44893

VERIFIED DIRECT TESTIMONY
OF
ADRIEN M. MCKENZIE, CFA

ON BEHALF OF

INDIANAPOLIS POWER & LIGHT COMPANY

INCLUDING IPL WITNESS AMM ATTACHMENTS 1 THROUGH 16

DIRECT TESTIMONY OF ADRIEN M. MCKENZIE

TABLE OF CONTENTS

I. INTRODUCTION 1

II. EXECUTIVE SUMMARY 3

III. FINANCIAL CHALLENGES FACING IPL 6
- A. Indianapolis Power & Light Company 6
- B. Capital Market Conditions 13

IV. COMPARABLE RISK PROXY GROUP AND CAPITAL STRUCTURE 18
- A. Selection of Proxy Group 18
- B. Capital Structure 20

V. COST OF EQUITY FOR IPL 21
- A. Economic Standards 22
- B. Discounted Cash Flow Analyses 27
- C. Capital Asset Pricing Model 41
- D. Empirical Capital Asset Pricing Model 45
- E. Utility Risk Premium 47
- F. Expected Earnings Approach 52
- G. Non-Utility Benchmark 55
- H. Other Considerations 59
- I. Recommended COE Range 64

VI. FAIR RETURN ON FAIR VALUE 66
- A. Fair Value Ratemaking 66
- B. Fair Return on Fair Value for IPL 70
- C. Implications of Depreciation Expense Under Fair Value Regulation 80

ATTACHMENTS TO DIRECT TESTIMONY

Attachment	Description
1	Qualifications of Adrien M. McKenzie
2	Summary of Results
3	Regulatory Mechanisms
4	Capital Structure
5	DCF Model – Electric Group
6	Sustainable Growth Rate
7	CAPM
8	Empirical CAPM
9	Risk Premium
10	Expected Earnings Approach
11	DCF Model - Non-Utility Group
12	Fair Value Rate Base – NOI at Recommended RFV
13	Historical Cost Rate Base – Implied COE
14	Historical Cost Rate Base – NOI at Upper-end of COE Range
15	Fair Value Rate Base – Implied RFV
16	Fair Value Ratemaking – Impact of Depreciation Expense

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 a Vice President of FINCAP, Inc., a firm providing financial, economic, and policy consulting services.

Q3. PLEASE DESCRIBE YOUR QUALIFICATIONS AND PROFESSIONAL EXPERIENCE.

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

Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A4. The purpose of my testimony is to present to the Indiana Utility Regulatory Commission ("IURC") my independent assessment of a reasonable range for the cost of equity ("COE") for Indianapolis Power & Light Company ("IPL" or "the Company") and the proposed fair rate of return on the fair value ("RFV") of IPL's utility property. I also examine the reasonableness of the Company's capital structure, considering both the specific risks faced by IPL and utility industry comparisons.

Q5. PLEASE SUMMARIZE THE INFORMATION AND MATERIALS YOU RELIED ON TO SUPPORT THE OPINIONS AND CONCLUSIONS CONTAINED IN YOUR TESTIMONY.

A5. To prepare my testimony, I used information from a variety of sources that would normally be relied upon by a person in my capacity. In connection with the present filing, I considered and relied upon discussions with corporate management, publicly available financial reports, and prior regulatory filings relating to IPL. I also reviewed information relating generally to current capital market conditions and specifically to investor perceptions, requirements, and expectations for IPL's electric utility operations. 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 IPL, and they form the basis of my analyses and conclusions.

Q6. HOW IS YOUR TESTIMONY ORGANIZED?

A6. After first summarizing my conclusions and recommendations in the Executive Summary, I briefly review IPL's operations and finances, and present current conditions in the capital markets and their implications in evaluating a fair return for IPL. With this as a background, I discuss well-accepted quantitative analyses to estimate the current cost of equity for a separate reference group of electric utilities. These included the discounted cash flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the empirical form of the Capital Asset Pricing Model ("ECAPM"), an equity risk premium approach based on allowed returns, and reference to expected earned rates of return for electric utilities, which are all methods that are commonly relied on in regulatory proceedings. Further, I corroborate my utility quantitative analyses by applying the DCF model to a group of low risk non-utility firms. Based on the cost of equity estimates indicated by my analyses, I evaluated a fair COE for

IPL, taking into account the specific risks for its jurisdictional utility operations and IPL's requirements for financial strength. Finally, I present my recommendation for a fair RFV for IPL.

II. EXECUTIVE SUMMARY

Q7. WHAT IS YOUR RECOMMENDED FAIR RFV FOR IPL?

A7. My analysis supports that setting rates to produce an authorized net operating income ("NOI") of $213.743 million would result in a fair RFV on IPL's public utility property. This return would allow IPL to attract capital on reasonable terms, maintain its financial integrity, and compensate investors for the risks they are bearing relative to the return offered by comparable risk investments. Moreover, my recommended net operating income would not require customers to pay unreasonable rates. My recommendation is based on a fair value rate base ("FVRB") that weights the original cost and the current value (estimated by Concentric) components using the percentages of non-equity and equity capital, respectively, which is consistent with the order in IPL's last rate case (Cause No. 44576). Based on the results of my analyses and the economic requirements necessary to support continuous access to capital under reasonable terms, I determined that a COE range of 9.85% to 10.95% is reasonable for IPL. The fair RFV is adjusted to remove inflation from the cost of common equity component of the weighted capital structure. In addition, my recommended fair RFV is further reduced in order to ensure that the resulting NOI

does not imply a COE on historical cost rate base that exceeds the upper end of my recommended range. The resulting fair RFV is 5.7%.[1]

Q8. WAS THE COMPANY'S COST OF CAPITAL CONSIDERED IN DEVELOPING THE REQUESTED FAIR RFV?

A8. Yes, the cost of capital was applied in a manner consistent with the FVRB. This cost was based on the weighted average cost of capital ("WACC") from all sources: investor-supplied common equity, preferred equity, and debt, as well as non-investor supplied sources routinely used by the IURC. Except for the COE, the costs for each of these sources are objectively determined from accounting data consistent with IURC practice. The COE is established by investors in the capital markets and must be estimated using forward-looking methods. While not having an observable return like the other components of WACC, equity capital has a cost that the utility must have a reasonable opportunity to recover. The fair return to equity must be sufficient if the utility is to maintain its financial integrity, have access to new capital on reasonable terms, and provide a return commensurate with other opportunities of comparable risk.

Q9. HOW DID YOU ESTIMATE A REASONABLE COE RANGE FOR IPL?

A9. As discussed below, because investors' required COE is unobservable and no single approach should be viewed in isolation, I relied on the DCF, CAPM, ECAPM, utility risk premium, and expected earnings methods. These accepted methods of estimating the COE were applied to a proxy group of twenty-eight electric utility companies,

[1] *See*, IPL Financial Exhibit IPL-REVREQ, Schedule REVREQ1 (line2).

which I refer to as the "Electric Group." The results of these analyses are presented on IPL Witness AMM Attachment 2, with my conclusions being summarized below:

- The utilities in the Electric Group operate under a wider variety of regulatory mechanisms than does IPL, which allows them to better mitigate the risks of fluctuations in sales and costs, as well as the ability to recover incremental investment on a timelier basis.
- Awarding an increment of return above the cost of equity is warranted in light of IPL's construction projects, its efficient operations, low rates and its participation in the Asset Management and Performance Metrics Collaborative discussed by IPL Witness Holtsclaw.
- IPL's common equity ratio falls well below the average for the Electric Group. Because a capitalization that contains relatively less equity (and more debt) implies greater financial risk, it also implies a higher required rate of return to compensate investors for bearing additional uncertainty.
- Flotation costs, which are reasonable and necessary expenses associated with providing common equity capital, imply an upward adjustment to the COE in the range of 12 to 34 basis points.
- In consideration of these factors, I concluded that a minimal upward adjustment to the Company's cost of equity of 15 basis points is warranted.
- After adding this adjustment to the proxy group results, I concluded that the fair COE for IPL is in the range of 9.85% to 10.95%, with a midpoint of 10.4%.

Q10. WHAT IS YOUR CONCLUSION AS TO THE REASONABLENESS OF IPL'S CAPITAL STRUCTURE?

A10. Based on my evaluation, I concluded that IPL's requested common equity ratio of approximately 43% represents a reasonable capitalization.[2] IPL's 43% common equity ratio falls well below the 49% average for the proxy group of electric utilities at year-end 2015. Similarly, IPL's requested equity ratio falls well short of the 49%

[2] This equity ratio is based on IPL's long-term sources of investor-supplied financing – long-term debt, preferred stock, and common equity – which are the appropriate basis for industry comparisons. As shown on Schedule CC3, common equity represents 39.55% of IPL's ratemaking capital structure.

equity ratio based on Value Line's expectations for these utilities over the near-term. Greater reliance on long-term debt financing confers advantages to customers, given that the cost of debt is lower than the cost of equity, but it also implies greater financial risks. While IPL's equity ratio is lower than industry benchmarks, I concluded that the Company's capitalization is consistent with IPL's need to maintain its credit standing and financial flexibility as it seeks to raise additional capital to fund significant system investments and meet the requirements of its service territory.

III. FINANCIAL CHALLENGES FACING IPL

Q11. WHAT IS THE PURPOSE OF THIS SECTION?

A11. As a predicate to subsequent quantitative analyses, this section briefly reviews the operations and finances of IPL and current conditions in the capital markets.

A. Indianapolis Power & Light Company

Q12. BRIEFLY DESCRIBE IPL AND ITS ELECTRIC UTILITY OPERATIONS.

A12. IPL is engaged primarily in the generation, transmission, and distribution of electric energy to approximately 485,000 customers in the City of Indianapolis and neighboring areas within the state of Indiana. IPL's service area covers about 528 square miles with a population of approximately 934,000. At year-end 2015, IPL's financial statements report total assets of $3.7 billion, and total revenues of approximately $1.3 billion. IPL is a wholly-owned subsidiary of IPALCO Enterprises. IPALCO Enterprises 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 (the "CDPQ").

Q13. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO IPL?

A13. 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 IPL. Fitch Ratings Ltd. ("Fitch") has assigned an issuer default rating of BBB- to the Company.

Q14. DOES IPL MAKE CAPITAL INVESTMENTS IN ITS SYSTEM?

A14. Yes. As documented in the testimony of IPL Witnesses Scott, Holtsclaw, Sadtler and Tornquist, since the rate base cut-off date in its last rate case, IPL 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. The Company's investment in its system is ongoing. Moody's noted that "IPL expects to invest around $1.2 billion during the 2016-2018 period to complete its current capex program,"[3] while Fitch concluded that "elevated capex at IPL . . . will pressure credit metrics."[4]

Q15. HOW DO FLUCTUATIONS IN THE COMPANY'S FUEL AND OTHER COSTS AFFECT ITS RATES?

A15. IPL'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,

[3] Moody's Investors Service, "Indianapolis Power & Light Company," *Credit Opinion* (Oct. 4, 2016).
[4] Fitch Ratings Ltd., "Fitch Affirms AES and U.S. Subs; AES Outlook Revised to Stable from Negative," *Press Release* (Mar. 31,2016).

power purchase costs (including wind and solar), demand-side management costs, and costs incurred to comply with environmental laws and regulations.[5]

Q16. IS IPL UNIQUE IN HAVING ADJUSTMENT MECHANISMS TO RECOVER SIGNIFICANT COSTS THAT VARY OVER TIME?

A16. No. Adjustment mechanisms and cost trackers have been increasingly prevalent in the utility industry in recent years. In response to the increasing risk sensitivity of investors to uncertainty 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 some of the cost recovery uncertainty and align the interest of utilities and their customers through a variety of adjustment mechanisms. Based largely on the expanded use of ratemaking mechanisms to address operational risks and investment recovery, Moody's upgraded most regulated utilities in January 2014.[6] This is consistent with the view that investors perceive the impact of regulatory mechanisms to be an industry-wide factor. Just as a rising tide lifts all boats, ratemaking mechanisms have had an across-the-board impact on risk perceptions for virtually all utilities.

Q17. YOU INDICATED ABOVE THAT IPL HAS A RATE ADJUSTMENT MECHANISM FOR ITS ENVIRONMENTAL COMPLIANCE PROJECTS. HAS IPL BEEN ABLE TO ADJUST RATES TO REFLECT ITS OTHER

[5] The Environmental Compliance Cost Recovery Adjustment ("ECCRA") tracker allows for recovery of costs incurred for installation, upgrade, or operation of Clean Coal Technology and other pollution control facilities to comply with environmental requirements, including outlays to comply with the Mercury and Air Toxics Standards.

[6] Moody's Investors Service, "US utility sector upgrades driven by stable and transparent regulatory frameworks," *Sector Comment* (Feb. 2, 2014).

CAPITAL INVESTMENT, SUCH AS THE INVESTMENT IN THE EAGLE VALLEY CCGT, THE HARDING STREET REFUELING, AND THE TRANSMISSION AND DISTRIBUTION SYSTEM?

