-19 pandemic were overshadowed by a dramatic increase in geopolitical risks in early 2022. These events have also been accompanied by heightened economic uncertainties as inflationary pressures due to COVID-19 supply chain disruptions were further stoked by sharp increases in global commodity prices. The substantial disruption in the energy economy and dramatic rise in inflation led to sharp declines in global equity markets as investors reacted to the related exposures. S&P concluded that:

> The balance of risks is firmly on the downside—with rapid monetary tightening potentially pushing major economies into recession; growing geopolitical tensions exacerbating Europe's energy crisis; lingering high prices pressuring costs and eroding households' purchasing power; and China grappling with structural factors that are undermining its economic growth.[12]

Stimulative monetary and fiscal policies, coupled with supply-chain disruptions and rapid price rises in the energy and commodities markets, led to increasing concern that inflation may remain significantly above the Federal Reserve's longer-run benchmark of 2%. In June 2022, inflation measured by the Consumer Price Index (CPI) peaked at its highest level since November 1981. Since then, CPI inflation has gradually moderated to 5.0% in March 2023.[13] The so-called "core" price index, which excludes more volatile energy and food costs, rose at an annual rate of 5.6% in March 2023. Similarly, inflation measured by the Personal Consumption Expenditures Price Index rose 5.0% in February 2023, or 4.6% after excluding more volatile food and energy costs.[14] As Federal Reserve Chair Powell has noted:

[12] S&P Global Ratings, *Global Credit Conditions Q4 2022: Darkening Horizons*, Comments (Sept. 29, 2022).

[13] https://www.bls.gov/news.release/cpi.nr0.htm (last visited Apr. 14, 2023).

[14] https://www.bea.gov/news/2023/personal-income-and-outlays-february-2023 (last visited Apr. 14, 2023).

> Although inflation has moderated recently, it remains too high. The longer the current bout of high inflation continues, the greater the chance that expectations of higher inflation will become entrenched.[15]

More recently, turmoil in the banking sector has shaken investor confidence and increased volatility in bond and equity markets. The Federal Reserve and U.S. Treasury took quick and dramatic action to shore up banks' liquidity needs and strengthen public confidence in the banking system, but as Moody's noted, "bank stress has added uncertainty to the outlook."[16]

Q21. How have these developments impacted the Federal Reserve's monetary policies?

A21. As of its policy meeting in March 2023, the Federal Open Market Committee (FOMC) has responded to concerns over accelerating inflation by raising the benchmark range for the federal funds rate by a total of 4.75% since March 2022.[17] In addition to these increases, Chair Powell has surmised that the significant draw-down of its balance sheet holdings that began in June 2022 could be the equivalent of another one quarter percent rate hike over the course of a year.[18] Chair Powell noted that, "The process of getting inflation back down to 2 percent has a long way to go and is likely to be bumpy,"[19] with the recent banking crisis amply demonstrating these latent risks.

[15] Federal Reserve, *Transcript of Chair Powell's Press Conference* (Feb. 1, 2023), https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230201.pdf (last visited Feb. 21, 2023).

[16] Moody's Investors Service, *Baseline US macro forecasts unchanged but outlook more uncertain,* Sector Comment (Apr. 12, 2023).

[17] The FOMC is a committee composed of twelve members that serves as the monetary policymaking body of the Federal Reserve System.

[18] Federal Reserve, *Transcript of Chair Powell's Press Conference* (May 4, 2022), https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20220504.pdf.

[19] https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230322.pdf.

Q22. What impact do rising inflation expectations have on the return that equity investors require from AES Indiana?

A22. Implicit in the required rate of return for long-term capital—whether debt or common equity—is compensation for expected inflation. This is highlighted in the textbook, *Financial Management, Theory and Practice*:

> The four most fundamental factors affecting the cost of money are (1) production opportunities, (2) time preferences for consumption, (3) risk, and (4) inflation.[20]

In other words, a part of investors' required return is intended to compensate for the erosion of purchasing power due to rising price levels. This inflation premium is added to the real rate of return (pure risk-free rate plus risk premium) to determine the nominal required return. As a result, higher inflation expectations lead to an increase in the cost of equity capital.

Q23. Have these developments impacted the risks faced by utilities and their investors?

A23. Yes. Concerns over weakening credit quality prompted S&P to revise its outlook for the regulated utility industry from "stable" to "negative."[21] As S&P explained:

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

Meanwhile, rising inflation expectations also pose a challenge for utilities, with S&P recently noting that "the threat of inflation comes at a time when credit metrics are

[20] Eugene F. Brigham, Louis C. Gapenski, and Michael C. Ehrhardt, *Financial Management, Theory and Practice*, Ninth Edition (1999) at 126.

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

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

already under pressure relative to downside ratings thresholds."[23] S&P noted that "risk will continue to pressure the credit quality of the industry in 2022."[24] As S&P elaborated:

> Recently, several new credit risks have emerged, including inflation, higher interest rates, and rising commodity prices. Persistent pressure from any of these risks would likely lead to a further weakening of the industry's credit quality in 2022.[25]

Similarly, on November 10, 2022, Moody's revised its outlook for the regulated utilities sector to "negative" from "stable," citing "increasingly challenging business and financial conditions stemming from higher natural gas prices, inflation and rising interest rates."[26] In affirming its negative outlook on the industry, S&P recently cited weak financial measures, rising energy prices and capital spending, and increased environmental risks as key challenges, noting that, "The industry outlook remains negative and has been negative since early 2020."[27]

Q24. Do changes in utility company beta values corroborate an increase in industry risk?

A24. Yes. Beta measures a stock's price volatility relative to the market as a whole, and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory, and is widely

[23] S&P Global Ratings, *Will Rising Inflation Threaten North American Investor-Owned Regulated Utilities' Credit Quality?* (Jul. 20, 2021).

[24] S&P Global Ratings, *For The First Time Ever, The Median Investor-Owned Utility Ratings Falls To The 'BBB' Category*, RatingsDirect (Jan. 20, 2022).

[25] *Id*.

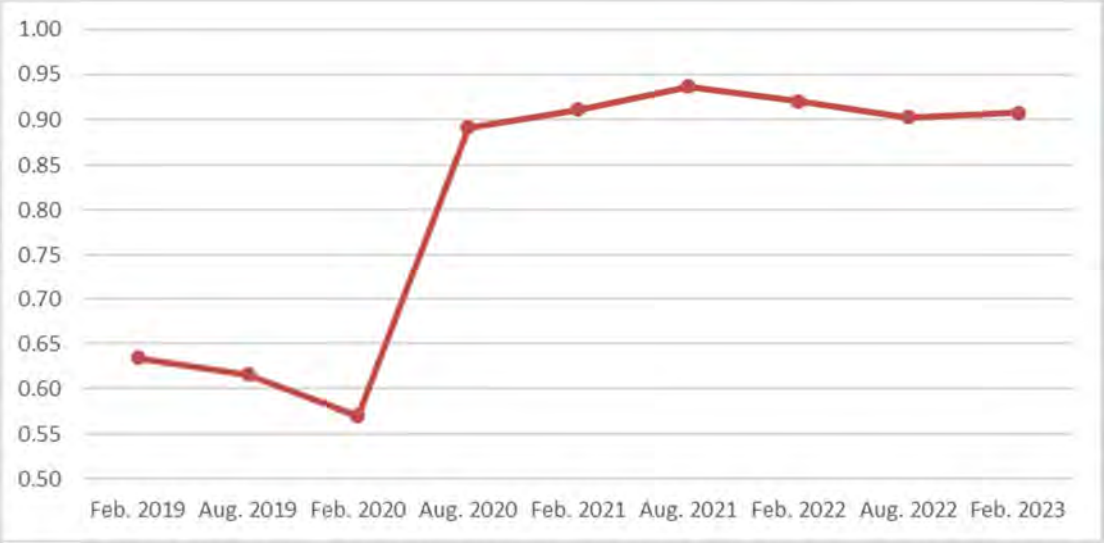
[26] Moody's Investors Service, *Regulated Gas Utilities--US, 2023 outlook negative due to higher natural gas prices, inflation and rising interest rates,* Outlook (Nov. 10, 2022).

[27] S&P Global Ratings, *North American Regulated Utilities, The industry's outlook remains negative,* Industry Top Trends (Jan. 23, 2023).

cited in academics and in the investment industry as a guide to investors' risk perceptions.

As shown subsequently in Table 3, the average beta for the Electric Group is 0.90.[28] During the first quarter of 2020, the average beta for this same group of electric utilities was 0.57.[29] The significant shift in pre- and post-pandemic beta values for the Electric Group is further exemplified in Figure 1 below. As illustrated there, the average beta value for the Electric Group increased significantly during the second quarter of 2020, continued to increase during 2021, and has remained elevated. This dramatic increase in a primary gauge of investors' risk perceptions is further proof that the risk of utility common stocks has increased.

FIGURE 1
ELECTRIC GROUP BETA VALUES



Q25. Have increased risks and higher inflation resulted in higher capital costs?

A25. Yes. While the cost of equity is not directly observable, yields on long-term bonds provide a widely referenced benchmark for the direction of capital costs, including required returns on common stocks. Table 1 below compares the average yields on

[28] As indicated on AES Indiana Attachment AMM-8, this is based on data as of January 6, 2023.

[29] The Value Line Investment Survey, *Summary & Index* (Feb. 14, 2020).

Treasury securities and Baa-rated public utility bonds during March 2023 with those prevailing in 2021.

TABLE 1
BOND YIELD TRENDS

Series	March 2023	2021	Change (bps)
10-Year Treasury Bonds	3.66%	1.44%	222
30-Year Treasury Bonds	3.77%	2.05%	172
Baa Utility Bonds	5.68%	3.35%	233

Source: https://fred.stlouisfed.org/series/GS30; Moody's Credit Trends.

As shown above, trends in bond yields document a substantial increase in the returns on long-term capital demanded by investors. With respect to utility bond yields—which are the most relevant indicator to gauge the impact on the cost of equity—average yields are now over 230 basis points above the level prevailing during 2021.

Q26. What are the implications of these trends in evaluating a fair ROE for AES Indiana?

A26. The upward move in interest rates suggests that long-term capital costs—including the cost of equity—have increased significantly. Exposure to rising interest rates, inflation, and capital expenditure requirements also reinforce the importance of buttressing AES Indiana's credit standing. Considering the potential for financial market instability, competition with other investment alternatives, and investors' sensitivity to risk exposures in the utility industry, credit strength is a key ingredient in maintaining access to capital at reasonable cost.

Q27. Would it be reasonable to disregard the implications of current capital market conditions in establishing a fair ROE for AES Indiana?

A27. No. They reflect the reality in which AES Indiana must attract and retain capital. The standards underlying a fair rate of return require an authorized ROE for the Company that is competitive with other investments of comparable risk and sufficient to preserve its ability to maintain access to capital on reasonable terms. These standards can only be met by considering the requirements of investors over the time period when the rates established in this proceeding will be in effect. If the upward shift in investors' risk perceptions and required rates of return for long-term capital is not incorporated in the allowed ROE, the results will fail to meet the comparable earnings standard that is fundamental in determining the cost of capital. From a more practical perspective, failing to provide investors with the opportunity to earn a rate of return commensurate with AES Indiana's risks will weaken its financial integrity, while hampering the Company's ability to attract the necessary capital.

IV. COMPARABLE RISK PROXY GROUP

Q28. What is the purpose of this section of your testimony?

A28. This section explains the basis of the proxy group of publicly traded companies I use to estimate the cost of equity, examines alternative objective indicators of investment risk for these firms, and compares the investment risks applicable to AES Indiana with my reference group.

Q29. What key principles underpin the evaluation of a proxy group?

A29. The United States Supreme Court's *Hope* and *Bluefield* decisions[30] establish a standard of comparison between a subject utility and other companies based on comparable risk. The generally accepted approach is to select a group of companies that are of similar risk to the subject utility, and then to perform various quantitative analyses based on this

[30] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923) (*Bluefield*); *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) (*Hope*).

proxy group to estimate investors' required returns. The results of these analyses, in turn, are used to evaluate a range of reasonableness and a final recommendation for the ROE attributable to the subject utility.

Q30. As an initial matter, does the fact that AES Indiana is a wholly owned subsidiary alter these fundamental standards?

A30. No. While the Company has no publicly traded common stock and IPALCO is AES Indiana's only shareholder, this does not change the standards governing the determination of a just and reasonable ROE for the Company. Ultimately, the common equity required to support AES Indiana's utility operations must be raised in the capital markets, where investors consider the Company's ability to offer a rate of return that is competitive with other risk-comparable alternatives. AES Indiana must compete with other investment opportunities and unless there is a reasonable expectation that investors will have the opportunity to earn returns that compensate for the underlying risks, capital will be allocated elsewhere, the Company's financial integrity will weaken, and investors will demand an even higher rate of return.

A. Determination of the Proxy Group

Q31. How do you implement quantitative methods to estimate the cost of common equity for AES Indiana?

A31. Application of quantitative methods to estimate the cost of common equity requires observable capital market data, such as stock prices and beta values. Moreover, even for a firm with publicly traded stock, the cost of common equity can only be estimated. As a result, applying quantitative models using observable market data only produces an estimate that inherently includes some degree of observation error. Thus, the accepted approach to increase confidence in the results is to apply quantitative methods to a proxy group of publicly traded companies that investors regard as risk-comparable.

The results of the analysis on the sample of companies are relied upon to establish a range of reasonableness for the cost of equity for the specific company at issue.

Q32. How do you identify the proxy group of electric utilities relied on for your analyses?

A32. To reflect the risks and prospects associated with AES Indiana's jurisdictional electric operations, I begin with those companies included in the Electric Utility industry groups compiled by Value Line.[31] Value Line is one of the most widely available sources of investment advisory information, and its industry groups provide an objective source to identify publicly traded firms that investors would regard to be similar in operations. I then apply the following criteria to identify a proxy group of utilities:

1. Corporate credit ratings from Moody's and S&P within one notch of the Company's current ratings. For Moody's, this resulted in a ratings range of Baa2, Baa1, and A3; for S&P the range is BBB-, BBB, and BBB+.
2. No cuts in common dividend payments during the past six months and no announcement of a dividend cut since that time.
3. No ongoing involvement in a major merger or acquisition that would distort quantitative results.

These criteria result in a proxy group composed of twenty-two companies, which I refer to as the "Electric Group."

B. Regulatory Mechanisms

Q33. Would investors consider the implications of regulatory mechanisms in evaluating a utility's relative risks?

A33. Yes. In response to increasing sensitivity over fluctuations in costs and the importance of advancing other public interest goals such as reliability, energy conservation, and safety, utilities and their regulators have sought to mitigate cost recovery uncertainty and align the interest of utilities and their customers. As a result, decoupling mechanisms, cost trackers, and future test years have been increasingly prevalent in the

[31] In addition to the companies included in Value Line's electric utility industry groups, I also considered Algonquin Power & Utilities Company and Emera, Inc, which would both be regarded as comparable utility investment opportunities by investors. Neither of these companies met my required screening criteria.

utility industry, along with alternatives to traditional ratemaking such as formula rates and multi-year rate plans. S&P Global Market Intelligence, *RRA Regulatory Focus* (RRA) concluded in its most recent review of adjustment clauses that:

> More recently and with greater frequency, commissions have approved mechanisms that permit the costs associated with the construction of new generation or delivery infrastructure to be used, effectively including these items in rate base without the need for a full rate case. In some instances, these mechanisms may even provide the utilities a cash return on construction work in progress.
>
> . . . [C]ertain types of adjustment clauses are more prevalent than others. For example, those that address electric fuel and gas commodity charges are in place in all jurisdictions. Also, about two-thirds of all utilities have riders in place to recover costs related to energy efficiency programs, and roughly half of the utilities have some type of decoupling mechanism in place.[32]

Q34. What regulatory mechanisms have been approved for AES Indiana?