A17. No. In contrast to environmental compliance projects, the significant capital expenditures entailed with the Eagle Valley CCGT, the Harding Street Station Units 5 and 6 refueling, and other system improvements (such as those identified by IPL Witnesses Scott, Holtsclaw, Sadtler and Tornquist) are only being recognized in rates following a general rate case. The Company will have no increased cash flow from rates for these investments during the construction period. While this means that customers have avoided rate impacts until the new plant is placed in rate base and new rates are placed into effect, the Company continues to meet the related financial obligations without cash support from rates.[7]

Q18. DOES THIS SET IPL APART FROM THE OTHER UTILITIES IN YOUR PROXY GROUP?

A18. Yes. The mechanisms in place for IPL are more limited than those approved for the specific operating companies associated with the firms in the Electric Group. As summarized on page 1 of IPL Witness AMM Attachment 3, the companies in the proxy group of electric utilities I used to estimate the cost of equity operate under a variety of regulatory adjustment mechanisms. As detailed on pages 2-5 of IPL Witness AMM Attachment 3, 10 of the 37 integrated electric utilities benefit from infrastructure cost trackers that allow for recovery of new capital investment in

[7] While the Company is permitted to accrue Allowance for Funds Used During Construction ("AFUDC") until these projects are completed, this non-cash item does not provide funds for operations or capital investments.

generation facilities outside of a traditional rate case. In addition, over one-half of all the utilities[8] operate under a full or partial decoupling mechanism that accounts for the impact of various factors affecting sales volumes and revenues and 44 operate in jurisdictions that allow for future test periods.

In contrast, IPL lacks a revenue decoupling mechanism. It does not have a rate adjustment mechanism to address new investment in generation capacity or a general infrastructure cost tracking mechanism that would allow for timely recovery of significant capital investment in new generation or other facilities. Further, Indiana has routinely relied on a historical test year approach.[9] Regulatory adjustment mechanisms have important implications for a utility's financial health and relative risk. Thus, while the IURC is generally regarded as supportive, investors would view the risks of IPL as higher than the proxy group in these important respects.

Q19. IS THE ABILITY TO MAINTAIN FINANCIAL STRENGTH IMPORTANT ONLY DURING THE CONSTRUCTION OF NEW GENERATION PROJECTS?

[8] There are 56 operating companies represented on pages 2-5 of IPL Witness AMM Attachment 3 (37 integrated electric companies and 19 delivery-only companies). Of the 56 operating companies, 33 of them have some form of decoupling mechanism.

[9] While Indiana has recently enacted statutes that allow use of a forward-looking test year (IC 8-1-42.7) and for tracking of costs associated with a Commission approved seven-year transmission and distribution system improvement ("TDSIC") plan (IC 8-1-39), as of the filing of this testimony there is little Commission precedent regarding the application of the forward-looking test year and it is unclear what recovery is available under the TDSIC statute given that key Commission decisions granting recovery thereunder have been reversed on appeal while other utility TDSIC proposals have been rejected by the Commission. *See NIPSCO Indus. Grp. et al. v. N. Ind. Pub. Serv. Co.*, 31 N.E.3d 1 (Ind. Ct. App. 2015) (reversing Commission's approval of NIPSCO's seven-year plan under the TDSIC statute); *In re Duke Energy Indiana, Inc.*, Cause No. 44526, 2015 Ind. PUC LEXIS 149 (IURC 05/08/2015) (order of the Commission denying approval of Duke's T&D Plan); *In re Indiana Michigan Power Co.*, Cause No. 44542, 2015 Ind. PUC LEXIS 150 (IURC 05/08/2015) (order of the Commission denying I&M's 7-Year Electric Plan); *see also In re N. Ind. Pub. Serv. Co.*, Cause Nos. 44370 & 44371, Order on Remand, 2015 Ind. PUC LEXIS 393 (IURC 12/16/2015) (order approving settlement over the dissent of two of Indiana's five commissioners).

A19. No. As documented in the testimony of IPL Witnesses Scott, Sadtler, Holtsclaw and Tornquist, the Company's filing reflects nearly $1.6 billion of new investment (including the Eagle Valley CCGT). Of this total, $1.1 billion has not been eligible for a rate adjustment mechanism and the Company has not earned a cash return while the related construction was in progress. See IPL Witness Sanchez Direct Testimony, Q/A 16, Table 1.

The cost recovery for this investment is based on what might be described as the general rate case model. By this I mean that the Company undertook the investments necessary to maintain and modernize its system and otherwise meet the need for adequate and reliable electric service within its service area. In return, IPL is granted an opportunity to earn a return of, and a fair return on this investment once the used and useful property is reflected in rates as part of a general rate case. If the rates established in this proceeding are such that IPL cannot earn revenues sufficient to recover its capital and earn a fair return on investment, its financial viability and ability to raise capital on reasonable terms going forward will be impaired.

Investors recognize important differences between cost recovery through an infrastructure tracking mechanism for generation plant additions and a general rate proceeding. Apart from the financial impacts of regulatory lag, for example, general rate case recovery may increase the uncertainty associated with cost recovery due to concerns over the magnitude of the attendant rate impacts, litigation costs and risks, or changes in regulatory climate.

Q20. IS IT IN CUSTOMERS' INTEREST THAT IPL MAINTAIN ADEQUATE FINANCIAL STRENGTH?

A20. Yes. If IPL is viewed favorably by the investment community, the necessary funds will be forthcoming on reasonable terms. Investor confidence in the Company will translate to savings for customers since IPL would be in a better position to negotiate with suppliers and lock-in low interest rates on bonds, saving customers money in their electric rates for years to come. In addition, the Company is exposed to the usual risks of devastating storms and other disasters that could require immediate mobilization of emergency crews and other resources. If IPL is able to maintain its financial strength, the Company could respond to these emergencies with adequate financial wherewithal without interrupting the progress of other infrastructure investments and operations.

Q21. HAS IPL BEEN SUCCESSFUL IN ACHIEVING BENEFITS FOR CUSTOMERS?

A21. Yes. As discussed in greater detail in the testimony of Sanchez, Sadtler and Cutshaw, the Company has distinguished its performance in numerous ways in terms of operating efficiency and effectiveness while maintaining moderate electric rates relative to other Indiana investor-owned utilities. As a result, consumers and the service area economy have benefited from a climate of expanding service, efficient and cost-effective operations, and prices that are favorable relative to other utilities in the state.

B. Capital Market Conditions

Q22. WHAT IS THE PURPOSE OF THIS SECTION?

A22. This section 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 return.

Q23. WHAT ARE THE IMPLICATIONS OF CURRENT CAPITAL MARKET CONDITIONS IN ESTIMATING IPL'S COE?

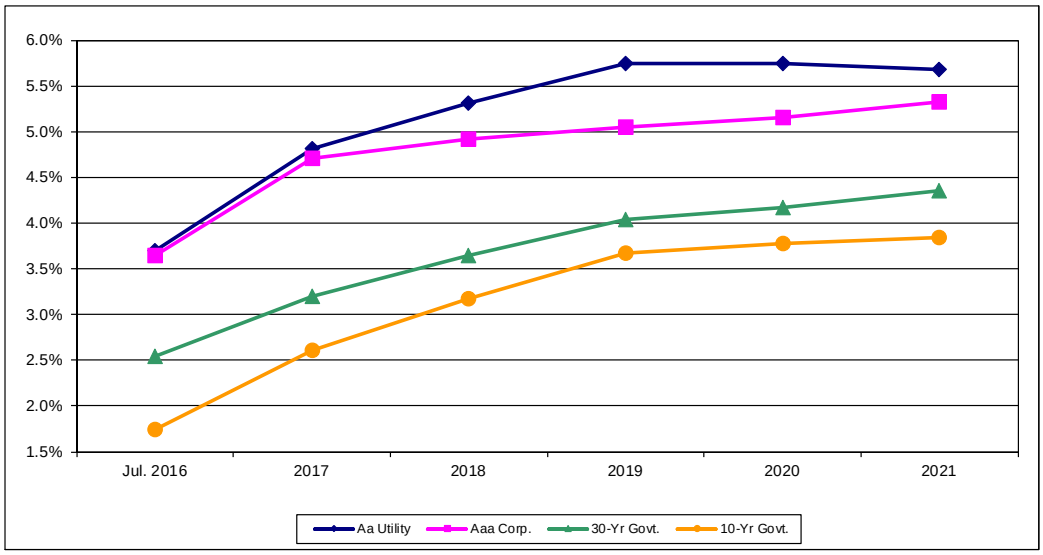
A23. Current capital market conditions continue to be deeply affected by the Federal Reserve's unprecedented monetary policy actions, which were designed to push interest rates to historically and artificially low levels in an effort to stimulate the economy and bolster employment. Since the Great Recession, investors have also had to contend with a level of economic uncertainty that has been unprecedented in recent history. The ongoing potential for renewed turmoil in the capital markets has been seen repeatedly, and in response to heightened uncertainties in recent years, investors have reacted by seeking a safe haven in U.S. government bonds. As a result of this "flight to safety," Treasury bond yields have been pushed significantly lower in the face of political, economic, and capital market risks. While serving as President of the Federal Reserve Bank of Philadelphia, Charles Plosser observed that U.S. interest rates were unprecedentedly low, and "outside historical norms."[10]

[10] Barnato, Katy, "Fed's Plosser: Low rates 'should make us nervous'," CNBC (Nov. 11, 2014). The average yield on 10-year Treasury bonds for the six-months ended July 2016 was 1.7%, which is even lower than the 2.3% yields prevailing at the time of Mr. Plosser's observations.

Q24. ARE THESE VERY LOW INTEREST RATES EXPECTED TO CONTINUE?

A24. No. Investors continue to anticipate that interest rates will increase significantly from present levels. For example, the June 3, 2016 quarterly economic review from the Value Line Investment Survey ("Value Line") anticipates that corporate bond yields will increase approximately 100 basis points over the next five years. Figure 1 below compares current interest rates on 10-year and 30-year Treasury bonds, triple-A rated corporate bonds, and double-A rated utility bonds with near-term projections from Value Line, IHS Global Insight, Blue Chip Financial Forecasts ("Blue Chip"), and the Energy Information Administration ("EIA"), which are sources that are highly regarded and widely referenced:

FIGURE 1
INTEREST RATE TRENDS



Source:
Value Line Investment Survey, Forecast for the U.S. Economy (Jun. 3, 2016)
IHS Global Insight (Apr. 6 & Jun. 27, 2016)
Energy Information Administration, Annual Energy Outlook 2016 Early Release (May 17, 2016)
Wolters Kluwer, Blue Chip Financial Forecasts, Vol. 35, No. 6 (Jun. 1, 2016)

As evidenced above, projections by investment advisors, forecasting services, and government agencies support the general consensus in the investment community that the present artificial low level of long-term interest rates will not be sustained.

Q25. DOES THE FEDERAL RESERVE'S DECEMBER 16, 2015 DECISION TO RAISE THE TARGET RANGE FOR THE FEDERAL FUNDS RATE BY ONE-QUARTER PERCENTAGE POINT MARK A RETURN TO "NORMAL" IN THE CAPITAL MARKETS?

A25. No. The Federal Reserve's long-anticipated move to increase the federal funds rate represents a first, and very modest, step towards implementing the process of monetary policy normalization outlined in its September 17, 2014 press release.[11] While the Federal Reserve's action marks the onset of the normalization process, this first move does not result in a fundamental alteration of its highly accommodative monetary policy. Nor does it remove uncertainty over the trajectory of further interest rate increases or the overhanging implications of the Federal Reserve's enormous holdings of long-term securities.

The Federal Reserve continues to exert considerable influence over capital market conditions through its massive holdings of Treasuries and mortgage-backed securities. Prior to the initiation of the stimulus program in 2009, the Federal Reserve's holdings of U.S. Treasury bonds and notes amounted to approximately $400 - $500 billion. With the implementation of its asset purchase program, balances of Treasury securities and mortgage backed instruments climbed steadily, and their effect on capital market

[11] Press Release, Fed. Reserve Sys., Policy Normalization Principles and Plans, (Sept. 17, 2014), http://www.federalreserve.gov/newsevents/press/monetary/20140917c.htm.

conditions became more pronounced. Table 1 below charts the course of the Federal Reserve's asset purchase program:

TABLE 1
FEDERAL RESERVE BALANCES OF
TREASURY BONDS AND MORTGAGE-BACKED SECURITIES
(BILLION $)

2008	$ 458
2009	$ 1,668
2010	$ 1,993
2011	$ 2,501
2012	$ 2,598
2013	$ 3,702
2014	$ 4,211
2015	$ 4,215

Far from representing a return to normal, the Federal Reserve's holdings of Treasury bonds and mortgage-backed securities continue to exceed $4.2 trillion. The Federal Reserve has announced its intention to maintain these balances by reinvesting principal payments from these securities "until normalization of the level of the federal funds rate is well under way."[12]

Of course, the corollary to these observations is that changes to this policy of reinvestment would further reduce stimulus measures and could place significant upward pressure on bond yields, especially considering the unprecedented magnitude of the Federal Reserve's holdings of Treasury bonds and mortgage-backed securities. As a *Financial Analysts Journal* article noted:

> Because no precedent exists for the massive monetary easing that has been practiced over the past five years in the United States and Europe, the uncertainty surrounding the outcome of central bank policy is so

[12] Federal Reserve, *Press Release* (Jul. 27, 2016), http://www.federalreserve.gov/monetarypolicy/files/monetary20160727a1.pdf.

> vast. . . . Total assets on the balance sheets of most developed nations' central banks have grown massively since 2008, and the timing of when the banks will unwind those positions is uncertain.[13]

Similarly, a report from BlackRock cited the potential for yield spikes and the exposure of the utilities sector to rising yields, concluding that, "We are in uncharted territory," when it comes to the implications of unwinding the Federal Reserve's balance sheet holdings.[14]

With expectations for higher interest rates, ongoing concerns about the implications of Britain's departure from the European Union and weakness in China's economy, fears of a global economic slowdown, dramatic decreases in oil and commodity prices, ongoing concerns over political uncertainty in Washington, and political and economic unrest in the Middle East, the potential for significant volatility and higher capital costs is clearly evident to investors.

Q26. WHAT DO THESE EVENTS IMPLY WITH RESPECT TO THE COE FOR IPL MORE GENERALLY?

A26. Current capital market conditions continue to reflect the impact of unprecedented policy measures taken in response to recent dislocations in the economy and financial markets. As a result, current capital costs are not representative of what is likely to prevail over the near-term future as the Federal Reserve moves to normalize its monetary policies. The IURC should consider investors' expectations for rising interest rates and capital costs, as well as the potential impact of current capital market

[13] Poole, William, "Prospects for and Ramifications of the Great Central Banking Unwind," Financial Analysts Journal (November/December 2013).
[14] BlackRock, "When the Fed Yields," *BlackRock Investment Institute* (May 2015).

conditions on the reliability of financial models, in assessing the reasonableness of individual cost of equity estimates, and in evaluating a fair COE for IPL from within the range of reasonableness. The use of these near-term forecasts for public utility bond yields is supported below by economic studies that show that equity risk premiums are higher when interest rates are at very low levels.

IV. COMPARABLE RISK PROXY GROUP AND CAPITAL STRUCTURE

Q27. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A27. This section discusses the identification of a proxy group of other electric utilities and examines alternative objective indicators of investment risk applicable to the group. In addition, I evaluate IPL's requested capitalization against those of the reference group I use to estimate the cost of equity.

A. Selection of Proxy Group

Q28. HOW DID YOU IMPLEMENT QUANTITATIVE METHODS TO ESTIMATE THE COST OF COMMON EQUITY FOR IPL?

A28. Application of quantitative methods to estimate the cost of common equity requires observable capital market data, such as stock prices. Moreover, even for a firm with publicly traded stock, the cost of common equity is not directly observable. As a result, applying quantitative models using observable market data only produces an estimate of investors' expected return. 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.

Q29. WHAT SPECIFIC PROXY GROUP OF UTILITIES DID YOU RELY ON FOR YOUR ANALYSIS?

A29. In order to reflect the risks and prospects associated with IPL's jurisdictional electric utility operations, my analyses focused on a reference group of other utilities composed of those companies included in Value Line's electric utility industry groups, and including Avangrid, Inc.,[15] with 1) a Moody's issuer rating of Baa2, Baa1, or A3, and 2) an S&P issuer rating of BBB, BBB+, or A-. In addition, I excluded eight utilities that otherwise would have been in the proxy group, but are not appropriate for inclusion because of current involvement in a major merger or acquisition.[16]

Q30. WHAT WAS THE BASIS FOR THE CREDIT RATINGS USED TO IDENTIFY YOUR PROXY GROUP?

A30. Credit ratings are assigned by independent rating agencies for the purpose of providing investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D (in default). Other symbols (*e.g.*, "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes virtually all of the factors normally considered important in assessing a firm's relative credit standing, corporate credit ratings provide a broad, objective measure of overall investment risk that is readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings

[15] Avangrid, Inc. was formed in December 2015 as a spin-off from Iberdrola USA, Inc. and is major publicly-traded electric and gas utility operating in New York and New England. Value Line included Avangrid in the electric utility industry in its November 18, 2016 publication, subsequent to the preparation of my analyses.
[16] Dominion Resources, Inc., Duke Energy Corporation, The Empire District Electric Company, Great Plains Energy, Incorporated, Hawaiian Electric Industries, Inc., ITC Holdings Corporation, NextEra Energy, Inc., and Westar Energy, Inc. were all engaged in major merger transactions at the time I conducted my analyses that may distort the data used to apply these quantitative models.

are also frequently used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

In order to evaluate a proxy group of utilities with comparable risk, my analysis adopted a comparable risk band of one "notch" higher or lower than the Moody's Baa1 issuer rating assigned to IPL, which resulted in a screening criterion based on Moody's long-term issuer ratings of Baa2 to A3. Meanwhile, the Company's BBB- rating from S&P is heavily influenced by that agency's revised assessment of structural protections for subsidiary ratings. Accordingly, for purposes of identifying a proxy group of utilities with comparable risks to IPL's regulated electric utility operations, I translated the Baa2 to A3 band based on the Company's current issuer rating from Moody's to the S&P's ratings scale. This resulted in a comparable screening criterion using S&P ratings of BBB to A-.

B. Capital Structure

Q31. IS AN EVALUATION OF THE CAPITAL STRUCTURE MAINTAINED BY A UTILITY RELEVANT IN ASSESSING ITS RETURN ON EQUITY?

A31. Yes. Other things equal, a higher debt ratio, or 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 his contractual payments. This increases the risks to which lenders are exposed, and they require correspondingly higher rates of interest. From common shareholders' 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.

Q32. WHAT COMMON EQUITY RATIO IS IMPLICIT IN IPL'S CAPITAL STRUCTURE?

A32. The capital structure used to compute the overall rate of return for IPL includes 39.55% common equity, which is equivalent to an equity ratio of approximately 42.96% after excluding cost-free items and tax credit balances.

Q33. HOW DOES THIS COMPARE TO THE AVERAGE CAPITALIZATION MAINTAINED BY THE ELECTRIC GROUP?

A33. As shown on IPL Witness AMM Attachment 4, for the firms in the Electric Group, common equity ratios at December 31, 2015 ranged from 30.3% to 76.1% and averaged 49.0% of total long-term debt and equity, with Value Line expecting an average common equity ratio of 48.4% for its three-to-five year forecast horizon. Of the 42 electric utilities followed by Value Line, 35 (or over 83% of the total group) have equity levels greater than 43%. Thus, IPL's common equity ratio falls well below these industry benchmarks and indicates greater financial risk than what investors would associate with the Electric Group.

V. COST OF EQUITY FOR IPL

Q34. WHAT IS THE PURPOSE OF THIS SECTION?

A34. This section presents capital market estimates of the COE. 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 DCF, CAPM, ECAPM, risk premium, and expected earnings analyses conducted to estimate the cost of common equity for the benchmark group of comparable risk firms.

A. Economic Standards

Q35. WHAT ROLE DOES COE PLAY IN A UTILITY'S RATES?

A35. The COE reflects the cost of attracting and retaining common equity investment, which is one component of the capital sources used to finance a utility's physical plant and other assets. Investors commit capital only if they expect to earn a return on their investment commensurate with returns available from alternative investments with comparable risks. In the words of the renowned investment banker Walter B. Wriston, "Capital goes where it's welcome and stays where it's well treated."

The COE is used to develop the fair return the utility is authorized to earn. A fair and reasonable return and a true opportunity to earn the authorized return are integral in meeting sound regulatory economics and the standards set forth by the U.S. Supreme Court in the *Bluefield*[17] and *Hope*[18] cases and Indiana's fair value statute. A utility's allowed return should 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. So long as the utility has a true opportunity to actually earn the allowed rate of return, these standards should permit the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through necessary system replacement and expansion.

Q36. WHAT IS THE WEIGHTED COST OF CAPITAL, OR "WACC"?

A36. The WACC is the composite weighted cost of the various sources of capital (long-term debt, preferred stock, and common equity) used by the utility to finance the asset base

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

needed to provide utility service, with the weights reflecting the proportions of each capital source in the utility's capital structure. The WACC may also include other items, such as customer deposits or cost-free sources of capital (*e.g.*, deferred income taxes).

Q37. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THE COST OF EQUITY CONCEPT?

A37. The fundamental economic principle underlying the cost of equity concept is the notion that investors are risk averse. In capital markets where relatively risk-free assets are available (*e.g.*, U.S. Treasury securities), investors can be induced to hold riskier assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Because all assets compete with each other for investor funds, riskier assets must yield a higher expected rate of return than safer assets to induce investors to invest and hold them.

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

$$k_i = R_f + RP_i$$

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

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

Q38. IS THERE EVIDENCE THAT THE RISK-RETURN TRADEOFF PRINCIPLE ACTUALLY OPERATES IN THE CAPITAL MARKETS?

A38. Yes. The risk-return tradeoff can be readily 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.

Q39. DOES THE RISK-RETURN TRADEOFF OBSERVED WITH FIXED INCOME SECURITIES EXTEND TO COMMON STOCKS AND OTHER ASSETS?

A39. 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 directly observed. Yet there is every reason to believe that investors exhibit risk aversion in deciding whether or not to hold common stocks and other assets, just as when choosing among fixed-income securities.

Q40. IS THIS RISK-RETURN TRADEOFF LIMITED TO DIFFERENCES BETWEEN FIRMS?

A40. 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, long-term debt is senior among all capital in its claim on a utility's net revenues and is, therefore, the least risky. The last investors in line are common shareholders: they receive only the net revenues, if any, remaining 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.

Q41. DOES THE FACT THAT IPL IS A SUBSIDIARY IN ANY WAY ALTER THESE FUNDAMENTAL STANDARDS UNDERLYING A FAIR RETURN?

A41. No. While IPL has no publicly traded common stock and all equity capital is ultimately provided through AES and CDPQ, this does not change the standards governing the determination of a fair COE for the Company. The common equity that is required to support IPL'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. Unless there is a reasonable expectation that the Company can earn a return that is commensurate with its underlying risks, capital will be allocated elsewhere, IPL's financial integrity will be weakened, and investors will demand an even higher rate of return. IPL's ability to offer a reasonable return on investment is a necessary ingredient in ensuring that customers continue to enjoy economical rates and reliable service.

Q42. WHAT DOES THE ABOVE DISCUSSION IMPLY WITH RESPECT TO ESTIMATING THE COE FOR A UTILITY?

A42. Although the COE cannot be observed directly, it is a function of the returns available from other investment alternatives and the risks to which the equity capital is exposed. Because it is not readily observable, the COE for a particular utility must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the company specifically, and employing various quantitative methods that focus on investors' required rates of return. These various quantitative methods typically attempt to infer investors' required rates of return from stock prices, interest rates, or other capital market data.

Q43. DID YOU RELY ON A SINGLE METHOD TO ESTIMATE THE COST OF EQUITY FOR IPL?

A43. No. In my opinion, no single method or model should be relied upon to determine a utility's cost of equity because no single approach can be regarded as wholly reliable. Therefore, I used the DCF, CAPM, ECAPM and risk premium methods to estimate the cost of common equity. In addition, I also evaluated a fair COE using an expected earnings approach based on investors' current expectations in the capital markets. In my opinion, comparing estimates produced by one method with those produced by other approaches ensures that the estimates of the cost of equity pass fundamental tests of reasonableness and economic logic.

B. Discounted Cash Flow Analyses

Q44. HOW IS THE DCF MODEL USED TO ESTIMATE THE COST OF COMMON EQUITY?

A44. DCF models attempt to replicate the market valuation process that sets the price investors are willing to pay for a share of a company's stock. The model rests on the assumption that investors evaluate the risks and expected rates of return from all securities in the capital markets. Given these expectations, the price of each stock is adjusted by the market until investors are adequately compensated for the risks they bear. Therefore, we can look to the market to determine what investors believe a share of common stock is worth. By estimating the cash flows investors expect to receive from the stock in the way of future dividends and capital gains, we can calculate their required rate of return. That is, the cost of equity is the discount rate that equates the current price of a share of stock with the present value of all expected cash flows from the stock. The formula for the general form of the DCF model is as follows:

$$P_0 = \frac{D_1}{(1+k_e)^1} + \frac{D_2}{(1+k_e)^2} + \cdots + \frac{D_t}{(1+k_e)^t} + \frac{P_t}{(1+k_e)^t}$$

where: P_0 = Current price per share;
P_t = Expected future price per share in period t;
D_t = Expected dividend per share in period t;
k_e = Cost of common equity.