A34. The Company's rates include rate adjustment mechanisms that reflect some but not all of the Company's cost of providing retail electric service, such as changes in fuel costs, power purchase costs (including wind and solar), demand-side management costs, costs incurred to comply with environmental laws and regulations, and changes in wholesale transmission costs.[33]

In addition, the Transmission, Distribution, and Storage System Improvement Charge (TDSIC) provides for cost recovery outside a base rate proceeding for new or replacement electric transmission, distribution, and storage projects that a public utility undertakes for the purposes of safety, reliability, system modernization, or economic development. Provisions of the TDSIC statute require that requests for recovery include a plan of at least five years and not more than seven for eligible investments. Once a plan is approved by the IURC, eighty percent of eligible costs can be recovered using a

[32] S&P Global Market Intelligence, *Adjustment Clause: A state-by-state overview*, RRA Regulatory Focus (Jul. 18, 2022).

[33] The Company is a member of the Midcontinent Independent System Operator, Inc. (MISO), a regional transmission organization.

periodic rate adjustment mechanism, referred to as a TDSIC mechanism. The remaining twenty percent of recoverable costs are deferred for future recovery in the public utility's next base rate case. The TDSIC mechanism is capped at an annual increase of two percent of total retail revenues.

Q35. Do the regulatory mechanisms approved for AES Indiana set it apart from other firms operating in the utility industry?

A35. No. A broad array of adjustment mechanisms is also available to the companies in my proxy group of electric utilities. As documented on AES Indiana Attachment AMM-3, the companies in my Electric Group operate under a wide variety of cost adjustment mechanisms, which encompass revenue decoupling and adjustment clauses designed to address rising capital investment outside of a traditional rate case, increasing costs of environmental compliance measures, as well as riders to address the costs of energy conservation programs, bad debt expenses, certain taxes and fees, post-retirement employee benefit costs and transmission-related charges.

Thus, while investors would consider AES Indiana's regulatory mechanisms—including the TDSIC mechanism—to be supportive of the Company's financial integrity, this does not provide a basis to distinguish the risks of AES Indiana from the utilities in my Electric Group.

C. Capital Structure

Q36. Is an evaluation of a utility's capital structure relevant in assessing its return on equity?

A36. Yes. Other things equal, a higher debt ratio and lower common equity ratio, translates into increased financial risk for all investors. A greater amount of debt means more investors have a senior claim on available cash flow, thereby reducing the certainty that each will receive their contractual payments. This increases the risks to which lenders are exposed, and they require correspondingly higher rates of interest. From a common

shareholder's standpoint, a higher debt ratio means that there are proportionately more investors ahead of them, thereby increasing the uncertainty as to the amount of cash flow that will remain.

Q37. What common equity ratio is implicit in AES Indiana's capital structure?

A37. The capital structure used to compute the overall rate of return for AES Indiana includes 44.69% common equity, which is equivalent to an equity ratio of approximately 47.44% after excluding cost-free items and tax credit balances.[34]

Q38. How does this compare to the average equity ratios maintained by the Electric Group?

A38. As shown on page 1 of AES Indiana Attachment AMM-4, common equity ratios for the individual firms in the Electric Group ranged between 33.0% and 63.5% and averaged 44.0%. Meanwhile, the three-to-five year forecasts published by Value Line result in common equity ratios ranging from 32.0% to 59.5% for the Electric Group, with an average of 45.0%.

Q39. Are there other industry benchmarks that are more relevant in evaluating AES Indiana's capital structure?

A39. Yes. Because this proceeding focuses on the ROE for the regulated electric utility operations of AES Indiana, the capital structures maintained by other operating electric utilities provide a consistent basis of comparison.

Q40. What capitalization ratios are maintained by comparable utility operating companies?

A40. Pages 2 and 3 of AES Indiana Attachment AMM-4 display capital structure data for the group of electric utility operating companies owned by the firms in the Electric Group. As shown there, common equity ratios for these utilities range from 40.1% to 60.9%

[34] This 47.44% equity ratio is based on AES Indiana's long-term sources of investor-supplied financing—long-term debt and common equity—which are the appropriate basis for industry comparisons. As shown on AES Indiana Financial Exhibit AESI-CC, Schedule CC2, common equity represents 44.69% of AES Indiana's ratemaking capital structure.

and average 51.5%. This benchmark provides a direct guide to financing policies that are consistent with industry-specific risks and the need to maintain adequate borrowing capacity and financial flexibility.

Q41. Do ongoing economic and capital market uncertainties also influence the appropriate capital structure for AES Indiana?

A41. Yes. Financial flexibility plays a crucial role in ensuring the wherewithal of a utility to meet funding needs. Utilities with higher financial leverage may be foreclosed from or have limited access to additional borrowing, especially during times of financial market stress. As Moody's observed:

> Utilities are among the largest debt issuers in the corporate universe and typically require consistent access to capital markets to assure adequate sources of funding and to maintain financial flexibility. During times of distress and when capital markets are exceedingly volatile and tight, liquidity becomes critically important because access to capital markets may be difficult.[35]

S&P recently reiterated these concerns, noting that:

> Because of the industry's high capital spending and consistent dividends, negative discretionary cashflow is regularly more than $100 billion annually. To fund this large deficit, the industry requires consistent access to the capital markets. Rising interest rates, decreasing equity prices, and inflation could hamper consistent access to the capital markets, potentially pressuring credit quality.[36]

As a result, the Company's capital structure must maintain adequate equity to preserve the flexibility necessary to maintain continuous access to capital even during times of unfavorable energy or financial market conditions.

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

[36] S&P Global Ratings. *North American Regulated Utilities, The industry's outlook remains negative*, Industry Top Trends (Jan. 23, 2023).

Q42. What other factors do investors consider in their assessment of a company's capital structure?

A42. Utilities, including AES Indiana, are facing significant capital investment plans. Coupled with the potential for turmoil in capital markets, this warrants a stronger balance sheet to deal with an uncertain environment. As S&P recently noted:

> Under our base case, we expect that by 2024 the industry's capital spending will exceed $180 billion. Because of the industry's continued robust capital spending, we expect that industry will continue to generate negative discretionary cash flow. This requires that the industry has consistent access to the capital markets to finance capital spending and dividends requirements.[37]

In addition, the investment community also considers the impact of other considerations, such as operating leases and asset retirement obligations, in its evaluation of a utility's financial standing.

A conservative financial profile, in the form of a reasonable common equity ratio, is consistent with the need to accommodate these uncertainties and maintain continuous access to capital under reasonable terms that is required to fund operations and necessary system investment, even during times of adverse capital market conditions.

Q43. What does this evidence suggest with respect to AES Indiana's proposed capital structure?

A43. AES Indiana's ratemaking capital structure falls within the range of capital structure ratios maintained by the proxy group and is consistent with industry benchmarks for other electric utility operating companies. While industry averages provide one benchmark for comparison, each firm must select its capitalization based on the risks and prospects it faces, as well as its specific needs to access the capital markets. AES Indiana's proposed capital structure reflects the Company's ongoing efforts to maintain

[37] S&P Global Ratings, *For The First Time Ever, The Median Investor-Owned Utility Ratings Falls To The 'BBB' Category*, RatingsDirect (Jan. 20, 2022).

its credit standing and support access to capital on reasonable terms. The reasonableness of the Company's capital structure is reinforced by the ongoing uncertainties associated with the utility industry and the importance of supporting continued system investment, even during times of adverse industry or market conditions. Based on this evidence, I conclude that the Company's capital structure represents a reasonable mix of capital sources from which to calculate AES Indiana's overall rate of return.

V. CAPITAL MARKET ESTIMATES AND ANALYSES

Q44. What is the purpose of this section of your testimony?

A44. This section presents capital market estimates of the cost of equity. First, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. Next, I describe the quantitative analyses I conducted to estimate the cost of common equity for the Electric Group.

A. Economic Standards

Q45. What fundamental economic principle underlies the cost of equity concept?

A45. The concept of the cost of equity is based on the tenet that investors are risk averse. In capital markets where relatively risk-free assets are available (e.g., U.S. Treasury securities), investors will hold riskier assets only if they are offered an additional return, or risk premium, above the rate of return on a risk-free asset. Because all assets compete for investor funds, riskier assets must yield a higher expected rate of return than safer assets to induce investors to invest and hold them.

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

$$k_i = Rf + RP_i$$

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

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

Q46. Is there evidence that the risk-return tradeoff principle actually operates in the capital markets?

A46. Yes. The risk-return tradeoff can be documented in segments of the capital markets where required rates of return can be directly inferred from market data and where generally accepted measures of risk exist. Bond yields, for example, reflect investors' expected rates of return, and bond ratings measure the risk of individual bond issues. Comparing the observed yields on government securities, which are considered free of default risk, to the yields on bonds of various rating categories demonstrates that the risk-return tradeoff does, in fact, exist.

Q47. Does the risk-return tradeoff observed with fixed income securities extend to common stocks and other assets?

A47. It is widely accepted that the risk-return tradeoff evidenced with long-term debt extends to all assets. Documenting the risk-return tradeoff for assets other than fixed income securities, however, is complicated by two factors. First, there is no standard measure of risk applicable to all assets. Second, for most assets—including common stock—required rates of return cannot be observed. Yet there is every reason to believe that investors demonstrate risk aversion in deciding whether or not to hold common stocks and other assets, just as when choosing among fixed-income securities.

Q48. Is this risk-return tradeoff limited to differences between firms?

A48. No. The risk-return tradeoff principle applies not only to investments in different firms, but also to different securities issued by the same firm. The securities issued by a utility

vary considerably in risk because they have different characteristics and priorities. As noted earlier, the last investors in line are common shareholders. They share in the net earnings, if any, that remain after all other claimants have been paid. As a result, the rate of return that investors require from a utility's common stock, the most junior and riskiest of its securities, must be considerably higher than the yield offered by the utility's senior, long-term debt.

Q49. What are the challenges in determining a just and reasonable ROE for a utility?

A49. The actual return investors require is not directly observable. Different methodologies have been developed to estimate investors' expected return on capital, but these theoretical tools produce a range of estimates, based on different assumptions and inputs. The DCF method, which is frequently referenced and relied on by regulators, is only one theoretical approach to evaluate the return investors require. There are a number of other accepted methodologies for estimating the cost of capital and the ranges produced by these approaches can vary widely.

Q50. Is it customary to consider the results of multiple methods when evaluating a just and reasonable ROE?

A50. Yes. In my experience, financial analysts and regulators routinely consider the results of alternative approaches in evaluating a fair ROE. No single method can be regarded as failsafe, with all approaches having advantages and shortcomings. As the Federal Energy Regulatory Commission (FERC) has noted, "[t]he determination of rate of return on equity starts from the premise that there is no single approach or methodology for determining the correct rate of return."[38] Similarly, a publication of the Society of Utility and Regulatory Financial Analysts concluded that:

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

> Each model requires the exercise of judgment as to the reasonableness of the underlying assumptions of the methodology and on the reasonableness of the proxies used to validate the theory. Each model has its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises, most of which cannot be validated empirically. Investors clearly do not subscribe to any singular method, nor does the stock price reflect the application of any one single method by investors.[39]

As this treatise observed, "no single model is so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models."[40] Similarly, ***New Regulatory Finance*** concluded that:

> There is no single model that conclusively determines or estimates the expected return for an individual firm. Each methodology possesses its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises that cannot be validated empirically. Investors do not necessarily subscribe to any one method, nor does the stock price reflect the application of any one single method by the price-setting investor. There is no monopoly as to which method is used by investors. In the absence of any hard evidence as to which method outdoes the other, all relevant evidence should be used and weighted equally, in order to minimize judgmental error, measurement error, and conceptual infirmities.[41]

Thus, while the DCF model is a recognized approach, it is not without shortcomings and does not otherwise eliminate the need to ensure that the "end result" is fair. The IURC has recognized this principle:

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

[40] ***Id.***

[41] Roger A. Morin, ***New Regulatory Finance***, Pub. Utils. Reports, Inc. (2006) at 429.

> There are three principal reasons for our unwillingness to place a great deal of weight on the results of any DCF analysis. One is. . . the failure of the DCF model to conform to reality. The second is the undeniable fact that rarely if ever do two expert witnesses agree on the terms of a DCF equation for the same utility – for example, as we shall see in more detail below, projections of future dividend cash flow and anticipated price appreciation of the stock can vary widely. And, the third reason is that the unadjusted DCF result is almost always well below what any informed financial analysis would regard as defensible, and therefore require an upward adjustment based largely on the expert witness's judgment. In these circumstances, we find it difficult to regard the results of a DCF computation as any more than suggestive.[42]

More recently, FERC recognized the potential for any application of the DCF model to produce unreliable results.[43]

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

Q51. What does this discussion imply with respect to estimating the ROE for a utility?

A51. Although the ROE cannot be observed directly, it is a function of the returns available from other alternatives and the risks of the investment. Because it is not readily observable, the ROE for a particular utility must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the company specifically, and employing alternative quantitative methods that focus on investors' required rates of return. These methods typically attempt to infer investors' required rates of return from stock prices, interest rates, or other capital market data.

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

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

B. Discounted Cash Flow Analysis

Q52. How is the DCF model used to estimate the cost of common equity?

A52. DCF models are based on the assumption that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return. Rather than developing annual estimates of cash flows into perpetuity, the DCF model can be simplified to a "constant growth" form:[44]

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

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

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

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

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

[44] The constant growth DCF model is dependent on a number of strict assumptions, which in practice are never met. These include a constant growth rate for both dividends and earnings; a stable dividend payout ratio; the discount rate exceeds the growth rate; a constant growth rate for book value and price; a constant earned rate of return on book value; no sales of stock at a price above or below book value; a constant price-earnings ratio; a constant discount rate (*i.e.*, no changes in risk or interest rate levels and a flat yield curve); and all of the above extend to infinity. Nevertheless, the DCF method provides a workable and practical approach to estimate investors' required return that is widely referenced in utility ratemaking.

Q53. What steps are required to apply the constant growth DCF model?

A53. The first step in implementing the constant growth DCF model is to determine the expected dividend yield (D_1/P_0) for the firm in question. This is usually calculated based on an estimate of dividends to be paid in the coming year divided by the current price of the stock. The second, and more controversial, step is to estimate investors' long-term growth expectations (g) for the firm. The final step is to add the firm's dividend yield and estimated growth rate to arrive at an estimate of its cost of common equity.

Q54. How do you determine the dividend yields for the utilities in the Electric Group?

A54. I rely on Value Line's estimates of dividends to be paid by each of these utilities over the next twelve months as D_1. This annual dividend is then divided by a 30-day average stock price for each utility to arrive at the expected dividend yield. The expected dividends, stock prices, and resulting dividend yields for the firms in the Electric Group are presented on page 1 of AES Indiana Attachment AMM-5. As shown there, dividend yields for the firms in the Electric Group range from 2.5% to 5.0% and averaged 3.8%.

Q55. What is the next step in applying the constant growth DCF model?

A55. The next step is to evaluate long-term growth expectations, or "g", for the firm in question. In constant growth DCF theory, earnings, dividends, book value, and market price are all assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. But implementation of the DCF model is more than just a theoretical exercise; it is an attempt to replicate the mechanism investors used to arrive at observable stock prices. A variety of techniques can be used to derive growth rates, but the only "*g*" that matters in applying the DCF model is the value that investors expect.

Q56. What are investors most likely to consider in developing their long-term growth expectations?

A56. Implementation of the DCF model is solely concerned with replicating the forward-looking evaluation of real-world investors. In the case of utilities, dividend growth rates are not likely to provide a meaningful guide to investors' current growth expectations.

Utility dividend policies reflect the need to accommodate business risks and investment requirements in the industry, as well as potential uncertainties in the capital markets. As a result, dividend growth in the utility industry generally lags growth in earnings as utilities conserve financial resources.

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

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

Q57. Do the growth rate projections of security analysts also consider historical trends?