Q45. WHAT FORM OF THE DCF MODEL IS CUSTOMARILY USED TO ESTIMATE THE COST OF COMMON EQUITY IN RATE CASES?

A45. Rather than developing annual estimates of cash flows into perpetuity, the DCF model can be simplified to a "constant growth" form:[19]

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

where: 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 the capital gains associated with price appreciation over the investors' holding period.

Q46. WHAT FORM OF THE DCF MODEL DID YOU USE?

A46. I applied the constant growth DCF model to estimate the cost of common equity for IPL, which is the form of the model most commonly relied on to establish the cost of common equity for traditional regulated utilities and the method most often referenced by regulators.

[19] 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.

Q47. HOW IS THE CONSTANT GROWTH FORM OF THE DCF MODEL TYPICALLY USED TO ESTIMATE THE COST OF COMMON EQUITY?

A47. 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.

Q48. HOW DID YOU DETERMINE THE DIVIDEND YIELD FOR THE ELECTRIC GROUP?

A48. Estimates of dividends to be paid by each of these utilities over the next twelve months, obtained from Value Line, served as D_1. This annual dividend was 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 IPL Witness AMM Attachment 5. As shown on page 1, dividend yields for the firms in the Electric Group ranged from 2.7% to 4.5%.

Q49. WHAT IS THE NEXT STEP IN APPLYING THE CONSTANT GROWTH DCF MODEL?

A49. 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 wide 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.

Q50. WHAT ARE INVESTORS MOST LIKELY TO CONSIDER IN DEVELOPING THEIR LONG-TERM GROWTH EXPECTATIONS?

A50. Given that 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. This is because utilities have significantly altered their dividend policies in response to more accentuated business risks in the industry, with the payout ratios falling significantly. As a result of this trend towards a more conservative payout ratio, dividend growth in the utility industry has lagged growth in earnings as utilities conserve financial resources to provide a hedge against heightened uncertainties.

A measure that plays a pivotal role in determining investors' long-term growth expectations are 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.

Q51. DO THE GROWTH RATE PROJECTIONS OF SECURITY ANALYSTS CONSIDER HISTORICAL TRENDS?

A51. Yes. Professional security analysts study historical trends extensively in developing their projections of future earnings. Hence, to the extent there is any useful information in historical patterns, that information is incorporated into analysts' growth forecasts.

Q52. DID PROFESSOR MYRON J. GORDON, WHO ORIGINATED THE DCF APPROACH, RECOGNIZE THE PIVOTAL ROLE THAT EARNINGS PLAY IN FORMING INVESTORS' EXPECTATIONS?

A52. Yes. Dr. Gordon specifically recognized that "it is the growth that investors expect that should be used" in applying the DCF model and he concluded:

> A number of considerations suggest that investors may, in fact, use earnings growth as a measure of expected future growth.[20]

[20] Gordon, Myron J., "The Cost of Capital to a Public Utility," *MSU Public Utilities Studies* at 89 (1974).

Q53. ARE ANALYSTS' ASSESSMENTS OF GROWTH RATES APPROPRIATE FOR ESTIMATING INVESTORS' REQUIRED RETURN USING THE DCF MODEL?

A53. Yes. In applying the DCF model to estimate the cost of common equity, the only relevant growth rate is the forward-looking expectations of investors that are captured in current stock prices. Investors, just like securities analysts and others in the investment community, do not know how the future will actually turn out. They can only make investment decisions based on their best estimate of what the future holds in the way of long-term growth for a particular stock, and securities prices are constantly adjusting to reflect their assessment of available information.

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

While the projections of securities analysts may be proven optimistic or pessimistic in hindsight, this is irrelevant in assessing the expected growth that investors have incorporated into current stock prices and any bias in analysts' forecasts – whether pessimistic or optimistic – is irrelevant if investors share analysts' views. Earnings

growth projections of security analysts provide the most frequently referenced guide to investors' views and are widely accepted in applying the DCF model. As explained in *New Regulatory Finance*:

> Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are a cause of *g* [growth]. The accuracy of these forecasts in the sense of whether they turn out to be correct is not an issue here, as long as they reflect widely held expectations.[21]

Q54. HAVE OTHER REGULATORS ALSO RECOGNIZED THAT ANALYSTS' GROWTH RATE ESTIMATES ARE AN IMPORTANT AND MEANINGFUL GUIDE TO INVESTORS' EXPECTATIONS?

A54. Yes. For example, the Kentucky Public Service Commission has indicated its preference for relying on analysts' projections in establishing investors' expectations:

> KU's argument concerning the appropriateness of using investors' expectations in performing a DCF analysis is more persuasive than the AG's argument that analysts' projections should be rejected in favor of historical results. The Commission agrees that analysts' projections of growth will be relatively more compelling in forming investors' forward-looking expectations than relying on historical performance, especially given the current state of the economy.[22]

Similarly, the Public Utility Regulatory Authority of Connecticut noted that:

> The Authority used growth in earnings exclusively based on the record of this docket showing that financial literature supports security analysts' EPS growth rate projections as superior for use in a DCF analysis. Response to Interrogatory FI-106. The Authority takes note that long-term, there is not growth in DPS without growth in EPS. Market prices are more highly influenced by security analyst's earnings

[21] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.* at 298 (2006) (emphasis added).
[22] *Order*, Case No. 2009-00548 at 30-31 (Jul. 30, 2010).

> expectations then expectations in dividends. The Authority agrees with Ms. Ahern that "the use of earnings growth rates in a DCF analysis provides a better matching between investors' market price appreciation expectations and the growth rate component of the DCF."[23]

The Federal Energy Regulatory Commission ("FERC") has also expressed a clear preference for projected EPS growth rates in applying the DCF model to estimate the cost of equity for both electric and natural gas pipeline utilities, noting that, "The growth rate used in the DCF model should be the growth rate expected by the market."[24] As FERC concluded:

> That growth rate may not necessarily prove to be the correct growth forecast, but the cost of common equity to a regulated enterprise depends upon what the market expects, not upon what ultimately happens. Accordingly, it is appropriate to look to the most recent record evidence of the growth rates actually expected by the investment community.[25]

FERC affirmed that "years of established Commission precedent" support the use of analysts' EPS growth projections in applying the DCF model.[26]

Q55. WHAT ARE SECURITY ANALYSTS CURRENTLY PROJECTING IN THE WAY OF GROWTH FOR THE FIRMS IN THE ELECTRIC GROUP?

A55. The earnings growth projections for each of the firms in the Electric Group reported by Value Line, Thomson Reuters ("IBES"), and Zacks Investment Research ("Zacks") are displayed on page 2 of IPL Witness AMM Attachment 5.[27]

[23] *Decision*, Docket No. 13-02-20 (Sep. 24, 2013).
[24] *Martha Coakley et al.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 88 (2014).
[25] *Id.*
[26] *Martha Coakley et al.*, Opinion No. 531-B, 150 FERC ¶ 61,165 at P 71 (2015).
[27] Formerly I/B/E/S International, Inc., IBES growth rates are now compiled and published by Thomson Reuters.

Q56. HOW ELSE ARE INVESTORS' EXPECTATIONS OF FUTURE LONG-TERM GROWTH PROSPECTS OFTEN ESTIMATED WHEN APPLYING THE CONSTANT GROWTH DCF MODEL?

A56. 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 Electric Group are summarized on page 2 of IPL Witness AMM Attachment 5, with the underlying details being presented in IPL Witness AMM Attachment 6.

Q57. ARE THERE SIGNIFICANT SHORTCOMINGS ASSOCIATED WITH THE "BR+SV" GROWTH RATE?

A57. 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.[28] The "sustainable growth" approach was included for completeness, but evidence indicates that analysts' forecasts provide a superior and more direct guide to investors' growth expectations.

Q58. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL, IS IT APPROPRIATE TO ELIMINATE ILLOGICAL ESTIMATES?

A58. Yes. In applying quantitative methods to estimate the cost of equity, it is essential that the resulting values pass fundamental tests of reasonableness and economic logic. Accordingly, DCF estimates that are implausibly low or high should be eliminated when evaluating the results of this method.

Q59. HOW DID YOU EVALUATE DCF ESTIMATES AT THE LOW END OF THE RANGE?

A59. I based my evaluation of DCF estimates at the low end of the range on the fundamental risk-return tradeoff, which holds that investors will only take on more risk if they expect to earn a higher rate of return to compensate them for the greater uncertainly. Because common stocks lack the protections associated with an

[28] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.*, at 307 (2006).

investment in long-term bonds, a utility's common stock imposes far greater risks on investors. As a result, the rate of return that investors require from a utility's common stock is considerably higher than the yield offered by senior, long-term debt. Consistent with this principle, DCF results that are not sufficiently higher than the yield available on less risky utility bonds must be eliminated.

Q60. HAVE SIMILAR TESTS BEEN APPLIED BY REGULATORS?

A60. Yes. FERC has noted that adjustments are justified where applications of the DCF approach produce illogical results. FERC evaluates DCF results against observable yields on long-term public utility debt and has recognized that it is appropriate to eliminate estimates that do not sufficiently exceed this threshold.[29] FERC affirmed that:

> The purpose of the low-end outlier test is to exclude from the proxy group those companies whose ROE estimates are below the average bond yield or are above the average bond yield but are sufficiently low that an investor would consider the stock to yield essentially the same return as debt. In public utility ROE cases, the Commission has used 100 basis points above the cost of debt as an approximation of this threshold, but has also considered the distribution of proxy group companies to inform its decision on which companies are outliers. As the Presiding Judge explained, this is a flexible test.[30]

Q61. WHAT INTEREST RATE BENCHMARK DID YOU CONSIDER IN EVALUATING THE DCF RESULTS FOR IPL?

A61. Baa utility bonds represent the lowest ratings grade for which Moody's publishes index values, and the closest available approximation for the risks of common stock,

[29] *See, e.g., Southern California Edison Co.,* 131 FERC ¶ 61,020 at P 55 (2010) ("*SoCal Edison*").
[30] *Martha Coakley et al., v. Bangor Hydro-Electric Company, et al.,* Opinion No. 531, 147 FERC ¶ 61,234 at P 122 (2014).

which are significantly greater than those of long-term debt. Monthly yields on Baa utility bonds reported by Moody's averaged approximately 4.7% over the six months ended July 2016.[31]

Q62. WHAT ELSE SHOULD BE CONSIDERED IN EVALUATING DCF ESTIMATES AT THE LOW END OF THE RANGE?

A62. As indicated earlier, it is generally expected that long-term interest rates will rise as the Federal Reserve normalizes monetary policies. As shown in Table 2 below, forecasts of IHS Global Insight and the EIA imply an average triple-B bond yield of approximately 6.5% over the period 2017-2021:

TABLE 2
IMPLIED BBB BOND YIELD

	2017-21
Projected Aa Utility Yield	
IHS Global Insight (a)	5.41%
EIA (b)	5.50%
Average	5.46%
Current Baa - Aa Yield Spread (c)	1.03%
Implied Baa Utility Yield	**6.49%**

(a) IHS Global Insight (Apr. 6 & Jun. 27, 2016).
(b) Energy Information Administration, Annual Energy Outlook 2016 Early Release (May 17, 2016).
(c) Based on monthly average bond yields from Moody's Investors Service for the six-month period Feb. - Jul. 2016.

[31] Moody's Investors Service, http://credittrends.moodys.com/chartroom.asp?c=3.

The increase in debt yields anticipated by IHS Global Insight and EIA is also supported by the widely referenced Blue Chip Financial Forecasts, which projects that yields on corporate bonds will climb 180 basis points through 2021.[32]

Q63. WHAT DOES THIS TEST OF LOGIC IMPLY WITH RESPECT TO THE DCF RESULTS FOR THE ELECTRIC GROUP?

A63. Adding a 100 basis-point premium to the historical and projected average Baa utility bond yields implies a low-end threshold on the order of 5.7% to 7.5%. As highlighted on page 3 of IPL Witness AMM Attachment 5, after considering this test and the distribution of the individual estimates, I eliminated low-end DCF estimates ranging from 4.7% to 6.9%. It is inconceivable that investors are not requiring a substantially higher rate of return for holding common stock.

Q64. IS THERE A BASIS TO ELIMINATE HIGH-END DCF VALUES FOR THE ELECTRIC GROUP?