A57. Yes. Professional security analysts study historical trends extensively in developing their projections of future earnings. To the extent there is any useful information in historical patterns, that information is incorporated into analysts' growth forecasts.

Q58. What growth rates are security analysts currently projecting for the firms in the proxy group?

A58. The earnings growth projections for each of the firms in the Electric Group reported by Value Line, IBES,[45] and Zacks Investment Research (Zacks) are displayed on page 2 of AES Indiana Attachment AMM-5.

Q59. How else are investors' expectations of future long-term growth prospects sometimes estimated when applying the constant growth DCF model?

A59. In constant growth theory, growth in book equity will be equal to the product of the earnings retention ratio (one minus the dividend payout ratio) and the earned rate of return on book equity. Furthermore, if the earned rate of return and the payout ratio are constant over time, growth in earnings and dividends will be equal to growth in book value. Despite the fact that these conditions are never met in practice, this "sustainable growth" approach may provide a rough guide for evaluating a firm's growth prospects and is frequently proposed in regulatory proceedings.

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

The sustainable growth rate analysis shown on AES Indiana Attachment AMM-6 incorporates an "adjustment factor" because Value Line's reported returns are based on year-end book values. Since earnings is a flow over the year while book value is

[45] Formerly Institutional Brokers Estimate System, IBES growth rates are now compiled and published by Refinitiv.

determined at a given point in time, the measurement of earnings and book value are distinct concepts. It is this fundamental difference between a flow (earnings) and point estimate (book value) that makes it necessary to adjust to mid-year in calculating the ROE. Given that book value will increase or decrease over the year, using year-end book value (as Value Line does) understates or overstates the average investment that corresponds to the flow of earnings. To address this concern, earnings must be matched with a corresponding representative measure of book value, or the resulting ROE will be distorted. The adjustment factor determined in AES Indiana Attachment AMM-6 is solely a means of converting Value Line's end-of-period values to an average return over the year, and the formula for this adjustment is supported in recognized textbooks and has been adopted by other regulators.[46]

Q60. Are there significant shortcomings associated with the "br+sv" growth rate?

A60. Yes. First, in order to calculate the sustainable growth rate, it is necessary to develop estimates of investors' expectations for four separate variables; namely, "b", "r", "s", and "v." Given the inherent difficulty in forecasting each parameter and the difficulty of estimating the expectations of investors, the potential for measurement error is significantly increased when using four variables, as opposed to referencing a direct projection for EPS growth. Second, empirical research in the finance literature indicates that sustainable growth rates are not as significantly correlated to measures of value, such as share prices, as are analysts' EPS growth forecasts.[47] The "sustainable growth" approach is included for completeness, but evidence indicates that analysts' forecasts provide a superior and more direct guide to investors' growth expectations. Accordingly, I give less weight to cost of equity estimates based on br+sv growth rates in evaluating the results of the DCF model.

[46] *See,* Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 305-306; *Bangor Hydro-Electric Co. et al.*, 122 FERC ¶ 61,265 at n.12 (2008).

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

Q61. What cost of common equity estimates are implied for the Electric Group using the DCF model?

A61. After combining the dividend yields and respective growth projections for each utility, the resulting cost of common equity estimates are shown on page 3 of AES Indiana Attachment AMM-5.

Q62. In evaluating the results of the constant growth DCF model, is it appropriate to eliminate illogical estimates at the extreme low or high end of the range?

A62. Yes. It is essential that the cost of equity estimates produced by quantitative methods pass fundamental tests of reasonableness and economic logic. Accordingly, DCF estimates that are implausibly low or high should be eliminated.

Q63. Have other regulators employed such tests?

A63. Yes. FERC has noted that adjustments are justified where applications of the DCF approach and other methods produce illogical results. FERC evaluates low-end DCF results against observable yields on long-term public utility debt and has recognized that it is appropriate to eliminate estimates that do not sufficiently exceed this threshold.[48] FERC's current practice is to exclude low-end cost of estimates that fall below the six-month average yield on Baa-rated utility bonds, plus 20% of the CAPM market risk premium.[49] In addition, FERC also excludes estimates that are "irrationally or anomalously high."[50] Similarly, the Staff of the Maryland Public Service Commission (MDPSC) has also eliminated DCF values where they do not offer a sufficient premium above the cost of debt to be attractive to an equity investor.[51]

[48] *See, e.g., Southern California Edison Co.*, 131 FERC ¶ 61,020 at P 55 (2010).

[49] Based on the six-month average yield at March 2023 of 5.75% and the 7.8% market risk premium shown on AES Indiana Attachment AMM-8, this implies a current low-end threshold of approximately 7.3%.

[50] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 171 FERC ¶ 61,154 at P 152 (2020).

[51] See, *e.g.*, Maryland Public Service Commission, Case No. 9670, *Direct Testimony and Exhibits of Drew M. McAuliffe* (Dec. 2, 2021) at 15-16.

Q64. Do you exclude any estimates at the low or high end of the range of DCF results?

A64. Yes. As highlighted on page 3 of AES Indiana Attachment AMM-5, after considering these benchmarks and the distribution of individual estimates, I eliminate low-end DCF estimates ranging from -7.6% to 7.3%, as well as high-end DCF results of 20.4% and 19.8%. After removing these illogical values, the lower end of the DCF results is set by a cost of equity estimate of 7.4%, while the upper end is established by a cost of equity estimate of 14.9%. While a 14.9% cost of equity estimate may exceed the other values, low-end DCF estimates in the 7.4% to 8.1% range are assuredly far below investors' required rate of return. Taken together and considered along with the balance of the results, the remaining values provide a reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

Q65. What cost of equity estimates are implied by your DCF results for the Electric Group?

A65. As shown on page 3 of AES Indiana Attachment AMM-5 and summarized in Table 2, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following ROE estimates:

TABLE 2
DCF RESULTS – ELECTRIC GROUP

Growth Rate	Average	Midpoint
Value Line	9.2%	9.4%
IBES	10.3%	10.2%
Zacks	10.0%	11.5%
br + sv	9.1%	9.3%

C. Capital Asset Pricing Model

Q66. Please describe the CAPM.

A66. The CAPM is a theory of market equilibrium that measures risk using the beta coefficient. Assuming investors are fully diversified, the relevant risk of an individual asset (e.g., common stock) is its volatility relative to the market as a whole, with beta

reflecting the tendency of a firm's stock price to follow changes in the market. A stock that tends to respond less to market movements has a beta of less than 1.0, while stocks that tend to move more than the market have betas greater than 1.0. The CAPM is mathematically expressed as:

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

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

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

Q67. Why is the CAPM approach relevant when evaluating the cost of equity for AES Indiana?

A67. The CAPM approach (which also forms the foundation of the ECAPM) generally is considered to be the most widely referenced method for estimating the cost of equity among academicians and professional practitioners, with the pioneering researchers of this method receiving the Nobel Prize in 1990. Because this is the dominant model for estimating the cost of equity outside the regulatory sphere, the CAPM (and ECAPM) provides important insight into investors' required rate of return for utility stocks.

Q68. How do you apply the CAPM to estimate the ROE?

A68. Application of the CAPM to the Electric Group based on a forward-looking estimate for investors' required rate of return from common stocks is presented in AES Indiana

Attachment AMM-7. In order to capture the expectations of today's investors in current capital markets, the expected market rate of return is estimated by conducting a DCF analysis on the dividend paying firms in the S&P 500.

The dividend yield for each firm is obtained from Value Line, and the growth rate is equal to the average of the earnings growth projections for each firm published by IBES, Value Line, and Zacks, with each firm's dividend yield and growth rate being weighted by its proportionate share of total market value. After removing companies with growth rates that were negative or greater than 20%, the weighted average of the projections for the individual firms implies an average growth rate over the next five years of 9.5%. Combining this average growth rate with a year-ahead dividend yield of 2.1% results in a current cost of common equity estimate for the market as a whole (R_m) of 11.6%. Subtracting a 3.8% risk-free rate based on the average yield on 30-year Treasury bonds for the six-months ending March 2023 produces a market equity risk premium of 7.8%.

Q69. What is the source of the beta values you use to apply the CAPM?

A69. I rely on the beta values reported by Value Line, which in my experience is the most widely referenced source for beta in regulatory proceedings. As noted in *New Regulatory Finance*:

> Value Line is the largest and most widely circulated independent investment advisory service, and influences the expectations of a large number of institutional and individual investors. … Value Line betas are computed on a theoretically sound basis using a broadly based market index, and they are adjusted for the regression tendency of betas to converge to 1.00.[52]

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

Q70. What else should be considered when applying the CAPM?

A70. Financial research indicates that the CAPM does not fully account for observed differences in rates of return attributable to firm size. Accordingly, a modification is required to account for this size effect. As explained by Morningstar:

> One of the most remarkable discoveries of modern finance is the finding of a relationship between firm size and return. On average, small companies have higher returns than large ones. . . . The relationship between firm size and return cuts across the entire size spectrum; it is not restricted to the smallest stocks.[53]

According to the CAPM, the expected return on a security should consist of the riskless rate, plus a premium to compensate for the systematic risk of the particular security. The degree of systematic risk is represented by the beta coefficient. The need for the size adjustment arises because differences in investors' required rates of return that are related to firm size are not fully captured by beta. To account for this, researchers have developed size premiums that need to be added to account for the level of a firm's market capitalization in determining the CAPM cost of equity.[54] Accordingly, my CAPM analysis also incorporates an adjustment to recognize the impact of size distinctions, as measured by the market capitalization for the firms in the Electric Group.

Q71. What is the basis for the size adjustment?

A71. The size adjustment required in applying the CAPM is based on the finding that *after controlling for risk differences reflected in beta*, the CAPM overstates returns to companies with larger market capitalizations and understates returns for relatively smaller firms. The size adjustments utilized in my analysis are sourced from Kroll, who now publish the well-known compilation of capital market series originally developed

[53] Morningstar, *2015 Ibbotson SBBI Classic Yearbook*, at 99.

[54] Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, *Stocks, Bonds, Bills and Inflation*, these size premia are now developed by Kroll and presented in its *Cost of Capital Navigator*.

by Professor Roger G. Ibbotson of the Yale School of Management, and most recently published by Kroll. Calculation of the size adjustments involve the following steps:

1. Divide all stocks traded on the NYSE, NYSE MKT, and NASDAQ indices into deciles based on their market capitalization.
2. Using the average beta value for each decile, calculate the implied excess return over the risk-free rate using the CAPM.
3. Compare the calculated excess returns based on the CAPM to the actual excess returns for each decile, with the difference being the increment of return that is related to firm size, or "size adjustment."

New Regulatory Finance observed that "small market-cap stocks experience higher returns than large market-cap stocks with equivalent betas," and concluded that "the CAPM understates the risk of smaller utilities, and a cost of equity based purely on a CAPM beta will therefore produce too low an estimate."[55]

Q72. What is the implied ROE for the Electric Group using the CAPM approach?

A72. As shown on AES Indiana Attachment AMM-7, after adjusting for the impact of firm size, the CAPM approach implies an average ROE for the Electric Group of 11.3%.

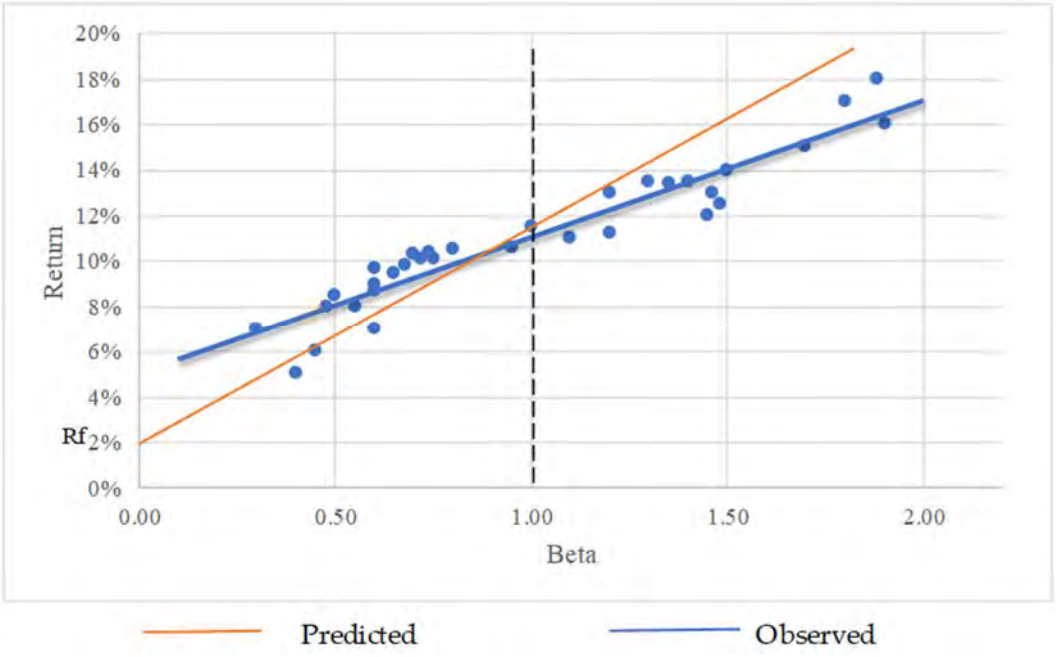
D. Empirical Capital Asset Pricing Model

Q73. How does the ECAPM approach differ from traditional applications of the CAPM?

A73. Empirical tests of the CAPM have shown that low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. In other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to beta, with low-beta stocks tending to have higher returns and high-beta stocks tending to have lower risk returns than predicted by the CAPM. This is illustrated graphically in the figure below:

[55] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 187.

FIGURE 2
CAPM – PREDICTED VS. OBSERVED RETURNS



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

> As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical relationships.[56]

Based on a review of the empirical evidence, *New Regulatory Finance* concluded the expected return on a security is represented by the following formula:

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

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

Like the CAPM formula presented earlier, the ECAPM represents a stock's required return as a function of the risk-free rate (R_f), plus a risk premium. In the formula above, this risk premium is composed of two parts: (1) the market risk premium (R_m - R_f) weighted by a factor of 25%, and (2) a company-specific risk premium based on the stock's relative volatility [$\beta_j(R_m - R_f)$] weighted by 75%. This ECAPM equation, and its associated weighting factors, recognizes the observed relationship between standard CAPM estimates and the cost of capital documented in the financial research, and corrects for the understated returns that would otherwise be produced for low beta stocks.

Q74. Have other regulators relied on the ECAPM?

A74. Yes. Staff witnesses for the MDPSC have relied on this approach in prior testimony, noting that "the ECAPM model adjusts for the tendency of the CAPM model to underestimate returns for low Beta stocks," and concluding that, "the ECAPM gives a more realistic measure of the ROE than the CAPM model does."[57] The Staff of the Colorado Public Utilities Commission has recognized that, "The ECAPM is an empirical method that attempts to enhance the CAPM analysis by flattening the risk-return relationship,"[58] and relied on the same ECAPM equation presented above.[59]

The New York Department of Public Service also routinely incorporates the results of the ECAPM approach, which it refers to as the "zero-beta CAPM."[60] The Regulatory Commission of Alaska has also relied on the ECAPM approach, noting that:

> Tesoro averaged the results it obtained from CAPM and ECAPM while at the same time providing empirical testimony that the ECAPM results are more accurate then [sic] traditional CAPM results. The reasonable

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

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

[59] *Id.* at 48.

[60] *See, e.g.,* New York Department of Public Service, Cases 19-E-0065 19-G-0066, *Prepared Fully Redacted Testimony of Staff Finance Panel* (May 2019) at 94-95.

investor would be aware of these empirical results. Therefore, we adjust Tesoro's recommendation to reflect only the ECAPM result.[61]

The Wyoming Office of Consumer Advocate, an independent division of the Wyoming Public Service Commission, has also relied on this ECAPM formula,[62] as has a witness for the Office of Arkansas Attorney General.[63] In a 2018 decision, the Montana Public Service Commission determined that "[t]he evidence in this proceeding has convinced the Commission that the [ECAPM] should be the primary method for estimating . . . the cost of equity."[64]

Q75. What cost of equity estimate is indicated by the ECAPM?

A75. My application of the ECAPM is based on the same forward-looking market rate of return, risk-free rates, and beta values discussed earlier in connection with the CAPM. As shown on AES Indiana Attachment AMM-8, applying the forward-looking ECAPM approach to the firms in the Electric Group results in an average cost of equity estimate of 11.5%, after incorporating the size adjustment corresponding to the market capitalization of the individual utilities.

E. Utility Risk Premium

Q76. Briefly describe the risk premium method.

A76. The risk premium method extends the risk-return tradeoff observed with bonds to estimate investors' required rate of return on common stocks. The cost of equity is estimated by first determining the additional return investors require to forgo the relative safety of bonds and to bear the greater risks associated with common stock, and then adding this equity risk premium to the current yield on bonds. Like the DCF model, the risk premium method is capital market oriented. However, unlike DCF models, which

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

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

[63] Docket No. 17-071-U, *Direct Testimony of Marlon F. Griffing, PH.D.* (May 29, 2018) at 33-35.

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

indirectly impute the cost of equity, risk premium methods directly estimate investors' required rate of return by adding an equity risk premium to observable bond yields.

Q77. Is the risk premium approach a widely accepted method for estimating the cost of equity?

A77. Yes. The risk premium approach is based on the fundamental risk-return principle that is central to finance, which holds that investors will require a premium in the form of a higher return in order to assume additional risk. This method is routinely referenced by the investment community and in academia and regulatory proceedings, and provides an important tool in estimating a fair ROE for AES Indiana.

Q78. How do you implement the risk premium method?

A78. Estimates of equity risk premiums for utilities are based on surveys of previously authorized ROEs. Authorized ROEs presumably reflect regulatory commissions' best estimates of the cost of equity, however determined, at the time they issued their final order. Such ROEs should represent a balanced and impartial outcome that considers the need to maintain a utility's financial integrity and ability to attract capital. Moreover, allowed returns are an important consideration for investors and have the potential to influence other observable investment parameters, including credit ratings and borrowing costs. Thus, when considered in the context of a complete and rigorous analysis, this data provides a logical and frequently referenced basis for estimating equity risk premiums for regulated utilities.

Q79. How do you calculate the equity risk premiums based on allowed returns?

A79. The ROEs authorized for electric utilities by regulatory commissions across the U.S. are compiled by S&P Global Market Intelligence and published in its ***RRA Regulatory Focus*** report. On page 2 of AES Indiana Attachment AMM-9, the average yield on public utility bonds is subtracted from the average allowed ROE for electric utilities to

calculate equity risk premiums for each year between 1974 and 2022.[65] As shown there, over this period these equity risk premiums for electric utilities average 3.89%, and the yields on public utility bonds average 7.83%.

Q80. Is there any capital market relationship that must be considered when implementing the risk premium method?

A80. Yes. The magnitude of equity risk premiums is not constant and equity risk premiums tend to move inversely with interest rates. In other words, when interest rate levels are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums widen. The implication of this inverse relationship is that the cost of equity does not move as much as, or in lockstep with, interest rates. Accordingly, for a 1% increase or decrease in interest rates, the cost of equity may only rise or fall some fraction of 1%. When implementing the risk premium method, adjustments are required to incorporate this inverse relationship if the current interest rate is different from the average interest rate over the study period.

Current bond yields are lower than those prevailing over the risk premium study period. Given that equity risk premiums move inversely with interest rates, these lower bond yields also imply an increase in the equity risk premium. In other words, higher required equity risk premiums offset the impact of declining interest rates on the ROE.

Q81. Is this inverse relationship confirmed by published financial research?

A81. Yes. There is considerable empirical evidence that when interest rates are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums are greater. This inverse relationship between equity risk premiums and interest rates has been widely reported in the financial literature. As summarized by *New Regulatory Finance*:

[65] My analysis encompasses the entire period for which published data is available.

> Published studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carleton, Chambers, and Lakonishok (1983), Morin (2005), and McShane (2005), and others demonstrate that, beginning in 1980, risk premiums varied inversely with the level of interest rates – rising when rates fell and declining when rates rose.[66]

Other regulators have also recognized that, while the cost of equity trends in the same direction as interest rates, these variables do not move in lock-step.[67] This relationship is illustrated in the figure on page 3 of AES Indiana Attachment AMM-9.

Q82. What ROE is implied by the risk premium method using surveys of allowed returns?

A82. Based on the regression output between the interest rates and equity risk premiums displayed on page 3 of AES Indiana Attachment AMM-9, the equity risk premium for electric utilities increases by approximately 43 basis points for each percentage point drop in the yield on average public utility bonds. As illustrated on page 1 of AES Indiana Attachment AMM-9 with an average yield on public utility bonds for the six-months ending March 2023 of 5.49%, this implies a current equity risk premium of 4.89% for electric utilities. Adding this equity risk premium to the average yield on Baa-rated utility bonds implies a current ROE of 10.64%.

F. Expected Earnings Approach

Q83. What other analysis do you conduct to estimate the ROE?

A83. I also evaluate the ROE using the expected earnings method. Reference to rates of return available from alternative investments of comparable risk can provide an important benchmark in assessing the return necessary to assure confidence in the financial integrity of a firm and its ability to attract capital. This expected earnings approach is consistent with the economic underpinnings for a just and reasonable rate

[66] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 128.

[67] ***See, e.g.***, California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan FRP-7, https://www.entergy-mississippi.com/userfiles/content/price/tariffs/eml_frp.pdf (last visited Feb. 8, 2023); ***Martha Coakley et al. v. Bangor Hydro-Elec. Co. et al.***, 147 FERC ¶ 61,234 at P 147 (2014).

of return established by the U.S. Supreme Court in *Bluefield* and *Hope*. Moreover, it avoids the complexities and limitations of capital market methods and instead focuses on the returns earned on book equity, which are readily available to investors.

Q84. What economic premise underlies the expected earnings approach?

A84. The simple, but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. If the utility is unable to offer a return similar to that available from other opportunities of comparable risk, investors will become unwilling to supply the capital on reasonable terms. For existing investors, denying the utility an opportunity to earn what is available from other similar risk alternatives prevents them from earning their opportunity cost of capital. This outcome would violate the *Hope* and *Bluefield* standards and undermine the utility's access to capital on reasonable terms.

Q85. How is the expected earnings approach typically implemented?

A85. The traditional comparable earnings test identifies a group of companies that are believed to be comparable in risk to the utility. The actual earnings of those companies on the book value of their investment are then compared to the allowed return of the utility. While the traditional comparable earnings test is implemented using historical data taken from the accounting records, it is also common to use projections of returns on book investment, such as those published by recognized investment advisory publications (***e.g.***, Value Line). Because these projected returns on book value equity are analogous to the forward-looking allowed ROE on a utility's rate base, this measure of opportunity costs results in a direct, "apples to apples" comparison.

Moreover, regulators do not set the returns that investors earn in the capital markets, which are a function of dividend payments and fluctuations in common stock prices—both of which are outside their control. Regulators can only establish the allowed ROE, which is applied to the book value of a utility's investment in rate base, as determined from its accounting records. This is analogous to the expected earnings

approach, which measures the return that investors expect the utility to earn on book value. As a result, the expected earnings approach provides a meaningful guide to ensure that the allowed ROE is similar to what other utilities of comparable risk will earn on invested capital. This expected earnings test does not require theoretical models to indirectly infer investors' perceptions from stock prices or other market data. As long as the proxy companies are similar in risk, their expected earned returns on invested capital provide a direct benchmark for investors' opportunity costs that is independent of fluctuating stock prices, market-to-book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical model of investor behavior.

Q86. What ROE is indicated for AES Indiana based on the expected earnings approach?

A86. For the firms in the Electric Group, the year-end returns on common equity projected by Value Line over its forecast horizon are shown on AES Indiana Attachment AMM-10. As I explained earlier in my discussion of the br+sv growth rates used in applying the DCF model, Value Line's returns on common equity are calculated using year-end equity balances, which understates the average return earned over the year.[68] Accordingly, these year-end values were converted to average returns using the same adjustment factor discussed earlier and developed on AES Indiana Attachment AMM-6. As shown on AES Indiana Attachment AMM-10, Value Line's projections for the Electric Group suggest an average ROE of 11.0%.

VI. NON-UTILITY BENCHMARK

Q87. What is the purpose of this section of your testimony?

A87. This section presents the results of my DCF analysis for a group of low-risk firms in the competitive sector, which I refer to as the "Non-Utility Group." This analysis is not directly considered to arrive at my recommended ROE range of reasonableness;

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

however, it is my opinion that this is a relevant consideration in evaluating a fair ROE for the Company.

Q88. Do utilities have to compete with non-regulated firms for capital?

A88. Yes. The cost of capital is an opportunity cost based on the returns that investors could realize by putting their money in other alternatives. Clearly, the total capital invested in utility stocks is only a small fraction of total common stock investment, and there is a plethora of other alternatives available to investors. Utilities must compete for capital, not just against firms in their own industry, but with other investment opportunities of comparable risk. This understanding is consistent with modern portfolio theory, which is built on the assumption that rational investors will hold a diverse portfolio of stocks and not just companies in a single industry.

Q89. Is it consistent with the *Bluefield* and *Hope* cases to consider investors' required ROE for non-utility companies?

A89. Yes. The cost of equity capital in the competitive sector of the economy forms the very underpinning for utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets. The Supreme Court has recognized that it is the degree of risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a utility. The *Bluefield* case refers to "business undertakings attended with comparable risks and uncertainties." It does not restrict consideration to other utilities. Similarly, the *Hope* case states:

> By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[69]

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

[69] *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 391 (1944) (Hope).

Q90. Does consideration of the results for the Non-Utility Group improve the reliability of DCF results?

A90. Yes. Growth estimates used in the DCF model depend on analysts' forecasts. It is possible for utility growth rates to be distorted by short-term trends in the industry, or by the industry falling into favor or disfavor by analysts. Such distortions could result in biased DCF estimates for utilities. Because the Non-Utility Group includes low risk companies from more than one industry, it helps to insulate against any possible distortion that may be present in results for a particular sector.

Q91. What criteria do you apply to develop the Non-Utility Group?

A91. My comparable risk proxy group was composed of those United States companies followed by Value Line that:

1) pay common dividends;
2) have a Safety Rank of "1";
3) have a Financial Strength Rating of "A" or greater;
4) have a beta of 0.95 or less; and
5) have investment grade credit ratings from S&P and Moody's.

Q92. How do you evaluate the risks of the Non-Utility Group relative to your proxy group of electric utilities?

A92. My evaluation of relative risk considers four published benchmarks that are widely relied on by investors—Value Line's Safety Rank, Financial Strength Rating, and beta values, along with credit ratings from S&P and Moody's. Value Line's primary risk indicator is its Safety Rank, which ranges from "1" (Safest) to "5" (Riskiest). This overall risk measure is intended to capture the total risk of a stock, and incorporates elements of stock price stability and financial strength. The Financial Strength Rating is designed as a guide to overall financial strength and creditworthiness, with the key inputs including financial leverage, business volatility measures, and company size. Value Line's Financial Strength Ratings range from "A++" (strongest) down to "C"

(weakest) in nine steps. Value Line is one of the most widely available sources of investment advisory information and these objective, published indicators provide useful guidance regarding the risk perceptions of investors. As noted earlier, beta measures a utility's stock price volatility relative to the market as a whole, and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory, and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions.

Q93. How do the overall risks of your Non-Utility Group compare to the proxy group of electric utilities?

A93. Table 3 compares the Non-Utility Group to the Electric Group across the four key indices of investment risk discussed above.

TABLE 3
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
	S&P	Moody's	Safety Rank	Financial Strength	Beta
Non-Utility Group	A-	A2	1	A+	0.81
Electric Group	BBB+	Baa2	2	A	0.90

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

The companies that make up the Non-Utility Group are representative of the pinnacle of corporate America. These firms, which include household names such as Coca-Cola, Home Depot, Procter & Gamble, and Walmart, have long corporate histories, well-established track records, and conservative risk profiles. Many of these companies pay dividends on a par with utilities, with the average dividend yield for the

group at 2.3%.[70] Moreover, because of their significance and name recognition, these companies receive intense scrutiny by the investment community, which increases confidence that published growth estimates are representative of the consensus expectations reflected in common stock prices.

Q94. What are the results of your DCF analysis for the Non-Utility Group?

A94. I apply the DCF model to the Non-Utility Group using the same analysts' EPS growth projections described earlier for the Electric Group, with the results being presented on page 3 of AES Indiana Attachment AMM-11. As summarized in Table 4, below, after eliminating illogical values, application of the constant growth DCF model results in the following cost of equity estimates:

TABLE 4
DCF RESULTS – NON-UTILITY GROUP

Growth Rate	Average	Midpoint
Value Line	10.9%	11.9%
IBES	10.4%	10.7%
Zacks	10.9%	12.1%

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

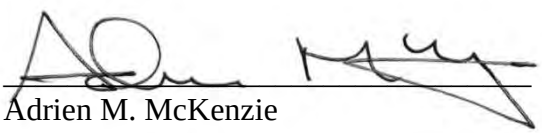
Q95. Does this conclude your direct testimony?

A95. Yes, it does.

[70] AES Indiana Attachment AMM-11 at page 1.

VERIFICATION

I, Adrien M. McKenzie, President of Financial Concepts and Applications, Inc. (FINCAP), affirm under penalties for perjury that the foregoing representations are true to the best of my knowledge, information, and belief.



Adrien M. McKenzie
Dated: June 28, 2023

AES Indiana Witness Attachment AMM-1

QUALIFICATIONS OF ADRIEN M. MCKENZIE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

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

Q. PLEASE STATE YOUR OCCUPATION.

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

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I received B.A. and M.B.A. degrees with a major in finance from The University of Texas at Austin and hold the Chartered Financial Analyst (CFA®) designation. Since joining FINCAP in 1984, I have participated in consulting assignments involving a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation. I have extensive experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. I have personally sponsored direct and rebuttal testimony in over 180 proceedings filed with the Federal Energy Regulatory Commission ("FERC") and regulatory agencies in Alaska, Arkansas, Colorado, District of Columbia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming. My testimony addressed the establishment of risk-comparable proxy groups, the application of alternative quantitative methods, and the consideration

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

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

ADRIEN M. McKENZIE

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Summary of Qualifications

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

Employment

President FINCAP, Inc. (June 1984 to June 1987) (April 1988 to present)	Economic consulting firm specializing in regulated industries and valuation of closely-held businesses. Assignments have involved electric, gas, telecommunication, and water/sewer utilities, with clients including utilities, consumer groups, municipalities, regulatory agencies, and cogenerators. Areas of participation have included rate of return, revenue requirements, rate design, tariff analysis, avoided cost, forecasting, and negotiations. Develop cost of capital analyses using alternative market models for electric, gas, and telephone utilities. Prepare pre-filed direct and rebuttal testimony, participate in settlement negotiations, respond to interrogatories, evaluate opposition testimony, and assist in the areas of cross-examination and the preparations of legal briefs. Other assignments have involved preparation of technical reports, valuations, estimation of damages, industry studies, and various economic analyses in support of litigation.
Manager, McKenzie Energy Company (Jan. 1981 to May. 1984)	Responsible for operations and accounting for firm engaged in the management of working interests in oil and gas properties.