A64. While it is just as important to evaluate DCF estimates at the upper end of the range, there is no objective benchmark analogous to the bond yield averages used to eliminate illogical low-end values. In response, FERC has consistently applied a two-pronged test for high-end values based on the magnitude of the cost of equity estimate and its underlying growth rate. As FERC observed:

> The Presiding Judge found that the [utilities'] criteria for screening high-end outliers substantially complies with Commission precedent. . . The Presiding Judge further stated that the Commission's high-end outlier test since 2004 has been to exclude from the proxy group any

[32] *Blue Chip Financial Forecasts*, Vol. 35, No. 6 (Jun. 1, 2016).

company whose cost of equity estimate is at or above 17.7 percent and whose growth rate is at or above 13.3 percent.[33]

The upper end of the DCF results for the Electric Group is set by a cost of equity estimate of 15.1%. This cost of equity estimate, and the underlying growth rate, falls well below the threshold tests employed by FERC. Moreover, while this cost of equity estimate may exceed the majority of the remaining values, remaining low-end estimates in the 7.0% range are assuredly far below investors' required rate of return. Nevertheless, considering the dispersion of the DCF results in this case, I elected to exclude the 15.1% DCF estimate from my analysis. 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 COE ESTIMATES ARE IMPLIED BY YOUR DCF RESULTS FOR THE ELECTRIC GROUP?

A65. As shown on page 3 of IPL Witness AMM Attachment 5 and summarized in Table 3, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following COE estimates:

TABLE 3
DCF RESULTS – ELECTRIC GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	9.1%	9.8%
IBES	8.9%	10.0%
Zacks	8.9%	10.0%
br + sv	8.2%	8.6%

[33] Opinion No. 531 at P 115 (footnotes omitted).

C. Capital Asset Pricing Model

Q66. WHY IS THE CAPM APPROACH AN APPROPRIATE COMPONENT IN EVALUATING THE COE FOR THE COMPANY?

A66. The CAPM approach generally is considered to be the most widely referenced method among academicians and professional practitioners for estimating the cost of equity, with the pioneering researchers of this method receiving the Nobel Prize in 1990. Because this is a dominant model for estimating the cost of equity outside the regulatory sphere, the CAPM provides important insight into investors' COE for utility stocks, including IPL.

Q67. PLEASE DESCRIBE THE CAPM.

A67. The traditional CAPM is a theory of market equilibrium that measures risk using the beta coefficient. Assuming investors are fully diversified, the relevant risk of an individual asset (*e.g.*, common stock) is its volatility relative to the market as a whole, with beta reflecting the tendency of a stock's price to follow changes in the market. As previously stated, a stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. The CAPM is mathematically expressed as:

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

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.

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.

Q68. HOW DID YOU APPLY THE CAPM TO ESTIMATE THE COE?

A68. Application of the CAPM to the Electric Group is based on a forward-looking estimate for investors' required rate of return from common stocks presented in IPL Witness AMM Attachment 7. In order to capture the expectations of today's investors in current capital markets, the expected market rate of return was estimated by conducting a DCF analysis on the dividend paying firms in the S&P 500.

The dividend yield for each firm was obtained from Value Line, and the growth rate was equal to the average of the EPS growth projections for each firm published by IBES and Value Line, with each firm's dividend yield and growth rate being weighted by its proportionate share of total market value. Based on the weighted average of the projections for the individual firms, current estimates imply an average growth rate over the next five years of 9.0%. Combining this average growth rate with a year-ahead dividend yield of 2.6% results in a current cost of common equity estimate for the market as a whole (R_m) of approximately 11.6%. Subtracting a 2.5% risk-free rate

based on the average yield on 30-year Treasury bonds for the six months ending July 2016 produced a market equity risk premium of 9.1%.

Q69. WHAT WAS THE SOURCE OF THE BETA VALUES YOU USED TO APPLY THE CAPM?

A69. I relied 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.[34]

Q70. WHAT ELSE SHOULD BE CONSIDERED IN 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. As *Morningstar* noted:

> 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.[35]

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

[34] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports* at 71 (2006).
[35] Morningstar, *2015 Ibbotson SBBI Classic Yearbook*, at 99.

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 the theoretical CAPM cost of equity estimates to account for the level of a firm's market capitalization in determining the CAPM cost of equity.[36] Accordingly, my CAPM analyses also incorporated an adjustment to recognize the impact of size distinctions, as measured by the average market capitalization for the Electric Group.

Q71. WHAT IS THE IMPLIED COE FOR THE ELECTRIC GROUP USING THE CAPM APPROACH?

A71. As shown on page 1 of IPL Witness AMM Attachment 7, after adjusting for the impact of firm size, the CAPM approach implied an average COE of 9.7%.

Q72. DID YOU ALSO APPLY THE CAPM USING FORECASTED BOND YIELDS?

A72. Yes. As discussed earlier, there is widespread consensus that interest rates will increase materially as the economy continues to strengthen and the Federal Reserve normalizes its monetary policy. Accordingly, in addition to the use of historical bond yields, I also applied the CAPM based on the forecasted long-term Treasury bond yields developed based on projections published by Value Line, IHS Global Insight and Blue Chip. As shown on page 2 of IPL Witness AMM Attachment 7, incorporating a forecasted Treasury bond yield for 2017-2021 implied a COE for the Electric Group of 10.0% after adjusting for the impact of relative size.

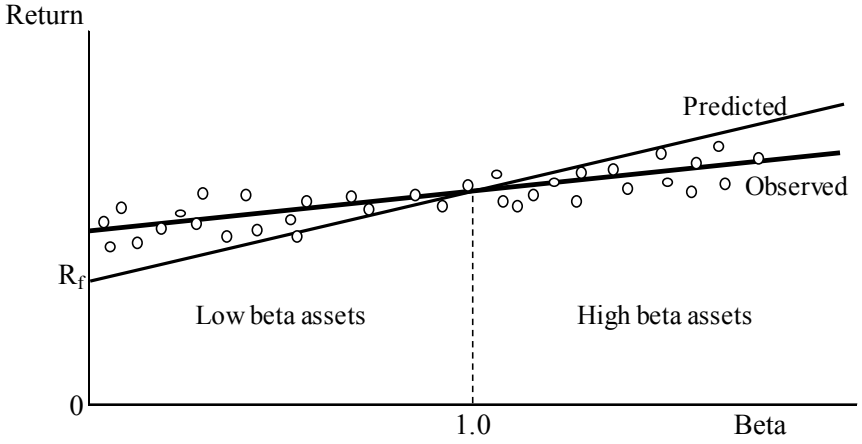
[36] Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, "Stocks, Bonds, Bills and Inflation," these size premia are now developed by Duff & Phelps and presented in its "Valuation Handbook – Guide to Cost of Capital."

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:

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.[37]

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

$$Rj = Rf + 0.25(Rm - Rf) + 0.75[\beta j(Rm - Rf)]$$

This ECAPM equation, and the associated weighting factors, recognize the observed relationship between standard CAPM estimates and the cost of capital documented in the financial research, and correct for the understated returns that would otherwise be produced for low beta stocks.

Q74. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF VALUE LINE BETAS?

A74. Yes. Value Line beta values are adjusted for the observed tendency of beta to converge toward the mean value of 1.00 over time.[38] The purpose of this adjustment is to refine beta values determined using historical data to better match forward-looking estimates of beta, which are the relevant parameter in applying the CAPM or ECAPM models. Meanwhile, the ECAPM does not involve any adjustment to beta whatsoever. Rather, it represents a formal recognition of findings in the financial literature that the observed risk-return tradeoff illustrated in Figure 2 is flatter than

[37] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports* at 189 (2006).
[38] *See, e.g.,* Marshall E. Blume, "Betas and Their Regression Tendencies," *Journal of Finance*, Vo. 30, No. 3 (Jun. 1975), pp. 785-795.

predicted by the CAPM. In other words, even if a firm's beta value were estimated with perfect precision, the CAPM would still understate the return for low-beta stocks and overstate the return for high-beta stocks. The ECAPM and the use of adjusted betas represent two separate and distinct issues in estimating returns.

Q75. WHAT COE ESTIMATES WERE INDICATED BY THE ECAPM?

A75. My applications of the ECAPM were based on the same forward-looking market rate of return, risk-free rates, and beta values discussed earlier in connections with the CAPM. As shown on page 1 of IPL Witness AMM Attachment 8, applying the forward-looking ECAPM approach to the firms in the Electric Group results in an implied COE estimate of 10.3% after incorporating the size adjustment corresponding to the market capitalization of the individual utilities.

As shown on page 2 of IPL Witness AMM Attachment 8, incorporating a forecasted Treasury bond yield for 2017-2021 implied a COE of approximately 10.6% after adjusting for the impact of relative size.

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 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 COE for IPL.

Q78. HOW DID YOU IMPLEMENT THE RISK PREMIUM METHOD?

A78. Estimates of equity risk premiums for utilities were based on surveys of previously authorized equity returns. Authorized returns presumably reflect regulatory commissions' best estimates of the cost of equity, however determined, at the time they issued their final order. Such returns 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, these data provide a logical and frequently referenced basis for estimating equity risk premiums for regulated utilities.

Q79. IS IT CIRCULAR TO CONSIDER RISK PREMIUMS BASED ON AUTHORIZED RETURNS IN ASSESSING A FAIR COE FOR IPL?

A79. No. In establishing authorized returns, regulators typically consider the results of alternative market-based approaches, including the DCF model. Because allowed risk premiums consider objective market data (*e.g.*, stock prices, dividends, beta, and interest rates), and are not based strictly on past actions of other regulators, this mitigates concerns over any potential for circularity.

Q80. HOW DID YOU CALCULATE THE EQUITY RISK PREMIUMS BASED ON ALLOWED EQUITY RETURNS?

A80. The returns authorized for electric utilities by regulatory commissions across the U.S. are compiled by Regulatory Research Associates and published in its *Regulatory Focus* report. In IPL Witness AMM Attachment 9, the average yield on public utility bonds is subtracted from the average allowed return for electric utilities to calculate equity risk premiums for each year between 1974 and 2015. As shown on page 3 of IPL Witness AMM Attachment 9, over this period, these equity risk premiums for electric utilities averaged 3.62%, and the yield on public utility bonds averaged 8.48%.

Q81. IS THERE ANY CAPITAL MARKET RELATIONSHIP THAT MUST BE CONSIDERED WHEN IMPLEMENTING THE RISK PREMIUM METHOD?

A81. Yes. There is considerable evidence that the magnitude of equity risk premiums is not constant and that 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, say, 50 basis points. Therefore, when implementing the risk premium method, adjustments may be required to incorporate this inverse relationship if current interest rate levels have diverged from the average interest rate level represented in the data set.

Q82. HAS THIS INVERSE RELATIONSHIP BEEN DOCUMENTED IN THE FINANCIAL RESEARCH?

A82. 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, and this inverse relationship between equity risk premiums and interest rates has been widely reported in the financial literature.[39] As summarized by *New Regulatory Finance*:

> Published studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carelton, 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.[40]

Other regulators have also recognized that the cost of equity does not move in tandem with interest rates.[41]

Q83. WHAT ARE THE IMPLICATIONS OF THIS RELATIONSHIP UNDER CURRENT CAPITAL MARKET CONDITIONS?

---

[39] *See, e.g.,* E.F. Brigham, D.K. Shome, and S.R. Vinson, "The Risk Premium Approach to Measuring a Utility's Cost of Equity," *Financial Management* (Spring 1985); R.S. Harris, and F.C. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," *Financial Management* (Summer 1992).

[40] Roger A. Morin, "New Regulatory Finance," Public Utilities Reports, at 128 (2006).

[41] *See, e.g.*, California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan FRP-5, http://www.entergy-mississippi.com/content/price/tariffs/emi_frp.pdf; *Martha Coakley et al.*, 147 FERC ¶ 61,234 at P 147 (2014).

A83. As noted earlier, bond yields are at unprecedented lows. Given that equity risk premiums move inversely with interest rates, these uncharacteristically low bond yields also imply a sharp increase in the equity risk premium that investors require to accept the higher uncertainties associated with an investment in utility common stocks versus bonds. In other words, higher required equity risk premiums offset the impact of declining interest rates on the COE.

Q84. WHAT COE IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF ALLOWED RETURNS?

A84. Based on the regression output between the interest rates and equity risk premiums displayed on page 4 of IPL Witness AMM Attachment 9, the equity risk premium for gas utilities increased approximately 43 basis points for each percentage point drop in the yield on average public utility bonds. As illustrated on page 1 of IPL Witness AMM Attachment 9, with an average on public utility bonds for the six-months ending July 2016 of 4.12%, this implied a current equity risk premium of 5.49% for electric utilities. Adding this equity risk premium to the average yield on triple-B utility bonds for the six-months ended July 2016 of 4.73% implies a current COE of approximately 10.22% for the Electric Group.

Q85. WHAT RISK PREMIUM COE ESTIMATE WAS PRODUCED AFTER INCORPORATING FORECASTED BOND YIELDS?

A85. As shown on page 2 of IPL Witness AMM Attachment 9, incorporating a forecasted yield for 2017-2021 and adjusting for changes in interest rates since the study period implied an equity risk premium of 4.73% for electric utilities. Adding this equity risk

premium to the implied average yield on triple-B public utility bonds for 2017-2021 of 6.49% resulted in an implied COE of approximately 11.22%.

F. Expected Earnings Approach

Q86. WHAT OTHER ANALYSES DID YOU CONDUCT TO ESTIMATE THE COE?

A86. As I noted earlier, I also evaluated the COE using the expected earnings method. Reference to rates of return available from alternative investments of comparable risk can provide an important benchmark in assessing the return necessary to assure confidence in the financial integrity of a firm and its ability to attract capital. This expected earnings approach is consistent with the economic underpinnings for a fair rate of return established by the U.S. Supreme Court in *Bluefield* and *Hope*. Moreover, it avoids the complexities and limitations of capital market methods and instead focuses on the returns earned on book equity, which are readily available to investors.

Q87. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A87. 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. In this situation regulation is effectively taking the value

of investors' capital without adequate compensation, contrary to *Hope* and *Bluefield*. The expected earnings approach is consistent with the economic rationale underpinning established regulatory standards, which specifies a methodology to determine a COE benchmark based on earned rates of return for other firms of comparable risk.

Q88. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY IMPLEMENTED?

A88. 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 equity 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 investment, such as those published by recognized investment advisory publications (*e.g.*, Value Line). Because these returns are analogous to the allowed return 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 utility's investment in rate base, as determined from its accounting records. This is directly analogous to the expected earnings approach, which measures the return that investors expect the utility to earn on the outstanding balance of common equity. 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. As FERC recently concluded:

> The returns on book equity that investors expect to receive from a group of companies with risks comparable to those of a particular utility are relevant to determining that utility's market cost of equity, because those returns on book equity help investors determine the opportunity cost of investing in that particular utility instead of other companies of comparable risk.[42]

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.

Q89. WHAT UTILITY COE IS INDICATED BY THE EXPECTED EARNINGS APPROACH?

A89. Value Line's projected year-end returns on common equity for the firms in the Electric Group are shown in IPL Witness AMM Attachment 10. Consistent with the rationale underlying the development of the br+sv growth rates, these year-end values were converted to average returns using the same adjustment factor discussed earlier and developed on IPL Witness AMM Attachment 6. As shown in IPL Witness AMM Attachment 10, Value Line's projections for the Electric Group suggest an average COE of approximately 11.0%.

[42] Opinion No. 531-B, 150 FERC ¶ 61,165 at P 128 (2015).

G. Non-Utility Benchmark

Q90. WHAT OTHER PROXY GROUP DID YOU CONSIDER IN EVALUATING A COE FOR IPL?

A90. Consistent with underlying economic and regulatory standards, I also applied the DCF model to a reference group of low-risk companies in the non-utility sectors of the economy. I refer to this group as the "Non-Utility Group".

Q91. DO UTILITIES HAVE TO COMPETE WITH NON-REGULATED FIRMS FOR CAPITAL?

A91. 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 the tip of the iceberg of total common stock investment, and there are a plethora of other enterprises available to investors beyond those in the utility industry. Utilities must compete for capital, not just against firms in their own industry, but with other investment opportunities of comparable risk. Indeed, modern portfolio theory is built on the assumption that rational investors will hold a diverse portfolio of stocks, not just companies in a single industry.

Q92. IS IT CONSISTENT WITH THE *BLUEFIELD* AND *HOPE* CASES TO CONSIDER INVESTORS' REQUIRED COE FOR NON-UTILITY COMPANIES?

A92. Yes. The cost of equity capital in the competitive sector of the economy form the very underpinning for utility COEs 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 COE 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.[43]

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

Q93. DOES CONSIDERATION OF THE RESULTS FOR THE NON-UTILITY GROUP IMPROVE THE RELIABILITY OF DCF RESULTS?

A93. Yes. The estimates of growth used to apply the DCF model are dependent 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.

Q94. WHAT CRITERIA DID YOU APPLY TO DEVELOP THE NON-UTILITY GROUP?

A94. My comparable risk proxy group was composed of those United States companies followed by Value Line that:

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

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 0.75 or less; and
5) have investment grade credit ratings from S&P and Moody's.[44]

Q95. HOW DO THE OVERALL RISKS OF THIS NON-UTILITY GROUP COMPARE WITH THE ELECTRIC GROUP?

A95. Table 4 compares the Non-Utility Group with the Electric Group across the measures of investment risk discussed earlier:

TABLE 4
COMPARISON OF RISK INDICATORS

	Credit Rating		Value Line		
	S&P	Moody's	Safety Rank	Financial Strength	Beta
Non-Utility Group	A	A2	1	A+	0.72
Electric Group	BBB+	Baa1	2	A	0.73

When considered together, a comparison of these objective measures, which consider a broad spectrum of risks, including financial and business position, relative size, and exposure to company-specific factors, indicates that investors would likely conclude that the overall investment risks for the Electric Group are greater than those of the firms in the Non-Utility 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-

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

Cola, McDonalds, Proctor & Gamble, and Wal-Mart, have long corporate histories, well-established track records, and exceedingly conservative risk profiles. Many of these companies pay dividends on a par with utilities, with the average dividend yield for the group approaching 3%. 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.

Q96. WHAT WERE THE RESULTS OF YOUR DCF ANALYSIS FOR THE NON-UTILITY GROUP?

A96. I applied the DCF model to the Non-Utility Group using the same analysts' EPS growth projections described earlier for the Electric Group, The results of my DCF analysis for the Non-Utility Group are presented in IPL Witness AMM Attachment 11. As summarized in Table 5, below, after eliminating low and high-end values, application of the constant growth DCF model resulted in the following cost of equity estimates:

TABLE 5
DCF RESULTS – NON-UTILITY GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	10.0%	10.3%
IBES	10.7%	11.1%
Zacks	10.5%	11.6%

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, the COE estimates for the Non-Utility Group provide an important benchmark in evaluating a COE for IPL. Considering that the investment risks of the Non-Utility Group are lower than those of the proxy group of utilities and IPL, these results understate investors' required rate of return for the Company.

H. Other Considerations

Q97. WHAT OTHER CONSIDERATIONS ARE RELEVANT IN ESTIMATING THE COE FOR A UTILITY?

A97. The common equity used to finance the investment in utility assets is provided from either the sale of stock in the capital markets or from retained earnings not paid out as dividends. When equity is raised through the sale of common stock, there are costs associated with "floating" the new equity securities. These flotation costs include services such as legal, accounting, and printing, as well as the fees and discounts paid to compensate brokers for selling the stock to the public. Also, some argue that the "market pressure" from the additional supply of common stock and other market factors may further reduce the amount of funds a utility nets when it issues common equity.

Q98. IS THERE AN ESTABLISHED MECHANISM FOR A UTILITY TO RECOGNIZE EQUITY ISSUANCE COSTS?

A98. No. While debt flotation costs are recorded on the books of the utility, amortized over the life of the issue, and thus increase the effective cost of debt capital, there is no

similar accounting treatment to ensure that equity flotation costs are recorded and ultimately recognized. No rate of return is authorized on flotation costs necessarily incurred to obtain a portion of the equity capital used to finance plant. In other words, equity flotation costs are not included in a utility's rate base because that portion of the gross proceeds from the sale of common stock used to pay flotation costs is not available to invest in plant and equipment, nor are flotation costs capitalized as an intangible asset. Unless some provision is made to recognize these issuance costs, a utility's revenue requirements will not fully reflect all of the costs incurred for the use of investors' funds. Because there is no accounting convention to accumulate the flotation costs associated with equity issues, they must be accounted for indirectly, with an upward adjustment to the cost of equity being the most common and appropriate mechanism.

Q99. IS THERE A THEORETICAL AND PRACTICAL BASIS TO CONSIDER THE IMPACT OF FLOTATION COSTS IN THIS CASE?

A99. Yes. First, an adjustment for flotation costs associated with past equity issues is appropriate, even when the utility is not contemplating any new sales of common stock. The need for a flotation cost adjustment to compensate for past equity issues been recognized in the financial literature. In a *Public Utilities Fortnightly* article, for example, Brigham, Aberwald, and Gapenski demonstrated that even if no further stock issues are contemplated, a flotation cost adjustment in all future years is required to keep shareholders whole, and that the flotation cost adjustment must consider total

equity, including retained earnings.[45] Similarly, *New Regulatory Finance* contains the following discussion:

> Another controversy is whether the flotation cost allowance should still be applied when the utility is not contemplating an imminent common stock issue. Some argue that flotation costs are real and should be recognized in calculating the fair rate of return on equity, but only at the time when the expenses are incurred. In other words, the flotation cost allowance should not continue indefinitely, but should be made in the year in which the sale of securities occurs, with no need for continuing compensation in future years. This argument implies that the company has already been compensated for these costs and/or the initial contributed capital was obtained freely, devoid of any flotation costs, which is an unlikely assumption, and certainly not applicable to most utilities. … The flotation cost adjustment cannot be strictly forward-looking unless all past flotation costs associated with past issues have been recovered.[46]

Q100. WHAT IS THE MAGNITUDE OF THE ADJUSTMENT TO THE "BARE BONES" COST OF EQUITY TO ACCOUNT FOR ISSUANCE COSTS?

A100. There are a number of ways in which a flotation cost adjustment can be calculated, but the most common methods used to account for flotation costs in regulatory proceedings is to apply an average flotation-cost percentage to a utility's dividend yield. Based on a review of the finance literature, *Regulatory Finance: Utilities' Cost of Capital* concluded:

> The flotation cost allowance requires an estimated adjustment to the return on equity of approximately 5% to 10%, depending on the size and risk of the issue.[47]

[45] E.F. Brigham, D.A. Aberwald, and L.C. Gapenski, "Common Equity Flotation Costs and Rate Making," *Public Utilities Fortnightly,* May, 2, 1985.
[46] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.* at 335 (2006).
[47] *Id.* at 323.

Alternatively, a study of data from Morgan Stanley regarding issuance costs associated with utility common stock issuances suggests an average flotation cost percentage of 3.6%.[48] Issuance costs are a legitimate consideration in evaluating a fair return on equity for IPL, and applying these expense percentages to an average dividend yield of 3.4% implies a flotation cost adjustment on the order of 12 to 34 basis points.[49]

Q101. WHAT ELSE SHOULD BE CONSIDERED IN WEIGHING YOUR QUANTITATIVE RESULTS?

A101. Current capital market conditions continue to reflect the impact of unprecedented policy measures taken in response to recent dislocations in the economy and financial markets, and are not representative of what is likely to prevail over the near-term future. As a result, the DCF results for utilities may be affected by potentially unrepresentative financial inputs. The IURC has previously expressed reservations regarding blind adherence to the results of the DCF model, concluding that:

> 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 reason given by Mr. Brennan: the failure of the DCF model to conform to empirical 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 analyst would regard as defensible, and therefore requires an upward adjustment based largely on the expert witness'

[48] *Application of Yankee Gas Services Company for a Rate Increase*, DPUC Docket No. 04-06-01, Direct Testimony of George J. Eckenroth (Jul. 2, 2004) at Exhibit GJE-11.1. Updating the results presented by Mr. Eckenroth through April 2005 also resulted in an average flotation cost percentage of 3.6%.
[49] 3.4% x 3.6%=0.12%; 3.4% x 10.0%=0.34%.

> judgment. In these circumstances, we find it difficult to regard the results of a DCF computation as any more than suggestive.[50]

Similarly, in IPL's last rate proceeding the IURC concluded that:

> The Commission recognizes that the cost of equity cannot be precisely calculated and estimating it requires the use of judgment. Due to this lack of precision, the use of multiple methods is desirable because no single method will produce the most reasonable result under all conditions and circumstances.[51]

In this light, it is important to consider alternatives to the DCF model. As shown in IPL Witness AMM Attachment 2, alternative risk premium models (*i.e.,* the CAPM, ECAPM and utility risk premium approaches) produce COE estimates that generally exceed the DCF results. My expected earnings approach corroborated these outcomes.

Q102. HAVE SUCH ALTERNATIVE METHODS BEEN ACCEPTED BY OTHER REGULATORS?

A102. Yes. In its recent Opinion 551, issued September 28, 2016, FERC reiterated its support for several of the very same methodologies relied on in my testimony. For example, FERC determined:

> For the reasons discussed below, we conclude that the record in this proceeding demonstrates the presence of unusual capital market conditions, such that we have less confidence that the central tendency of the DCF zone of reasonableness (the midpoint in this case) accurately reflects the equity returns necessary to meet *Hope* and *Bluefield*.[52]

> Rather, that finding supports a consideration of other cost of equity estimation methodologies in determining whether mechanically setting

[50] *Indiana Michigan Power Co.*, Cause No. 38728 (Aug. 24, 1990).
[51] *Indianapolis Power & Light Co.*, Cause No. 44576 at 41 (Mar. 16, 2016).
[52] Opinion No. 551, 156 FERC ¶ 61,234 at P 119 (2016).