Education

M.B.A., Finance, University of Texas at Austin (Sep. 1982 to May. 1984)	Program included coursework in corporate finance, accounting, financial modeling, and statistics. Received Dean's Award for Academic Excellence and Good Neighbor Scholarship. Professional Report: *The Impact of Construction Expenditures on Investor-Owned Electric Utilities*
B.B.A., Finance, University of Texas at Austin (Jan. 1981 to May 1982)	Electives included capital market theory, portfolio management, and international economics and finance. Elected to Beta Gamma Sigma business honor society. Dean's List 1981-1982.
Simon Fraser University, Vancouver, Canada and University of Hawaii at Manoa, Honolulu, Hawaii (Jan. 1979 to Dec 1980)	Coursework in accounting, finance, economics, and liberal arts.

Professional Associations

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

Member – CFA Institute.

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

Representative Assignments

Mr. McKenzie has prepared and sponsored prefiled testimony submitted in over 150 regulatory proceedings. In addition to filings before regulatory agencies in Alaska, Arkansas, Colorado, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming, Mr. McKenzie has considerable expertise in preparing expert analyses and testimony before the Federal Energy Regulatory Commission ("FERC") on the issue of rate of return on equity ("ROE"), and has broad experience in applying and evaluating the results of quantitative methods to estimate a fair ROE. Other representative assignments have included developing cost of service and cost allocation studies, the application of econometric models to analyze the impact of anti-competitive behavior and estimate lost profits; development of explanatory models for nuclear plant capital costs in connection with prudency reviews; and the analysis of avoided cost pricing for cogenerated power.

SUMMARY OF RESULTS

Method	Average
DCF	
Value Line	9.2%
IBES	10.3%
Zacks	10.0%
Internal br + sv	9.1%
CAPM	11.3%
ECAPM	11.5%
Utility Risk Premium	10.6%
Expected Earnings	11.0%

ROE Recommendation			
Cost of Equity			
Range	**10.1%**	**--**	**11.1%**
Midpoint		**10.6%**	

ELECTRIC GROUP

		Type of Adjustment Clause (a)									(b)	(c)
			Conserv.	Decoupling		New Capital					Future	Formula
	Company	Fuel/PPA	Program Expense	Full	Partial	Trad. Generation	Renewables/ Non-Trad.	Delivery Infra.	Environ. Compliance	Trans. Costs	Test Year	Rates / MRP
1	ALLETE	✓	✓	--	--	--	--	--	✓	✓	C	✓
2	Ameren Corp.	✓	✓	✓	✓	--	✓	✓	✓	✓	O,P	✓
3	Avista Corp.	✓	✓	✓	--	--	--	--	--	--	P	✓
4	Black Hills Corp.	✓	✓	--	✓	✓	✓	--	✓	✓	O	✓
5	CenterPoint Energy	✓	✓	--	✓	--	--	✓	✓	✓	--	✓
6	CMS Energy Corp.	✓	✓	--	--	--	✓	--	--	✓	C	--
7	Dominion Energy	✓	✓	--	--	✓	✓	✓	✓	✓	--	✓
8	DTE Energy Co.	✓	✓	--	--	--	✓	--	--	✓	C	--
9	Duke Energy Corp.	✓	✓	--	✓	✓	✓	✓	✓	✓	C,O,P	✓
10	Edison International	✓	--	✓	--	--	--	--	--	--	C	✓
11	Entergy Corp.	✓	✓	--	✓	✓	✓	✓	✓	✓	O,P	✓
12	Exelon Corp.	D	✓	✓	✓	--	✓	✓	✓	--	O,P	✓
13	Hawaiian Elec.	✓	✓	--	--	--	✓	--	--	--	C	✓
14	IDACORP, Inc.	✓	✓	✓	--	--	--	--	--	--	C,P	--
15	NorthWestern Corp.	✓	✓	--	--	--	--	--	--	--	--	--
16	OGE Energy Corp.	✓	✓	--	✓	✓	✓	✓	✓	✓	P	✓
17	Otter Tail Corp.	✓	✓	--	--	✓	✓	✓	✓	✓	C,O	✓
18	Pinnacle West Capital	✓	✓	--	✓	--	✓	--	✓	✓	--	✓
19	Portland General Elec.	✓	✓	--	--	✓	✓		✓	✓	C	--
20	Pub Sv Enterprise Grp.	D	✓	--	✓	--	--	✓	✓	--	P	--
21	Sempra Energy	✓	✓	✓	--	--	--	✓	--	✓	C	✓
22	Southern Company	✓	--	--	✓	✓	✓	--	✓	--	C,O	✓

Notes

D - Delivery-only utility.

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

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

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

Source: AES Indiana Witness Attachment AMM-3, pages 2-4, contain operating company data that are aggregated into the parent company data on this page.

ELECTRIC GROUP OPERATING COS.

			Type of Adjustment Clause (a)																		(b)	(c)
					Conserv.					New Capital											Future	Formula
					Program		Decoupling			Trad.		Renewables/		Delivery		Environ.		Trans.			Test	Rates /
	Company	State	Fuel/PPA		Expense		Full		Partial	Generation		Non-Trad.		Infra.		Compliance		Costs			Year	MRP
1	**ALLETE**																					
	Minnesota Power Enterprises Inc.	MN	✓		✓		--		--	--		✓		--		--		✓			C	✓
2	**AMEREN CORP.**																					
	Ameren Illinois Co.	IL	D	*	✓		--		✓	* --		✓		--		✓	*	✓			O	✓
	Union Electric Co.	MO	✓		✓	*	--		✓	* --		✓	*	✓	*	--	*	✓	*		P	--
3	**AVISTA CORP.**																					
	Alaska Electric Light & Power Co.	AK	✓		--		--		--	--		--		--		--		--			--	--
	Avista Corp.	ID	✓	*	✓		✓	*	--	--		--		--		--		--			P	--
	Avista Corp.	WA	✓	*	✓		✓		--	* --		--		--		--		--			--	✓
4	**BLACK HILLS CORP.**																					
	Black Hills Colorado Electric Inc.	CO	✓		✓		--		--	✓	*	✓		--		--		✓			--	✓
	Black Hills Power Inc.	SD	✓		--		--		--	--		--		--		✓	*	✓	*		--	--
	Cheyenne Light Fuel & Power Co.	WY	✓		✓		--		✓	* --		--		--		--		--			O	--
5	**CENTERPOINT ENERGY**																					
	Southern Indiana Gas & Electric Co.	IN	✓		✓		--		✓	* --		--		✓	*	✓	*	✓			--	✓
	CenterPoint Energy Houston Electric LLC	TX	--	*	✓		--		--	--		--		✓		--		✓			--	✓
6	**CMS ENERGY**																					
	Consumers Energy Co.	MI	✓		✓		--	*	--	--		✓		--		--		✓	*		C	--
7	**DOMINION ENERGY**																					
	Virginia Electric & Power Co.	NC	✓		✓	*	--		--	* --		✓	*	--		✓		--			--	--
	Dominion Energy South Carolina	SC	✓		✓		--		--	✓	*	--		--		✓		--			--	✓
	Virginia Electric & Power Co.	VA	✓		✓		--		--	✓		✓		✓		✓		✓			--	✓
8	**DTE ENERGY CO.**																					
	DTE Electric Co.	MI	✓		✓		--	*	--	--		✓		--		--		✓	*		C	--
9	**DUKE ENERGY**																					
	Duke Energy Florida LLC	FL	✓		✓		--		--	✓	*	✓	*	--	*	✓		--			C	✓
	Duke Energy Indiana LLC	IN	✓		✓		--		✓	* --		✓		✓	*	✓	*	✓			--	✓
	Duke Energy Kentucky Inc.	KY	✓		✓		--		✓	* --		--		--		✓		--			O	--
	Duke Energy Carolinas LLC	NC	✓		✓	*	--		--	* --		✓	*	--		✓		--			--	--
	Duke Energy Progress LLC	NC	✓		✓	*	--		--	* --		✓	*	--		✓		--			--	--
	Duke Energy Ohio Inc.	OH	D	*	✓	*	--		✓	* --		✓		✓	*	--		✓			P	✓
	Duke Energy Progress LLC	SC	✓		✓		--		--	--	*	--		--		✓		--			--	✓
	Duke Energy Carolinas LLC	SC	✓		✓		--		--	--	*	--		--		✓		--			--	✓
10	**EDISON INTERNATIONAL**																					
	Southern California Edison Co.	CA	✓		--		✓		--	--		--		--		--		--			C	✓

ELECTRIC GROUP OPERATING COS.

			Type of Adjustment Clause (a)																	(b)	(c)
				Conserv.					New Capital											Future	Formula
				Program	Decoupling			Trad.	Renewables/		Delivery		Environ.		Trans.			Test	Rates /
	Company	State	Fuel/PPA	Expense	Full	Partial		Generation	Non-Trad.		Infra.		Compliance		Costs			Year	MRP
11	**ENTERGY CORP.**																		
	Entergy Arkansas LLC	AR	✓	✓	--	✓	*	✓	*	✓	*	✓	*	--		✓		P	✓
	Entergy New Orleans LLC	LA	✓	✓	--	--		--		✓		--		✓	*	✓	*	O	✓
	Entergy Louisiana LLC	LA	✓	✓	* --	✓	*	--		--		--		✓		--		O	✓
	Entergy Mississippi LLC	MS	✓	--	--	✓	*	--		--		--		--		✓		O	✓
	Entergy Texas Inc.	TX	✓ *	✓	--	--		✓	*	--		✓		--		✓		--	✓
12	**EXELON CORP.**																		
	Delmarva Power & Light Co.	DE	D *	✓	--	--		--		--		✓	*	--		✓		P	--
	Potomac Electric Power Co.	DC	D *	--	--	✓	*	--		✓	*	✓	*	--		--		P	--
	Commonwealth Edison Co.	IL	D *	✓	--	--		--		✓		✓	*	✓	*	✓		O	✓
	Baltimore Gas & Electric Co.	MD	D *	✓	✓	--		--		--		--		--		--		P	--
	Delmarva Power & Light Co.	MD	D *	✓	✓	--		--		--		--		--		--		P	--
	Potomac Electric Power Co.	MD	D *	✓	✓	--		--		--		✓	*	--		--		P	--
	Atlantic City Electric Co.	NJ	D *	✓	* --	✓	*	--		--		✓	*	✓	*	--		P	--
	PECO Energy Co.	PA	D *	✓	--	--		--		--		✓	*	--		✓		O	--
13	**HAWAIIAN ELEC.**																		
	Hawaiian Electric Co.	HI	✓	✓	--	--		--		✓	*	--		--		--		C	✓
	Hawaii Electric Light Co.	HI	✓	✓	--	--		--		--		--		--		--		C	✓
	Maui Electric Co.	HI	✓	✓	--	--		--		✓	*	--		--		--		C	✓
14	**IDACORP**																		
	Idaho Power Co.	ID	✓ *	✓	✓ *	--		--		--		--		--		--		P	--
	Idaho Power Co.	OR	✓	✓	--	--		--		--		--		--		--		C	--
15	**NORTHWESTERN CORP.**																		
	NorthWestern Corp.	MT	✓ *	✓	--	--		--		--		--		--		--		--	--
	NorthWestern Corp.	SD	✓	✓	--	--		--		--		--		--		--		--	--
16	**OGE ENERGY CORP.**																		
	Oklahoma Gas & Electric Co.	AR	✓	✓	--	✓	*	✓		✓		✓		✓		✓		P	--
	Oklahoma Gas & Electric Co.	OK	✓	✓	* --	✓	*	--		--		✓	*	✓	*	✓	*	--	✓
17	**OTTER TAIL CORP.**																		
	Otter Tail Power Co.	MN	✓	✓	--	--		--		✓		--		✓		✓		C	--
	Otter Tail Power Co.	ND	✓	--	--	--		✓	*	✓	*	✓	*	✓	*	✓	*	O	✓
	Otter Tail Power Corp.	SD	✓	✓	--	--		✓	*	--		✓		✓		--		--	--
18	**PINNACLE WEST CAPITAL**																		
	Arizona Public Service Co.	AZ	✓	✓	--	✓	*	--		✓		--		✓		✓		--	✓
19	**PORTLAND GENERAL ELECTRIC**																		
	Portland General Electric Co.	OR	✓	✓	--	--		✓	*	✓	*	--		✓	*	✓		C	--

ELECTRIC GROUP OPERATING COS.

			Type of Adjustment Clause (a)																(b)	(c)
				Conserv.					New Capital									Future	Formula
				Program	Decoupling			Trad.	Renewables/		Delivery		Environ.			Trans.	Test	Rates /
	Company	State	Fuel/PPA	Expense	Full	Partial		Generation	Non-Trad.		Infra.		Compliance			Costs	Year	MRP
20	**PUB SV ENTERPRISE GRP**																	
	Public Service Electric & Gas Co.	NJ	D *	✓ *	--	✓	*	--		--	✓	*	✓	*		--	P	--
21	**SEMPRA ENERGY**																	
	San Diego Gas & Electric Co.	CA	✓	--	✓	--		--		--	--		--			--	C	✓
	Oncor Electric Delivery Co.	TX	D *	✓	--	--		--		--	✓		--			✓	--	✓
22	**SOUTHERN CO.**																	
	Alabama Power Co.	AL	✓ *	--	--	--		✓	*	✓	--		✓	*		--	C	✓
	Georgia Power Co.	GA	✓	--	--	--		✓	*	--	--		✓	*		--	C	✓
	Mississippi Power Co.	MS	✓	--	--	✓	*	--		--	--		✓	*		--	O	✓

(a) S&P Global Market Intelligence, *Adjustment clauses: A state by state overview* , Regulatory Focus Topical Special Report (Jul. 18, 2022).

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

(c) Formula rates and Multiyear Rate plans approved in the state listed for this operating company. *See* , U.S. Department of Energy, *State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities* ,GRID Modernization Laboratory Consortium (Jul. 2017); The Brattle Group, *Exploring the Use of Alternative Regulatory Mechanisms to Establish New Base Rates* , Joint Utilities of Maryland (Mar. 29, 2018); SEC Form 10-K Reports.

Notes

D - Delivery-only utility.

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

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

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

* For additional context around the specific recovery mechanisms available to the particular operating companies in each state, see the source document.

ELECTRIC GROUP

		At Year-end 2022 (a)			Value Line Projected (b)		
	Company	**Debt**	**Preferred**	**Common Equity**	**Debt**	**Preferred**	**Common Equity**
1	ALLETE	36.5%	0.0%	63.5%	40.5%	0.0%	59.5%
2	Ameren Corp.	56.9%	0.0%	43.1%	51.0%	0.5%	48.5%
3	Avista Corp.	49.6%	0.0%	50.4%	48.5%	0.0%	51.5%
4	Black Hills Corp.	57.2%	0.0%	42.8%	50.0%	0.0%	50.0%
5	CenterPoint Energy	61.9%	3.0%	35.1%	55.0%	2.5%	42.5%
6	CMS Energy Corp.	65.2%	1.0%	33.8%	61.5%	1.0%	37.5%
7	Dominion Energy	60.2%	2.5%	37.2%	57.0%	2.0%	41.0%
8	DTE Energy Co.	63.4%	0.0%	36.6%	61.0%	0.0%	39.0%
9	Duke Energy Corp.	57.9%	1.6%	40.5%	61.0%	1.5%	37.5%
10	Edison International	62.8%	4.2%	33.0%	60.5%	7.5%	32.0%
11	Entergy Corp.	66.1%	0.6%	33.3%	67.0%	0.0%	33.0%
12	Exelon Corp.	60.0%	0.0%	40.0%	64.5%	0.0%	35.5%
13	Hawaiian Elec.	57.9%	0.6%	41.4%	50.0%	0.5%	49.5%
14	IDACORP, Inc.	43.8%	0.0%	56.2%	50.0%	0.0%	50.0%
15	NorthWestern Corp.	48.3%	0.0%	51.7%	49.0%	0.0%	51.0%
16	OGE Energy Corp.	50.8%	0.0%	49.2%	50.0%	0.0%	50.0%
17	Otter Tail Corp.	40.4%	0.0%	59.6%	42.5%	0.0%	57.5%
18	Pinnacle West Capital	55.8%	0.0%	44.2%	54.5%	0.0%	45.5%
19	Portland General Elec.	58.8%	0.0%	41.2%	55.0%	0.0%	45.0%
20	Pub Sv Enterprise Grp.	56.8%	0.0%	43.2%	54.5%	0.0%	45.5%
21	Sempra Energy	44.9%	1.6%	53.5%	46.0%	1.5%	52.5%
22	Southern Company	61.4%	0.0%	38.6%	63.0%	0.0%	37.0%
	Minimum	**36.5%**	**0.0%**	**33.0%**	**40.5%**	**0.0%**	**32.0%**
	Maximum	**66.1%**	**4.2%**	**63.5%**	**67.0%**	**7.5%**	**59.5%**
	Average	**55.3%**	**0.7%**	**44.0%**	**54.2%**	**0.8%**	**45.0%**

(a) SEC Form 10-K reports. Debt includes current maturities.

(b) The Value Line Investment Survey (Jan. 20, Feb. 10 and Mar. 10, 2023).

ELECTRIC GROUP OPERATING COS.

		At Year-End 2022 (a)		
	Operating Company	**Debt**	**Preferred**	**Common Equity**
1	**ALLETE**			
	ALLETE, Inc. (Minnesota Power)	40.3%	0.0%	59.7%
2	**AMEREN CORP.**			
	Ameren Illinois Co.	43.9%	0.4%	55.6%
	Union Electric Co.	48.6%	0.6%	50.7%
3	**AVISTA CORP.**			
	Avista Corp.	49.3%	0.0%	50.7%
	Alaska Electric Light & Power	39.1%	0.0%	60.9%
4	**BLACK HILLS CORP.**			
	Black Hills Power	49.9%	0.0%	50.1%
	Cheyenne Light Fuel & Power	57.2%	0.0%	42.8%
	Black Hills/Colorado Electric Utility Co	52.1%	0.0%	47.9%
5	**CENTERPOINT ENERGY**			
	Centerpoint Energy Houston Electric	56.0%	0.0%	44.0%
6	**CMS ENERGY**			
	Consumers Energy Co.	50.2%	0.2%	49.6%
7	**DOMINION ENERGY**			
	Virginia Electric & Power	48.4%	0.0%	51.6%
	Dominion Energy South Carolina	45.2%	0.0%	54.8%
8	**DTE ENERGY CO.**			
	DTE Electric Co.	50.0%	0.0%	50.0%
9	**DUKE ENERGY**			
	Duke Energy Carolinas	48.0%	0.0%	52.0%
	Duke Energy Florida	51.8%	0.0%	48.2%
	Duke Energy Indiana	47.8%	0.0%	52.2%
	Duke Energy Ohio	40.5%	0.0%	59.5%
	Duke Energy Progress	51.8%	0.0%	48.2%
	Duke Energy Kentucky	47.0%	0.0%	53.0%
10	**EDISON INTERNATIONAL**			
	Southern California Edison Co.	55.8%	4.1%	40.1%
11	**ENTERGY CORP.**			
	Entergy Arkansas Inc.	52.4%	0.0%	47.6%
	Entergy Louisiana LLC	53.0%	0.0%	47.0%
	Entergy Mississippi Inc.	53.3%	0.0%	46.7%
	Entergy New Orleans Inc.	52.4%	0.0%	47.6%
	Entergy Texas Inc.	51.9%	0.7%	47.4%

ELECTRIC GROUP OPERATING COS.

		At Year-End 2022 (a)		
	Operating Company	**Debt**	**Preferred**	**Common Equity**
12	**EXELON CORP.**			
	Delmarva Power and Light	49.8%	0.0%	50.2%
	Baltimore Gas & Electric Co.	46.0%	0.0%	54.0%
	Commonweath Edison Co.	44.5%	0.0%	55.5%
	PECO Energy Co.	46.3%	0.0%	53.7%
	Potomac Electric Power Co.	49.8%	0.0%	50.2%
	Atlantic City Electric Co.	50.1%	0.0%	49.9%
13	**HAWAIIAN ELEC.**			
	Hawaiian Electric Co.	41.5%	0.8%	57.7%
14	**IDACORP**			
	Idaho Power Co.	45.5%	0.0%	54.5%
15	**NORTHWESTERN CORP.**			
	NorthWestern Corporation	49.7%	0.0%	50.3%
16	**OGE ENERGY CORP.**			
	Oklahoma G&E	44.2%	0.0%	55.8%
17	**OTTER TAIL CORP.**			
	Otter Tail Power Co.	45.1%	0.0%	54.9%
18	**PINNACLE WEST CAPITAL**			
	Arizona Public Service Co.	49.1%	0.0%	50.9%
19	**PORTLAND GENERAL ELECTRIC**			
	Portland General Electric	56.8%	0.0%	43.2%
20	**PUB SV ENTERPRISE GRP**			
	Pub Service Electric & Gas Co.	44.7%	0.0%	55.3%
21	**SEMPRA ENERGY**			
	San Diego Gas & Electric	49.8%	0.0%	50.2%
	Oncor Electric Delivery	43.3%	0.0%	56.7%
22	**SOUTHERN CO.**			
	Alabama Power Co.	47.6%	0.0%	52.4%
	Georgia Power Co.	44.2%	0.0%	55.8%
	Mississippi Power Co.	44.4%	0.0%	55.6%
	Minimum	**39.1%**	**0.0%**	**40.1%**
	Maximum	**57.2%**	**4.1%**	**60.9%**
	Average	**48.4%**	**0.2%**	**51.5%**

(a) Data from 2022 SEC Form 10-K and FERC Form 1 reports. Debt includes current maturities.

DIVIDEND YIELD

	Company	(a) Price	(b) Dividends	Yield
1	ALLETE	$ 61.92	$ 2.71	4.4%
2	Ameren Corp.	$ 84.03	$ 2.52	3.0%
3	Avista Corp.	$ 41.11	$ 1.84	4.5%
4	Black Hills Corp.	$ 61.80	$ 2.50	4.0%
5	CenterPoint Energy	$ 28.46	$ 0.76	2.7%
6	CMS Energy Corp.	$ 60.10	$ 1.95	3.2%
7	Dominion Energy	$ 55.51	$ 2.75	5.0%
8	DTE Energy Co.	$ 108.71	$ 3.81	3.5%
9	Duke Energy Corp.	$ 95.49	$ 4.02	4.2%
10	Edison International	$ 67.47	$ 2.95	4.4%
11	Entergy Corp.	$ 104.69	$ 4.28	4.1%
12	Exelon Corp.	$ 41.21	$ 1.44	3.5%
13	Hawaiian Elec.	$ 39.02	$ 1.44	3.7%
14	IDACORP, Inc.	$ 104.16	$ 3.16	3.0%
15	NorthWestern Corp.	$ 56.81	$ 2.56	4.5%
16	OGE Energy Corp.	$ 36.13	$ 1.70	4.7%
17	Otter Tail Corp.	$ 69.99	$ 1.76	2.5%
18	Pinnacle West Capital	$ 75.82	$ 3.48	4.6%
19	Portland General Elec.	$ 47.58	$ 1.88	4.0%
20	Pub Sv Enterprise Grp.	$ 59.49	$ 2.28	3.8%
21	Sempra Energy	$ 149.16	$ 4.80	3.2%
22	Southern Company	$ 65.96	$ 2.72	4.1%
	Average			**3.8%**

(a) Average of closing prices for 30 trading days ended Mar. 29, 2023.

(b) The Value Line Investment Survey, Summary & Index (Mar. 31, 2023).

GROWTH RATES

		(a)	(b)	(c)	(d)
		Earnings Growth			**br+sv**
	Company	**V Line**	**IBES**	**Zacks**	**Growth**
1	ALLETE	6.0%	8.7%	7.3%	4.8%
2	Ameren Corp.	6.5%	6.7%	6.9%	5.8%
3	Avista Corp.	3.5%	5.2%	5.2%	4.3%
4	Black Hills Corp.	6.0%	5.4%	2.2%	6.2%
5	CenterPoint Energy	6.5%	-1.1%	7.0%	4.9%
6	CMS Energy Corp.	6.5%	8.0%	8.0%	6.5%
7	Dominion Energy	4.0%	6.1%	14.9%	5.9%
8	DTE Energy Co.	4.5%	7.4%	6.0%	6.2%
9	Duke Energy Corp.	5.0%	5.3%	5.4%	3.6%
10	Edison International	16.0%	7.0%	3.0%	6.7%
11	Entergy Corp.	0.5%	6.6%	6.0%	3.2%
12	Exelon Corp.	n/a	6.3%	6.6%	4.5%
13	Hawaiian Elec.	4.5%	1.3%	3.1%	4.6%
14	IDACORP, Inc.	4.5%	3.0%	3.0%	3.6%
15	NorthWestern Corp.	3.5%	4.5%	1.7%	3.5%
16	OGE Energy Corp.	6.5%	-12.3%	10.2%	5.0%
17	Otter Tail Corp.	4.5%	9.0%	n/a	4.7%
18	Pinnacle West Capital	0.5%	7.1%	n/a	3.3%
19	Portland General Elec.	5.0%	4.2%	6.1%	5.2%
20	Pub Sv Enterprise Grp.	4.5%	2.4%	4.3%	4.9%
21	Sempra Energy	7.0%	4.1%	5.4%	4.7%
22	Southern Company	6.5%	7.3%	4.0%	6.8%

(a) The Value Line Investment Survey (Jan. 20, Feb. 10 and Mar. 10, 2023).
(b) www.finance.yahoo.com (retreived Mar. 30, 2023).
(c) www.zacks.com (retrieved Mar. 30, 2023).
(d) See AES Indiana Witness Attachment AMM-6.

COST OF EQUITY ESTIMATES

		(a)	(a)	(a)	(a)
	Company	**V Line**	**IBES**	**Zacks**	**br+sv Growth**
1	ALLETE	10.4%	13.1%	11.7%	9.2%
2	Ameren Corp.	9.5%	9.7%	9.9%	8.8%
3	Avista Corp.	8.0%	9.7%	9.7%	8.8%
4	Black Hills Corp.	10.0%	9.4%	6.2%	10.2%
5	CenterPoint Energy	9.2%	1.6%	9.7%	7.6%
6	CMS Energy Corp.	9.7%	11.2%	11.3%	9.8%
7	Dominion Energy	9.0%	11.0%	19.8%	10.9%
8	DTE Energy Co.	8.0%	10.9%	9.5%	9.7%
9	Duke Energy Corp.	9.2%	9.5%	9.6%	7.8%
10	Edison International	20.4%	11.4%	7.3%	11.0%
11	Entergy Corp.	4.6%	10.7%	10.1%	7.3%
12	Exelon Corp.	n/a	9.8%	10.1%	7.9%
13	Hawaiian Elec.	8.2%	5.0%	6.8%	8.3%
14	IDACORP, Inc.	7.5%	6.0%	6.0%	6.7%
15	NorthWestern Corp.	8.0%	9.0%	6.2%	8.1%
16	OGE Energy Corp.	11.2%	-7.6%	14.9%	9.8%
17	Otter Tail Corp.	7.0%	11.5%	n/a	7.2%
18	Pinnacle West Capital	5.1%	11.6%	n/a	7.8%
19	Portland General Elec.	9.0%	8.1%	10.0%	9.2%
20	Pub Sv Enterprise Grp.	8.3%	6.2%	8.2%	8.7%
21	Sempra Energy	10.2%	7.4%	8.6%	7.9%
22	Southern Company	10.6%	11.4%	8.1%	10.9%
	Average (b)	**9.2%**	**10.3%**	**10.0%**	**9.1%**

(a) Sum of dividend yield (AES Indiana Witness Attachment AMM-5, p. 1) and respective growth rate (AES Indiana WitnesAttachment AMM-5, p. 2).

(b) Excludes highlighted values.

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		(a)	(a)	(a)	(b)	(c)	(d)	(e)		(f)	(g)		
		2027					Adjustment			"sv" Factor			
	Company	EPS	DPS	BVPS	b	r	Factor	Adjusted r	br	s	v	sv	br + sv
1	ALLETE	$5.00	$3.00	$54.00	40.0%	9.3%	1.0246	9.5%	3.8%	0.0271	0.3647	0.99%	4.8%
2	Ameren Corp.	$5.50	$3.30	$55.00	40.0%	10.0%	1.0296	10.3%	4.1%	0.0339	0.5000	1.70%	5.8%
3	Avista Corp.	$2.85	$2.05	$34.95	28.1%	8.2%	1.0305	8.4%	2.4%	0.0498	0.3922	1.95%	4.3%
4	Black Hills Corp.	$5.25	$2.95	$50.75	43.8%	10.3%	1.0297	10.7%	4.7%	0.0340	0.4514	1.53%	6.2%
5	CenterPoint Energy	$1.85	$0.95	$19.00	48.6%	9.7%	1.0187	9.9%	4.8%	0.0025	0.3667	0.09%	4.9%
6	CMS Energy Corp.	$3.75	$2.30	$26.00	38.7%	14.4%	1.0105	14.6%	5.6%	0.0148	0.6000	0.89%	6.5%
7	Dominion Energy	$5.10	$3.30	$43.40	35.3%	11.8%	1.0392	12.2%	4.3%	0.0305	0.5308	1.62%	5.9%
8	DTE Energy Co.	$8.30	$4.65	$60.75	44.0%	13.7%	1.0192	13.9%	6.1%	0.0007	0.5881	0.04%	6.2%
9	Duke Energy Corp.	$6.80	$4.30	$70.00	36.8%	9.7%	1.0133	9.8%	3.6%	0.0004	0.4043	0.02%	3.6%
10	Edison International	$6.30	$3.50	$47.45	44.4%	13.3%	1.0337	13.7%	6.1%	0.0106	0.5255	0.55%	6.7%
11	Entergy Corp.	$6.50	$5.00	$73.00	23.1%	8.9%	1.0289	9.2%	2.1%	0.0277	0.3787	1.05%	3.2%
12	Exelon Corp.	$3.00	$1.80	$28.75	40.0%	10.4%	0.9820	10.2%	4.1%	0.0078	0.4524	0.35%	4.5%
13	Hawaiian Elec.	$2.60	$1.60	$25.50	38.5%	10.2%	1.0209	10.4%	4.0%	0.0124	0.4632	0.57%	4.6%
14	IDACORP, Inc.	$6.10	$4.00	$67.30	34.4%	9.1%	1.0238	9.3%	3.2%	0.0101	0.4272	0.43%	3.6%
15	NorthWestern Corp.	$4.00	$2.68	$50.00	33.0%	8.0%	1.0277	8.2%	2.7%	0.0361	0.2308	0.83%	3.5%
16	OGE Energy Corp.	$3.15	$1.85	$26.00	41.3%	12.1%	1.0091	12.2%	5.0%	-	0.3882	0.00%	5.0%
17	Otter Tail Corp.	$3.65	$2.20	$34.25	39.7%	10.7%	1.0195	10.9%	4.3%	0.0079	0.4731	0.37%	4.7%
18	Pinnacle West Capital	$5.25	$3.66	$59.25	30.3%	8.9%	1.0172	9.0%	2.7%	0.0139	0.3763	0.52%	3.3%
19	Portland General Elec.	$3.50	$2.24	$37.00	36.0%	9.5%	1.0316	9.8%	3.5%	0.0398	0.4308	1.71%	5.2%
20	Pub Sv Enterprise Grp.	$4.50	$2.80	$33.75	37.8%	13.3%	1.0151	13.5%	5.1%	(0.0037)	0.5645	-0.21%	4.9%
21	Sempra Energy	$11.25	$5.82	$102.65	48.3%	11.0%	1.0224	11.2%	5.4%	(0.0145)	0.4736	-0.69%	4.7%
22	Southern Company	$5.15	$3.10	$32.25	39.8%	16.0%	1.0216	16.3%	6.5%	0.0050	0.6206	0.31%	6.8%