> the ROE at the central tendency satisfies the capital attraction standards of *Hope* and *Bluefield*.[53]
>
> We therefore find it necessary and reasonable to consider additional record evidence, including evidence of alternative methodologies and state-commission approved ROEs, to gain insight into the potential impacts of these unusual capital market conditions on the appropriateness of using the resulting midpoint.[54]

The "alternative methodologies" referred to above include the CAPM, utility risk premium, and expected earnings approaches summarized on IPL Witness AMM Attachment 2. After considering the results of these methods, FERC established a COE for electric transmission services at the middle of the upper half of the DCF range, or 10.32%.[55]

I. Recommended COE Range

Q103. WHAT IS YOUR CONCLUSION BASED ON THE RESULTS OF YOUR QUANTITATIVE ANALYSES FOR THE ELECTRIC GROUP?

A103. As summarized on IPL Witness AMM Attachment 2, considering the results of these analyses, and giving less weight to extremes at the high and low ends of the range, I concluded that the COE for the proxy group of utilities is in the 9.7% to 10.8% range.

Q104. PLEASE SUMMARIZE THE FACTORS THAT SHOULD BE CONSIDERED IN EVALUATING A FAIR COE FOR IPL.

A104. As discussed earlier, investors would distinguish between the risks associated with IPL and those of the Electric Group. The utilities in the Electric Group benefit from a

[53] *Id.* at P 120.
[54] *Id.* at P 122.
[55] *Id.* at P 9.

broader array of regulatory mechanisms than does IPL, which allows them to better mitigate the risks of fluctuations in sales and costs, and achieve recovery of incremental capital investment on a timelier basis. In addition, the capital requirements of IPL's construction projects, along with the Company's efficient operations, low rates and its participation in the Asset Management and Performance Metrics Collaborative are legitimate considerations. Because IPL's common equity ratio falls well below the average for the Electric Group, it implies greater financial risk and a higher required rate of return. Finally, flotation costs are a necessary expense that should be considered in evaluating a fair COE.

Q105. WHAT ADJUSTMENT DO YOU RECOMMEND TO ACCOUNT FOR THESE FACTORS?

A105. I recommend an upward adjustment of 15 basis points to my proxy group results. In arriving at this adjustment, I considered the observable risk premiums implied by utility bond yields, with yield spreads between bonds rated Baa and A amounting to approximately 80 basis points. In addition, prior to the widespread approval of regulatory mechanisms, some regulators concluded that implementing decoupling translated into reduced risk and warranted a lower COE, with adjustments ranging from 10 to 50 basis points.[56] The corollary would hold that IPL's lack of comparable regulatory mechanisms relative to the proxy group would warrant an upward adjustment to the COE. Considering these factors, and the implied adjustment to recognize flotation costs of 12 to 34 basis points, I added a conservative adjustment of

[56] Morgan, Pamela, "A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs, and Observations," *Graceful Systems, LLC* (March 2013) at 14.

15 basis points to the proxy group range, resulting in my recommended COE for IPL of 9.85% to 10.95%, with a midpoint of 10.40%.

Q106. WHAT DID THE DCF RESULTS FOR YOUR SELECT GROUP OF NON-UTILITY FIRMS INDICATE WITH RESPECT TO YOUR EVALUATION?

A106. Average DCF estimates for a low-risk group of firms in the competitive sector of the economy ranged from 10.0% to 10.7%, and averaged 10.4%. While I did not base my recommendation on these results, they confirm that my 9.85% to 10.95% COE range is reasonable to maintain IPL's financial integrity, provide a return commensurate with investments of comparable risk, and support the Company's ability to attract capital.

VI. FAIR RETURN ON FAIR VALUE

Q107. WHAT IS THE PURPOSE OF THIS SECTION?

A107. This section briefly reviews the underpinning of fair value ratemaking, and discusses its application to achieve regulatory goals while being fair to both utilities and customers. This section also discusses the calculation of the FVRB and my recommended RFV for IPL.

A. Fair Value Ratemaking

Q108. PLEASE EXPLAIN WHAT YOU MEAN BY "FAIR RETURN ON FAIR VALUE" OF A UTILITY'S PROPERTY.

A108. There are three primary approaches to measuring rate base rooted in the history of utility ratemaking: 1) reproduction or current cost method; 2) the fair value standard; and 3) the original cost standard. Generally, the reproduction cost method seeks to

estimate the cost of reproducing the existing utility plant at current prices of material and labor.[57] This could more simply be referred to as current cost or current value. Under the fair value standard, all bases of valuation, including the original cost and reproduction cost (both net of depreciation) can be used to determine the fair value of the utility property to which the percentage rate of return is applied. Both the reproduction cost and fair value methodologies are aimed at recognizing the impact on the economic value of utility property from factors such as inflation, efficiency, and attrition.[58] The original cost standard uses the historical accounting cost of the utility property at the time it was first dedicated to public use, net of depreciation (also referred to as "net book value"), to determine the rate base to which the fair rate of return is applied. In its pure form (where the weighted average cost of capital is multiplied by the net book value), the original cost ratemaking standard fails to make an allowance for price inflation, attrition, or efficiency. Put another way, the pure original cost approach may not produce the economically rational and efficient results of competitive markets.

As a matter of public utility policy, the Indiana General Assembly has chosen to require use of the fair value standard to ensure that the shortcomings of the original cost approach are addressed in establishing utility rates. The "fair value" is reached through the exercise of reasoned judgment, and "giving such consideration as it deems appropriate in each case to all bases of valuation which may be presented or which the IURC is authorized to consider" and giving "weight to the reasonable cost of bringing

[57] A variation of the reproduction cost method considers the cost of replacing utility property with new technology that was not available when the utility property was originally placed in service. This approach was applied by the Federal Communications Commission ("FCC") in implementing the *Telecommunications Act of 1996.*

[58] Attrition is the systemic inability of a utility to earn its allowed rate of return.

the utility property to its then state of efficiency."[59] The Court of Appeals has clarified that, "Fair value is a conclusion or final figure drawn from all the various 'values' or factors to be weighted in accordance with the statute by the Commission," and concluded that under the fair value standard "the Commission may not ignore the commonly known and recognized fact of inflation."[60]

In its decision regarding Westfield Gas Corporation in Cause No. 43624, the IURC found that inflation must be treated consistently and not be double-counted in determining the fair value return to FVRB.[61] The Westfield Gas Order referenced back to the IURC's 1993 decision in an Indiana & Michigan Power Company ("I&M") rate case, where the IURC found that the rate of return formula must be consistent with the rate base.[62] In the I&M Order, the IURC also observed that despite the extensive presentation regarding the fair value return, "Petitioner has suggested no methodology which the Commission may use in properly determining and quantifying an appropriate fair return."[63] Consistent with the foregoing, including the IURC's direction spelled out in the I&M Order, I propose a specific methodology to quantify a fair rate of return to FVRB that balances the interest of IPL's investors and customers.

Q109. APART FROM RECOGNIZING INFLATION, ARE THERE OTHER BENEFITS ASSOCIATED WITH FAIR VALUE RATEMAKING?

[59] Ind. Code § 8-1-2-6. My discussion of this statute and other court cases and Commission orders cited in this section is as a regulatory financial analyst, not as an attorney.
[60] *Indianapolis Water Co. v. Public Serv. Comm'n*, 484 N.E.2d 635, 640 (Ind. Ct. App. 1985).
[61] Westfield Gas Corporation D/B/A Citizens Gas of Westfield, Cause No. 43624, Order Approved Mar. 10, 2010, at pp. 29-30 ("Westfield Gas Order").
[62] *Id.* at p.29 citing *Indiana Michigan Power Co.,* Cause No. 39314, Order Approved Nov. 12, 1993, at p. 42 ("I&M Order").
[63] I&M Order at p. 87.

A109. Yes. The fair value ratemaking standard also provides flexibility to support regulatory policy objectives, such as greater efficiency.[64] This can be illustrated by way of a simple example. Assume two regulated companies manufacture a hypothetical product called a widget. Both companies sell 100 widgets annually and their product is identical. Assume further that Company A acquired its widget manufacturing property for $100 and Company B acquired its widget manufacturing property for $300, and both are financed with 100% common equity. For simplicity (ignoring taxes and all other costs of production), also assume the COE on the original cost of the property is 12%. The resulting revenue requirement and rate per unit would be as set forth in Table 6 below:

TABLE 6
ILLUSTRATIVE RATES – ORIGINAL COST

	Utility Property Original Cost	COE @ 12%	Rate per Unit	Return on Original Cost
Company A	$100	$12	$0.12	12%
Company B	$300	$36	$0.36	12%

Under the original cost ratemaking standard, in this example both companies would be earning exactly the same rate of return on the book value of their investment (12%). However, the higher cost provider of service (Company B) would have rates that are three times the retail rates of Company A. The lower cost provider of service (Company A) is not recognized for its efficiency in providing the identical product at a lower cost. Put another way, the return on book value for the efficient provider (Company A) is the same as the return on book value of the inefficient provider

[64] Similarly, Ind. Code § 8-1-2-6 specifically notes that, "As one of the elements in such valuation the commission shall give weight to the reasonable cost of bringing the property to its then state of efficiency."

(Company B). In an unregulated market where consumers have a choice between suppliers, customers would purchase the lower priced widgets from Company A. But when customers have no choice of providers (as with regulated utilities), original cost ratemaking disadvantages customers of Company B. In this example, regulation does not serve as a substitute for competition since it forces the customers of Company B to pay more for widgets than they would choose in a competitive market.

Alternatively, assume a current cost of the property is $200 and a RFV of 10%.[65] If the current value is used for ratemaking, the revenue requirement, retail rate, and return on original cost would be as set forth in Table 7 below:

TABLE 7
ILLUSTRATIVE RATES – FAIR VALUE

	Utility Property Current Cost	RFV @ 10%	Rate per Unit	Original Cost	Return on Original Cost
Company A	$200	$20	$0.20	$100	20%
Company B	$200	$20	$0.20	$300	7%

While both companies would charge the same rates for an identical product, Company A earns more on the book value of its investment than Company B. This form of regulation is better aligned with a free market where prices charged by participants are similar while efficiency is encouraged and rewarded through higher earned returns on book value.[66]

B. Fair Return on Fair Value for IPL

Q110. HOW DOES THE COMPANY PROPOSE TO ESTABLISH THE FVRB?

[65] Computed by subtracting an assumed forward-looking inflation estimate of 2.0% from the 12% COE.
[66] In real world markets the most efficient providers of the products and services demanded by consumers generally earn higher returns on book value than those that are less competitive.

A110. In its order in IPL's last rate proceeding,[67] the IURC recognized that the current value of the utility property cannot be disregarded in fixing the valuation, but that fair value need not be based solely on this measure. As shown on IPL Financial Exhibit IPL-RB, Schedule RB1, the Company proposes to determine the FVRB using the same weighted approach adopted by the IURC in the 44576 Order. Under this approach, the net original cost plant in service and the net utility plant at current value are weighted using the percentages of long-term debt and common equity in the utility's ratemaking capital structure, respectively. As explained in the 44576 Order:

> The weighted approach used in Cause Nos. 43526 and 44075 recognized that the fair value of a utility should be reflective of the equity obligations and fixed obligations, i.e., debt, shown in the utility's capital structure. Here, Petitioner's RCNLD and DCF analyses reflect the current valuation subject to inflation and the physical operating condition of the assets, and thus, should be weighted on a pro rata basis using the equity component of IPL' s capital structure, which similarly varies over time. In contrast, the original cost less depreciation valuation is unaffected by the physical characteristics of the asset, and should be weighted on a pro rata basis using the debt component of IPL's capital structure, which is similarly fixed over time.[68]

Under this approach, inflation is recognized in the net utility plant at current value, but not in the original cost component of the FVRB.

Q111. PLEASE EXPLAIN HOW YOU CALCULATED THE COMPANY'S PROPOSED FAIR RATE OF RETURN ON THE FVRB.

A111. As noted earlier, I concluded that a fair COE for IPL falls in the range of 9.85% to 10.95%, with a midpoint of 10.4%. As shown on IPL Financial Exhibit IPL-CC, Schedule CC3, the resulting weighted cost of capital is 6.81%. As indicated on IPL

[67] *Indianapolis Power & Light Co.*, Cause No. 44576, Order Approved Mar. 16, 2016, at p. 32 ("44576 Order").
[68] *Id.*

Witness AMM Attachment 12, to determine the fair RFV, I first removed an estimated rate of inflation (1.7%) from the 10.4% COE applied to the common equity component of the weighted capital structure. As shown on IPL Witness AMM Attachment 12, applying the resulting inflation adjusted WACC of 6.14% to the FVRB produces NOI of $230.394 million.

To assess the reasonableness of this result, I then calculated the COE implied by this NOI relative to the common equity balance reflected in the original cost ratemaking approach. As shown on IPL Witness AMM Attachment 13, an NOI of $230.394 million equates to a COE of 12.33% on original cost rate base. Because this implied COE exceeds the upper end of my recommended range, I adjusted the NOI downward by approximately 7.2% to bring the resulting COE within my recommended range.

As shown on IPL Witness AMM Attachment 14, the resulting NOI is $213.842 million. As shown on IPL Witness AMM Attachment 15, an end-result NOI of $213.743 million equates to a weighted return on the FVRB of 5.70%, once rounded to two decimal places.