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		(a)	(a)	(h)	(a)	(a)	(h)	(i)	(a)	(a)		(j)	(a)	(a)	(i)
			2022			2027		Chg		2027			Common Shares		
	Company	Eq Ratio	Tot Cap	Com Eq	Eq Ratio	Tot Cap	Com Eq	Equity	High	Low	Avg.	M/B	2022	2027	Growth
1	ALLETE	57.8%	$4,465	$2,581	59.5%	$5,550	$3,302	5.1%	$100.0	$70.0	$85.0	1.574	56.01	61.00	1.72%
2	Ameren Corp.	44.0%	$24,193	$10,645	48.5%	$29,500	$14,308	6.1%	$120.0	$100.0	$110.0	2.000	262.00	285.00	1.70%
3	Avista Corp.	52.5%	$4,105	$2,155	51.5%	$5,675	$2,923	6.3%	$65.0	$50.0	$57.5	1.645	71.50	83.00	3.03%
4	Black Hills Corp.	40.3%	$6,914	$2,786	50.0%	$7,500	$3,750	6.1%	$105.0	$80.0	$92.5	1.823	64.74	71.00	1.86%
5	CenterPoint Energy	39.0%	$25,675	$10,013	42.5%	$28,400	$12,070	3.8%	$35.0	$25.0	$30.0	1.579	628.92	634.00	0.16%
6	CMS Energy Corp.	34.5%	$20,350	$7,021	37.5%	$20,800	$7,800	2.1%	$75.0	$55.0	$65.0	2.500	291.30	300.00	0.59%
7	Dominion Energy	38.5%	$66,344	$25,542	41.0%	$92,200	$37,802	8.2%	$105.0	$80.0	$92.5	2.131	810.40	870.00	1.43%
8	DTE Energy Co.	37.0%	$28,000	$10,360	39.0%	$32,200	$12,558	3.9%	$170.0	$125.0	$147.5	2.428	205.69	206.00	0.03%
9	Duke Energy Corp.	43.1%	$109,744	$47,300	37.5%	$144,100	$54,038	2.7%	$135.0	$100.0	$117.5	1.679	769.00	770.00	0.03%
10	Edison International	33.2%	$41,959	$13,930	32.0%	$61,000	$19,520	7.0%	$120.0	$80.0	$100.0	2.107	380.38	390.00	0.50%
11	Entergy Corp.	35.2%	$36,810	$12,957	33.0%	$52,410	$17,295	5.9%	$135.0	$100.0	$117.5	1.610	211.18	230.00	1.72%
12	Exelon Corp.	49.1%	$70,107	$34,423	35.5%	$81,000	$28,755	-3.5%	$60.0	$45.0	$52.5	1.826	979.00	1000.00	0.43%
13	Hawaiian Elec.	52.8%	$4,524	$2,389	49.5%	$5,950	$2,945	4.3%	$55.0	$40.0	$47.5	1.863	109.31	113.00	0.67%
14	IDACORP, Inc.	57.2%	$4,669	$2,671	50.0%	$6,775	$3,388	4.9%	$130.0	$105.0	$117.5	1.746	50.52	52.00	0.58%
15	NorthWestern Corp.	47.8%	$4,893	$2,339	51.0%	$6,050	$3,086	5.7%	$75.0	$55.0	$65.0	1.300	54.06	62.00	2.78%
16	OGE Energy Corp.	53.0%	$8,962	$4,750	50.0%	$10,400	$5,200	1.8%	$50.0	$35.0	$42.5	1.635	200.20	200.20	0.00%
17	Otter Tail Corp.	58.5%	$2,041	$1,194	57.5%	$2,525	$1,452	4.0%	$75.0	$55.0	$65.0	1.898	41.63	42.50	0.41%
18	Pinnacle West Capital	46.1%	$12,820	$5,910	45.5%	$15,425	$7,018	3.5%	$110.0	$80.0	$95.0	1.603	113.01	118.00	0.87%
19	Portland General Elec.	43.2%	$6,265	$2,706	45.0%	$8,250	$3,713	6.5%	$75.0	$55.0	$65.0	1.757	89.41	100.00	2.26%
20	Pub Sv Enterprise Grp.	48.7%	$29,657	$14,443	45.5%	$36,900	$16,790	3.1%	$85.0	$70.0	$77.5	2.296	504.00	500.00	-0.16%
21	Sempra Energy	53.3%	$47,069	$25,088	52.5%	$59,800	$31,395	4.6%	$225.0	$165.0	$195.0	1.900	316.92	305.00	-0.76%
22	Southern Company	35.6%	$78,285	$27,869	37.0%	$93,500	$34,595	4.4%	$100.0	$70.0	$85.0	2.636	1060.00	1070.00	0.19%

(a) The Value Line Investment Survey (Jan. 20, Feb. 10 and Mar. 10, 2023).
(b) "b" is the retention ratio, computed as (EPS-DPS)/EPS.
(c) "r" is the rate of return on book equity, computed as EPS/BVPS.
(d) Computed using the formula 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
(e) Product of average year-end "r" for 2027 and Adjustment Factor.
(f) Product of change in common shares outstanding and M/B Ratio.
(g) Computed as 1 - B/M Ratio.
(h) Product of total capital and equity ratio.
(i) Five-year rate of change.
(j) Average of High and Low expected market prices divided by 2027 BVPS.

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		(a)	(b)		(c)		(d)		(e)	(f)	
		Market Return (R_m)									
	Company	Div Yield	Proj. Growth	Cost of Equity	Risk-Free Rate	Risk Premium	Beta	Unadjusted K_e	Market Cap	Size Adjustment	CAPM Result
1	ALLETE	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$3,500	0.93%	11.8%
2	Ameren Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.85	10.4%	$22,000	0.45%	10.9%
3	Avista Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$3,200	0.93%	11.8%
4	Black Hills Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.95	11.2%	$4,600	0.58%	11.8%
5	CenterPoint Energy	2.1%	9.5%	11.6%	3.8%	7.8%	1.10	12.4%	$17,900	0.45%	12.8%
6	CMS Energy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.80	10.0%	$17,400	0.45%	10.5%
7	Dominion Energy	2.1%	9.5%	11.6%	3.8%	7.8%	0.80	10.0%	$52,200	-0.26%	9.8%
8	DTE Energy Co.	2.1%	9.5%	11.6%	3.8%	7.8%	0.95	11.2%	$22,900	0.45%	11.7%
9	Duke Energy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.85	10.4%	$78,300	-0.26%	10.2%
10	Edison International	2.1%	9.5%	11.6%	3.8%	7.8%	0.95	11.2%	$25,900	0.45%	11.7%
11	Entergy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.95	11.2%	$23,000	0.45%	11.7%
12	Exelon Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	n/a	n/a	$41,500	-0.26%	n/a
13	Hawaiian Elec.	2.1%	9.5%	11.6%	3.8%	7.8%	0.85	10.4%	$4,600	0.58%	11.0%
14	IDACORP, Inc.	2.1%	9.5%	11.6%	3.8%	7.8%	0.80	10.0%	$5,500	0.58%	10.6%
15	NorthWestern Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$3,400	0.93%	11.8%
16	OGE Energy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	1.00	11.6%	$7,300	0.57%	12.2%
17	Otter Tail Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$3,000	0.93%	11.8%
18	Pinnacle West Capital	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$8,500	0.57%	11.4%
19	Portland General Elec.	2.1%	9.5%	11.6%	3.8%	7.8%	0.85	10.4%	$4,400	0.58%	11.0%
20	Pub Sv Enterprise Grp.	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$30,500	0.45%	11.3%
21	Sempra Energy	2.1%	9.5%	11.6%	3.8%	7.8%	0.95	11.2%	$49,400	-0.26%	11.0%
22	Southern Company	2.1%	9.5%	11.6%	3.8%	7.8%	0.90	10.8%	$71,300	-0.26%	10.6%
	Average							**10.8%**			**11.3%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Mar. 16, 2023).

(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from Refinitiv, as provided by fidelity.com (retrieved Mar. 16, 2023), www.valueline.com (retrieved Mar. 16, 2023), and www.zacks.com (retrieved Mar. 16, 2023). Eliminated growth rates that were greater than 20%, as well as all negative values.

(c) Average yield on 30-year Treasury bonds for six-months ending Mar. 2023 based on data from Moody's Investors Service.

(d) The Value Line Investment Survey, Summary & Index (Mar. 31, 2023).

(e) The Value Line Investment Survey (Jan. 20, Feb. 10 and Mar. 10, 2023).

(f) Kroll, 2023 Supplementary CRSP Decile Size Study Data Exhibits.

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		(a)	(b)		(c)		(d)		(e)	(d)				(f)	(g)	
		Market Return (R_m)					**Unadjusted RP**		**Beta Adjusted RP**							
	Company	**Div Yield**	**Proj. Growth**	**Cost of Equity**	**Risk-Free Rate**	**Risk Premium**	**Weight**	***RP*** ^{1}	**Beta**	**Weight**	***RP*** ^{2}	**Total RP**	**Unadjusted K_e**	**Market Cap**	**Size Adjustment**	**ECAPM Result**
1	ALLETE	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$3,500	0.93%	11.9%
2	Ameren Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.85	75%	5.0%	6.9%	10.7%	$22,000	0.45%	11.2%
3	Avista Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$3,200	0.93%	11.9%
4	Black Hills Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.95	75%	5.6%	7.5%	11.3%	$4,600	0.58%	11.9%
5	CenterPoint Energy	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	1.10	75%	6.4%	8.4%	12.2%	$17,900	0.45%	12.6%
6	CMS Energy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.80	75%	4.7%	6.6%	10.4%	$17,400	0.45%	10.9%
7	Dominion Energy	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.80	75%	4.7%	6.6%	10.4%	$52,200	-0.26%	10.2%
8	DTE Energy Co.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.95	75%	5.6%	7.5%	11.3%	$22,900	0.45%	11.8%
9	Duke Energy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.85	75%	5.0%	6.9%	10.7%	$78,300	-0.26%	10.5%
10	Edison International	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.95	75%	5.6%	7.5%	11.3%	$25,900	0.45%	11.8%
11	Entergy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.95	75%	5.6%	7.5%	11.3%	$23,000	0.45%	11.8%
12	Exelon Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	n/a	75%	n/a	n/a	n/a	$41,500	-0.26%	n/a
13	Hawaiian Elec.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.85	75%	5.0%	6.9%	10.7%	$4,600	0.58%	11.3%
14	IDACORP, Inc.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.80	75%	4.7%	6.6%	10.4%	$5,500	0.58%	11.0%
15	NorthWestern Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$3,400	0.93%	11.9%
16	OGE Energy Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	1.00	75%	5.9%	7.8%	11.6%	$7,300	0.57%	12.2%
17	Otter Tail Corp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$3,000	0.93%	11.9%
18	Pinnacle West Capital	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$8,500	0.57%	11.6%
19	Portland General Elec.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.85	75%	5.0%	6.9%	10.7%	$4,400	0.58%	11.3%
20	Pub Sv Enterprise Grp.	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$30,500	0.45%	11.5%
21	Sempra Energy	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.95	75%	5.6%	7.5%	11.3%	$49,400	-0.26%	11.0%
22	Southern Company	2.1%	9.5%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$71,300	-0.26%	10.8%
	Average												**11.0%**			**11.5%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Mar. 16, 2023).

(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from Refinitiv, as provided by fidelity.com (retrieved Mar. 16, 2023), www.valueline.com (retrieved Mar. 16, 2023), and www.zacks.com (retrieved Mar. 16, 2023). Eliminated growth rates that were greater than 20%, as well as all negative values.

(c) Average yield on 30-year Treasury bonds for six-months ending Mar. 2023 based on data from Moody's Investors Service.

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

(e) The Value Line Investment Survey, Summary & Index (Mar. 31, 2023).

(f) The Value Line Investment Survey (Jan. 20, Feb. 10 and Mar. 10, 2023).

(g) Kroll, 2023 Supplementary CRSP Decile Size Study Data Exhibits.

COST OF EQUITY ESTIMATE

Current Equity Risk Premium	
(a) Avg. Yield over Study Period	7.83%
(b) Average Utility Bond Yield	5.49%
Change in Bond Yield	-2.34%
(c) Risk Premium/Interest Rate Relationship	-0.4273
Adjustment to Average Risk Premium	1.00%
(a) Average Risk Premium over Study Period	3.89%
Adjusted Risk Premium	**4.89%**
Implied Cost of Equity	
(b) Baa Utility Bond Yield	5.75%
Adjusted Equity Risk Premium	4.89%
Risk Premium Cost of Equity	**10.64%**

(a) AES Indiana Witness Attachment AMM-9, page 2.
(b) Average bond yield on all utility bonds and 'Baa' subset for six-months ending Mar. 2023 based on data from Moody's Investors Service at www.credittrends.com.
(c) AES Indiana Witness Attachment AMM-9, page 3.

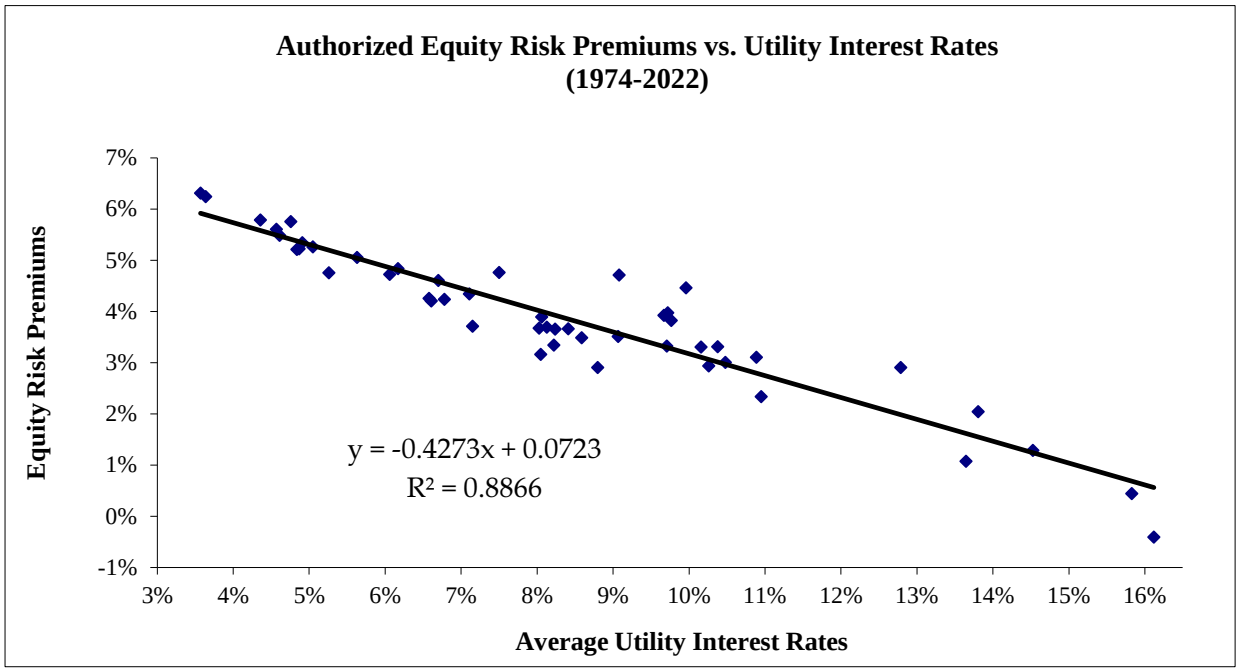
AUTHORIZED RETURNS

Year	(a) Allowed ROE	(b) Average Utility Bond Yield	Risk Premium
1974	13.10%	9.27%	3.83%
1975	13.20%	9.88%	3.32%
1976	13.10%	9.17%	3.93%
1977	13.30%	8.58%	4.72%
1978	13.20%	9.22%	3.98%
1979	13.50%	10.39%	3.11%
1980	14.23%	13.15%	1.08%
1981	15.22%	15.62%	-0.40%
1982	15.78%	15.33%	0.45%
1983	15.36%	13.31%	2.05%
1984	15.32%	14.03%	1.29%
1985	15.20%	12.29%	2.91%
1986	13.93%	9.46%	4.47%
1987	12.99%	9.98%	3.01%
1988	12.79%	10.45%	2.34%
1989	12.97%	9.66%	3.31%
1990	12.70%	9.76%	2.94%
1991	12.54%	9.21%	3.33%
1992	12.09%	8.57%	3.52%
1993	11.46%	7.56%	3.90%
1994	11.21%	8.30%	2.91%
1995	11.58%	7.91%	3.67%
1996	11.40%	7.74%	3.66%
1997	11.33%	7.63%	3.70%
1998	11.77%	7.00%	4.77%
1999	10.72%	7.55%	3.17%
2000	11.58%	8.09%	3.49%
2001	11.07%	7.72%	3.35%
2002	11.21%	7.53%	3.68%
2003	10.96%	6.61%	4.35%
2004	10.81%	6.20%	4.61%
2005	10.51%	5.67%	4.84%
2006	10.34%	6.08%	4.26%
2007	10.32%	6.11%	4.21%
2008	10.37%	6.65%	3.72%
2009	10.52%	6.28%	4.24%
2010	10.29%	5.56%	4.73%
2011	10.19%	5.13%	5.06%
2012	10.02%	4.26%	5.76%
2013	9.82%	4.55%	5.27%
2014	9.76%	4.41%	5.35%
2015	9.60%	4.37%	5.23%
2016	9.60%	4.11%	5.49%
2017	9.68%	4.07%	5.61%
2018	9.56%	4.34%	5.22%
2019	9.65%	3.86%	5.79%
2020	9.39%	3.07%	6.32%
2021	9.39%	3.14%	6.25%
2022	9.52%	4.75%	4.77%
Average	**11.72%**	**7.83%**	**3.89%**

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

(b) Moody's Investors Service.

REGRESSION RESULTS



ELECTRIC GROUP

	Company	(a) Expected Return on Common Equity	(b) Adjustment Factor	(c) Adjusted Return on Common Equity
1	ALLETE	9.0%	1.0246	9.2%
2	Ameren Corp.	10.0%	1.0296	10.3%
3	Avista Corp.	8.0%	1.0305	8.2%
4	Black Hills Corp.	9.5%	1.0297	9.8%
5	CenterPoint Energy	10.0%	1.0187	10.2%
6	CMS Energy Corp.	14.0%	1.0105	14.1%
7	Dominion Energy	12.0%	1.0392	12.5%
8	DTE Energy Co.	12.5%	1.0192	12.7%
9	Duke Energy Corp.	9.0%	1.0133	9.1%
10	Edison International	13.0%	1.0337	13.4%
11	Entergy Corp.	9.0%	1.0289	9.3%
12	Exelon Corp.	10.0%	0.9820	9.8%
13	Hawaiian Elec.	12.5%	1.0209	12.8%
14	IDACORP, Inc.	9.5%	1.0238	9.7%
15	NorthWestern Corp.	8.0%	1.0277	8.2%
16	OGE Energy Corp.	13.0%	1.0091	13.1%
17	Otter Tail Corp.	11.5%	1.0195	11.7%
18	Pinnacle West Capital	9.0%	1.0172	9.2%
19	Portland General Elec.	9.5%	1.0316	9.8%
20	Pub Sv Enterprise Grp.	13.5%	1.0151	13.7%
21	Sempra Energy	11.0%	1.0224	11.2%
22	Southern Company	14.5%	1.0216	14.8%
	Average (d)	**10.8%**		**11.0%**

(a) The Value Line Investment Survey (Jan. 20, Feb. 10 and Mar. 10, 2023).
(b) Adjustment to convert year-end return to an average rate of return from AES Indiana Witness Attachment AMM-6.
(c) (a) x (b).
(d) Excludes highlighted values.

DIVIDEND YIELD

	Company	Industry Group	(a) Price	(b) Dividends	Yield
1	3M Company	Diversified Co.	$106.36	$ 6.00	5.6%
2	Abbott Labs.	Med Supp Non-Invasive	$100.29	$ 2.04	2.0%
3	Air Products & Chem.	Chemical (Diversified)	$281.14	$ 7.00	2.5%
4	Allstate Corp.	Insurance (Prop/Cas.)	$120.44	$ 3.56	3.0%
5	Amdocs Ltd.	IT Services	$92.79	$ 1.74	1.9%
6	Amgen	Biotechnology	$234.21	$ 8.52	3.6%
7	Archer Daniels Midl'd	Food Processing	$79.03	$ 1.80	2.3%
8	Becton, Dickinson	Med Supp Invasive	$237.50	$ 3.68	1.5%
9	Bristol-Myers Squibb	Drug	$68.51	$ 2.31	3.4%
10	Brown & Brown	Financial Svcs. (Div.)	$55.82	$ 0.46	0.8%
11	Brown-Forman 'B'	Beverage	$63.90	$ 0.82	1.3%
12	Church & Dwight	Household Products	$84.48	$ 1.09	1.3%
13	Cisco Systems	Telecom. Equipment	$49.51	$ 1.56	3.2%
14	Coca-Cola	Beverage	$60.07	$ 1.84	3.1%
15	Colgate-Palmolive	Household Products	$72.99	$ 1.92	2.6%
16	Comcast Corp.	Cable TV	$36.81	$ 1.16	3.2%
17	Costco Wholesale	Retail Store	$488.50	$ 3.75	0.8%
18	Danaher Corp.	Diversified Co.	$247.94	$ 1.08	0.4%
19	Gen'l Mills	Food Processing	$80.16	$ 2.17	2.7%
20	Gilead Sciences	Drug	$80.65	$ 3.00	3.7%
21	Hershey Co.	Food Processing	$241.73	$ 4.27	1.8%
22	Home Depot	Retail Building Supply	$292.87	$ 8.36	2.9%
23	Hormel Foods	Food Processing	$41.24	$ 1.10	2.7%
24	Intercontinental Exch.	Brokers & Exchanges	$100.99	$ 1.68	1.7%
25	Johnson & Johnson	Med Supp Non-Invasive	$154.32	$ 4.52	2.9%
26	Kimberly-Clark	Household Products	$126.71	$ 4.72	3.7%
27	Lilly (Eli)	Drug	$325.23	$ 4.52	1.4%
28	Lockheed Martin	Aerospace/Defense	$475.63	$ 12.20	2.6%
29	Marsh & McLennan	Financial Svcs. (Div.)	$161.25	$ 2.48	1.5%
30	McCormick & Co.	Food Processing	$73.91	$ 1.56	2.1%
31	McDonald's Corp.	Restaurant	$267.83	$ 6.20	2.3%
32	McKesson Corp.	Med Supp Non-Invasive	$348.20	$ 2.28	0.7%
33	Merck & Co.	Drug	$107.28	$ 2.92	2.7%
34	Microsoft Corp.	Computer Software	$262.00	$ 2.73	1.0%
35	Mondelez Int'l	Food Processing	$66.46	$ 1.54	2.3%
36	NewMarket Corp.	Chemical (Specialty)	$347.55	$ 8.40	2.4%
37	Northrop Grumman	Aerospace/Defense	$461.03	$ 6.92	1.5%
38	Oracle Corp.	Computer Software	$87.33	$ 1.60	1.8%
39	PepsiCo, Inc.	Beverage	$175.49	$ 4.60	2.6%
40	Pfizer, Inc.	Drug	$40.85	$ 1.64	4.0%
41	Procter & Gamble	Household Products	$140.96	$ 3.65	2.6%
42	Progressive Corp.	Insurance (Prop/Cas.)	$141.53	$ 0.40	0.3%
43	Republic Services	Environmental	$129.80	$ 1.98	1.5%
44	Sherwin-Williams	Retail Building Supply	$219.55	$ 2.42	1.1%
45	Smucker (J.M.)	Food Processing	$150.87	$ 4.14	2.7%
46	Texas Instruments	Semiconductor	$174.94	$ 4.96	2.8%
47	Thermo Fisher Sci.	Precision Instrument	$551.89	$ 1.40	0.3%
48	Travelers Cos.	Insurance (Prop/Cas.)	$176.47	$ 3.72	2.1%
49	Verizon Communic.	Telecom. Services	$38.05	$ 2.64	6.9%
50	Walmart Inc.	Retail Store	$141.28	$ 2.32	1.6%
51	Waste Management	Environmental	$152.25	$ 2.80	1.8%
	Average				**2.3%**

(a) Average of closing prices for 30 trading days ended Mar. 29, 2023.

(b) The Value Line Investment Survey, *Summary & Index* (Mar. 31, 2023).

GROWTH RATE

		(a)	(b)	(c)
		Earnings Growth		
	Company	**V Line**	**IBES**	**Zacks**
1	3M Company	7.50%	0.09%	9.50%
2	Abbott Labs.	6.50%	8.30%	5.09%
3	Air Products & Chem.	11.50%	8.79%	11.68%
4	Allstate Corp.	3.50%	-2.19%	7.00%
5	Amdocs Ltd.	7.50%	11.07%	11.00%
6	Amgen	4.50%	4.12%	7.00%
7	Archer Daniels Midl'd	13.00%	-2.80%	6.39%
8	Becton, Dickinson	5.00%	6.30%	7.77%
9	Bristol-Myers Squibb	n/a	4.06%	5.70%
10	Brown & Brown	8.00%	13.22%	n/a
11	Brown-Forman 'B'	14.50%	8.85%	n/a
12	Church & Dwight	6.00%	7.81%	7.64%
13	Cisco Systems	8.50%	7.32%	6.50%
14	Coca-Cola	8.00%	6.06%	6.66%
15	Colgate-Palmolive	6.00%	6.02%	6.21%
16	Comcast Corp.	8.50%	6.40%	12.64%
17	Costco Wholesale	10.50%	9.90%	9.24%
18	Danaher Corp.	16.00%	3.31%	12.00%
19	Gen'l Mills	4.50%	7.04%	7.50%
20	Gilead Sciences	12.00%	2.52%	12.26%
21	Hershey Co.	9.00%	9.64%	7.67%
22	Home Depot	9.00%	2.22%	11.22%
23	Hormel Foods	7.50%	3.30%	5.83%
24	Intercontinental Exch.	7.00%	5.86%	5.40%
25	Johnson & Johnson	8.00%	3.94%	5.53%
26	Kimberly-Clark	7.00%	9.61%	9.86%
27	Lilly (Eli)	11.50%	22.87%	20.62%
28	Lockheed Martin	7.00%	9.55%	6.86%
29	Marsh & McLennan	10.50%	9.08%	8.46%
30	McCormick & Co.	4.50%	3.51%	6.92%
31	McDonald's Corp.	9.00%	7.75%	8.07%
32	McKesson Corp.	10.00%	11.87%	10.36%
33	Merck & Co.	8.50%	10.47%	8.01%
34	Microsoft Corp.	15.00%	11.90%	11.66%
35	Mondelez Int'l	7.50%	6.45%	7.14%
36	NewMarket Corp.	1.00%	7.70%	n/a
37	Northrop Grumman	9.50%	3.00%	3.45%
38	Oracle Corp.	10.00%	9.06%	8.00%
39	PepsiCo, Inc.	6.50%	7.55%	7.63%
40	Pfizer, Inc.	2.00%	-8.00%	9.00%
41	Procter & Gamble	5.50%	5.07%	6.14%
42	Progressive Corp.	6.50%	28.64%	23.89%
43	Republic Services	12.50%	8.97%	9.11%
44	Sherwin-Williams	7.00%	9.07%	10.30%
45	Smucker (J.M.)	4.00%	3.79%	4.00%
46	Texas Instruments	4.50%	10.00%	9.33%
47	Thermo Fisher Sci.	11.00%	7.77%	12.50%
48	Travelers Cos.	7.50%	8.83%	10.71%
49	Verizon Communic.	2.50%	0.13%	4.15%
50	Walmart Inc.	7.50%	5.09%	5.50%
51	Waste Management	6.50%	8.75%	10.88%

(a) The Value Line Investment Survey (various editions as of Mar. 31, 2023).
(b) www.finance.yahoo.com (retrieved Mar. 30, 2023).
(c) www.zacks.com (retrieved Mar. 30, 2023).

DCF COST OF EQUITY ESTIMATES

		(a)	(b)	(c)
		Earnings Growth		
	Company	**V Line**	**IBES**	**Zacks**
1	3M Company	13.1%	5.7%	15.1%
2	Abbott Labs.	8.5%	10.3%	7.1%
3	Air Products & Chem.	14.0%	11.3%	14.2%
4	Allstate Corp.	6.5%	0.8%	10.0%
5	Amdocs Ltd.	9.4%	12.9%	12.9%
6	Amgen	8.1%	7.8%	10.6%
7	Archer Daniels Midl'd	15.3%	-0.5%	8.7%
8	Becton, Dickinson	6.5%	7.8%	9.3%
9	Bristol-Myers Squibb	n/a	7.4%	9.1%
10	Brown & Brown	8.8%	14.0%	n/a
11	Brown-Forman 'B'	15.8%	10.1%	n/a
12	Church & Dwight	7.3%	9.1%	8.9%
13	Cisco Systems	11.7%	10.5%	9.7%
14	Coca-Cola	11.1%	9.1%	9.7%
15	Colgate-Palmolive	8.6%	8.7%	8.8%
16	Comcast Corp.	11.7%	9.6%	15.8%
17	Costco Wholesale	11.3%	10.7%	10.0%
18	Danaher Corp.	16.4%	3.7%	12.4%
19	Gen'l Mills	7.2%	9.7%	10.2%
20	Gilead Sciences	15.7%	6.2%	16.0%
21	Hershey Co.	10.8%	11.4%	9.4%
22	Home Depot	11.9%	5.1%	14.1%
23	Hormel Foods	10.2%	6.0%	8.5%
24	Intercontinental Exch.	8.7%	7.5%	7.1%
25	Johnson & Johnson	10.9%	6.9%	8.5%
26	Kimberly-Clark	10.7%	13.3%	13.6%
27	Lilly (Eli)	12.9%	24.3%	22.0%
28	Lockheed Martin	9.6%	12.1%	9.4%
29	Marsh & McLennan	12.0%	10.6%	10.0%
30	McCormick & Co.	6.6%	5.6%	9.0%
31	McDonald's Corp.	11.3%	10.1%	10.4%
32	McKesson Corp.	10.7%	12.5%	11.0%
33	Merck & Co.	11.2%	13.2%	10.7%
34	Microsoft Corp.	16.0%	12.9%	12.7%
35	Mondelez Int'l	9.8%	8.8%	9.5%
36	NewMarket Corp.	3.4%	10.1%	n/a
37	Northrop Grumman	11.0%	4.5%	5.0%
38	Oracle Corp.	11.8%	10.9%	9.8%
39	PepsiCo, Inc.	9.1%	10.2%	10.3%
40	Pfizer, Inc.	6.0%	-4.0%	13.0%
41	Procter & Gamble	8.1%	7.7%	8.7%
42	Progressive Corp.	6.8%	28.9%	24.2%
43	Republic Services	14.0%	10.5%	10.6%
44	Sherwin-Williams	8.1%	10.2%	11.4%
45	Smucker (J.M.)	6.7%	6.5%	6.7%
46	Texas Instruments	7.3%	12.8%	12.2%
47	Thermo Fisher Sci.	11.3%	8.0%	12.8%
48	Travelers Cos.	9.6%	10.9%	12.8%
49	Verizon Communic.	9.4%	7.1%	11.1%
50	Walmart Inc.	9.1%	6.7%	7.1%
51	Waste Management	8.3%	10.6%	12.7%
	Average (b)	**10.9%**	**10.4%**	**10.9%**

(a) Sum of dividend yield (p. 1) and respective growth rate (p. 2).
(b) Excludes highlighted figures.