Q112. WHAT WAS THE BASIS FOR THE INFLATION RATE YOU SUBTRACTED FROM THE COE IN DETERMINING THE FAIR RFV?

A112. In estimating the COE, what matters are investors' expectations going forward. Built into investors' return expectations is their outlook for future risks, which includes an assessment of the impact that future inflation will have on their ability to earn the required real rent for the capital they provide to the utility. Accordingly, the inflation

rate used in my analysis was based on forecasts that are representative of investors' expectations for future inflation.

Q113. WHAT ARE FORWARD-LOOKING EXPECTATIONS WITH RESPECT TO INFLATION?

A113. While there is no single expected inflation rate attributable to all assets or investors, the projections of economic forecasting and investment advisory services and governmental agencies provide a meaningful benchmark regarding the inflation expectations incorporated into the COE estimates discussed earlier in my testimony. Table 8, below, presents a compilation of inflation projections from widely-referenced and credible, independent sources:

TABLE 8
INFLATION FORECASTS

Source	Horizon	Measure	Inflation
(a) IHS Global Insight	2017-2046	GDP Deflator	2.13%
(b) EIA	2017-2040	GDP Deflator	2.11%
(c) Social Security Administration	2017-2090	CPI	2.60%
(d) Blue Chip	2017-2027	GDP Deflator	2.10%
(d) Blue Chip	2017-2027	CPI	2.25%
(e) Survey of Professional Forecasters	2017-2025	CPI	2.16%
(f) Value Line Investment Survey	2017-2020	GDP Deflator	2.20%
Average			2.22%

(a) IHS Global Insight, *The U.S. Economy* (Jun. 27, 2016)
(b) Energy Information Administration, *Annual Energy Outlook 2016* (May 2016)
(c) Social Security Administration, 2016 OASDI Trustees Report, Table VI.G6
(d) Blue Chip Financial Forecasts, Vol. 34, No. 6 (Jun. 1, 2016)
(e) Survey of Professional Forecasters, Second Quarter 2016 (May 13, 2016).
(f) Value Line Investment Survey, Forecast for the U.S. Economy (Jun. 3, 2016)

These forecasts are also generally consistent with the Federal Reserve's announced long-term monetary policy goal of 2.0% price inflation.[69]

In addition to these projections, investors' inflation expectations can be inferred from the published yields on U.S. Treasury Inflation Protected Securities ("TIPS"). Whereas yields on conventional Treasury bonds must compensate investors for any expected erosion in purchasing power due to inflation, buyers of TIPS need not worry about future inflation because the principal and interest payments are both indexed to inflation. As a result, the yield difference between conventional and inflation protected Treasuries of a given maturity should reveal the rate of future inflation expected by market participants. Over the six months ended July 2016, nominal yields on 30-year Treasury bonds averaged 2.54% and the yield on TIPS averaged 0.87%, which implies an expected inflation rate of 1.67%.

Q114. WHAT DID YOU CONCLUDE BASED ON YOUR REVIEW OF THESE INFLATION EXPECTATIONS?

A114. As indicated above, investors' expectations of future inflation are likely to fall in the range of approximately 1.7% to 2.6%. As explained subsequently in my testimony, the use of historical cost depreciation expense in the context of fair value ratemaking has a negative impact on investors' opportunity to actually earn a fair return. In order to partially mitigate this concern, I recommend that the IURC use an inflation rate from the bottom of my range, or 1.7%, in evaluating a fair RFV.

[69] These inflation forecasts are also consistent with the 2.25% general inflation rate used in the testimony of Mr. John J. Reed to escalate fixed and variable operations and maintenance expenses and capital expenditures in periods beyond the Company's explicit forecasts.

Q115. WHY DID YOU REMOVE INFLATION FROM ONLY THE COST ASSOCIATED WITH THE EQUITY COMPONENT OF THE CAPITAL STRUCTURE?

A115. The COE is inherently forward-looking and an expectation of future inflation is embodied in cost of equity estimates. Meanwhile, the weighted component of the FVRB attributable to net utility plant at current value reflects the effect of historical inflation. The impact of historical inflation on the value of a utility's plant in service is thus recognized in each rate case to the extent that current value is used to establish the rate base. The Commission has previously found that the impact of inflation should not be double-counted in developing the fair RFV.

As discussed further below, this recognizes that the COE reflects compensation for future inflation, *i.e.*, the inflation that is expected to occur during the period when the new retail rates would be in effect. An adjustment is warranted because this inflation will be captured through price level adjustments to the current value rate base in the next rate case (*i.e.,* net utility plant at current value will reflect inflation between rate cases). Therefore, to the extent the FVRB incorporates the effects of actual inflation on an ongoing basis, failing to adjust the COE to remove expected inflation would result in double-counting inflation. Removing inflation from only the cost of the equity component of the capital structure adjusts for inflation in a manner that is consistent with the corresponding FVRB.

Q116. PLEASE ELABORATE.

A116. As discussed above, the proposed FVRB is calculated by weighting net utility plant at original cost and at current value based on the percentages of debt and common equity in the ratemaking capital structure, respectively. There is no inflation reflected in the net original cost component of the FVRB. Thus, there is no "double counting" of inflation with respect to this debt-weighted component of the return calculation.

Meanwhile, as discussed in the testimony of IPL Witness Bulkley and IPL Witness Reed, the current value component of the FVRB does reflect the impact of inflation. This current value component is weighted by the percentage of common equity in the ratemaking capital structure to determine the FVRB. Correspondingly, in determining the RFV I removed inflation from the equity component cost to avoid any potential for double counting of the impact of inflation.

Q117. IS IT WELL UNDERSTOOD THAT THE INFLATION RATE CONSIDERED BY INVESTORS WHEN DETERMINING THEIR REQUIRED COE IS PROSPECTIVE, AND NOT HISTORICAL?

A117. Yes. The concept that required returns (be they debt returns or equity returns) contain a factor for expected inflation is a basic principle taught in every financial theory textbook. For example, in the textbook, *Financial Management, Theory and Practice*, the authors state:

> The four most fundamental factors affecting the cost of money are (1) production opportunities, (2) time preferences for consumption, (3) risk, and (4) inflation.[70]

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

> It is important to note that the inflation rate built into interest rates is the *inflation rate expected in the future*, not the rate experienced in the past.[71] [Emphasis in original]

Historical inflation actually experienced over some past period is not part of the analyses of investors' required returns, which are forward-looking estimates of the cost of equity.

Q118. IS THIS CONSISTENT WITH THE METHODOLOGY USED TO DETERMINE THE INFLATION RATE IN IPL'S LAST RATE CASE?

A118. Yes. In the 44576 Order, the Commission arrived at an RFV by subtracting a forward-looking estimate of future inflation based on the 2% target rate promulgated by the Federal Reserve, and noted that this was "a reasonable reflection of inflation over the expected life of the resulting rates." As discussed above, the methodology I use addresses the potential for the double counting of inflation by deducting an estimate of investors' future inflation expectations from the equity component cost of the weighted ratemaking capital structure.

Q119. IS THERE AN IMPORTANT DISTINCTION BETWEEN YOUR ADJUSTMENT FOR INFLATION AND THE 44576 ORDER?

A119. Yes. In the 44576 Order, the Commission deducted future inflation from the weighted cost of capital, rather than from the equity component cost. However, as explained earlier, the FVRB used in the 44576 Order was composed in part of net utility plant at original cost weighted using the percentage of debt in the ratemaking capital structure. Because there is no inflation reflected in this net original cost component of the

[71] *Id.* at 133.

FVRB, deducting inflation from the weighted cost of capital, rather than from just the equity component, over-corrects for the potential double counting of inflation.

Indeed, the Commission has correctly acknowledged that the effects of inflation are properly considered in the equity component of the cost of capital:

> As discussed earlier, the Court has directed that we must consider inflation in our determination of fair value. We have long recognized that the effects of inflation are considered in calculating the weighted cost of capital. *These effects are considered in that calculation in the fixing of the equity component.*[72]

In *Indianapolis Water*, the Commission noted that:

> Mr. Mulle recommended that the fair value cost rate should reflect a reduction in the common equity cost rate by the prospective rate of inflation. The Commission concurs.[73]

Similarly, the *expected* rate of inflation was used in *Westfield Gas.* On page 30 of the final order in that case, the Commission stated:

> Petitioner's formula indeed reduces the cost of capital rate by the *expected* rate of *future* inflation and multiplies the net rate by the fair value rate base amount . . . [Emphasis added]

> Petitioner has proposed reducing cost of capital by an inflation amount of 2.54%, and the OUCC did not challenge the amount, instead proposing its original cost methodology. Accordingly, using the 10.1% cost of equity determined above in consideration of an inflation factor of 2.54%, we find the fair rate of return is 7.49% . . .[74]

Clearly, the utility proposed to reduce only the equity cost rate by the amount of expected inflation and the Commission accepted that proposal.

[72] *Suburban Utilities*, Cause Nos. 38233/38234 (Dec. 16, 1987) [emphasis added].
[73] *Indianapolis Water Co.*, Cause No. 38868 (May 16, 1990).
[74] *Westfield Gas Corporation*, Cause No. 43624 (Mar. 10, 2010).

Q120. WOULD IT BE REASONABLE OR APPROPRIATE TO REFERENCE HISTORICAL INFLATION RATES IN THIS PROCEEDING?

A120. No. There is no economic justification for referencing historical inflation when determining the fair RFV. Deducting historical inflation – however measured – from the COE would result in a mismatch because the only inflation rate incorporated into the cost of equity is based on forward-looking expectations. Nor is there any basis to adjust the debt cost for historical inflation, since interest expense is a fixed cost of the utility that is unaffected by adjustments to original cost rate base to account for price level changes. Adjusting the COE by subtracting a measure of historical inflation to arrive at a fair RFV is inconsistent with economic and financial principles, the logic underlying fair value ratemaking, and the facts presented in this proceeding.

Q121. IS THERE ANY ECONOMIC BASIS THAT WOULD SUPPORT DEDUCTING INVESTORS' EXPECTED INFLATION RATE FROM THE WACC IN COMPUTING NOI UNDER FAIR VALUE RATEMAKING?

A121. No. As indicated earlier, common equity investors are the only beneficiaries of the inflation protections offered by fair value ratemaking. The Company is contractually obligated to pay debtholders interest expense pursuant to the related bond indentures, and these payments are fixed and independent of any change in rate base related to consideration of historical prices changes on the value of IPL's investment in utility property. Indeed, the IURC implicitly recognized this economic distinction in its determination of IPL's net plant fair valuation in the Company's last rate proceeding through its weighting of net original cost using the debt component of the capital

structure.[75] Removing investors' expected inflation rate from the WACC, rather than from the COE, would amount to a "double-dip." The only cost component of the WACC that includes compensation for the risks of future inflation addressed by fair value ratemaking is the COE. Subtracting an inflation adjustment from the WACC, rather than from the COE component cost, ignores this economic reality.

C. Implications of Depreciation Expense Under Fair Value Regulation

Q122. IS INFLATION THE ONLY FACTOR THAT SHOULD BE CONSIDERED IN ESTABLISHING THE FAIR RFV?

A122. No. The Commission should consider how depreciation expense based on original cost impacts investors' opportunity to earn a fair return.

Q123. PLEASE EXPLAIN.

A123. The ratemaking process provides the utility a return "of" and "on" its used and useful utility property. The return "on" investment is provided in the authorized rate of return. The return "of" investment is provided in the Commission authorized depreciation rates. The depreciation rates are applied to the original cost of the used and useful property. In other words, the return "of" the investment does not recognize the impact of inflation.

Consider a utility with an initial investment in plant of $100,000. The plant has a service life of 10 years, is financed by 100% common equity, and investors' cost of equity capital is 10.0%. As shown on page 1 of IPL Witness AMM Attachment 16, discounting the annual stream of cash flows provided from depreciation and return

[75] *Indianapolis Power & Light Co.*, Cause No. 44576 at 32-33 (Mar. 16, 2016).

over the life of the asset at investors' 10.0% cost of equity yields a net present value ("NPV") equal to the original investment.

Page 2 of IPL Witness AMM Attachment 16 presents the same example under current cost regulation. Here, the value of the plant is increased annually at the assumed 2.0% inflation rate. Given that inflationary factors are accounted for in rate base, the rate of return is computed by subtracting the 2.0% inflation rate from the nominal cost of equity of 10.0%, resulting in a RFV of 8.0%. Meanwhile, annual depreciation expense is computed by dividing the *current value plant balance in each year* by the ten-year life of the facility. As shown on page 2 of IPL Witness AMM Attachment 16, discounting this series of annual revenue requirements under current value ratemaking at investors' nominal 10.0% cost of equity yields an identical NPV of $100,000.

Page 3 of IPL Witness AMM Attachment 16 illustrates the attrition that occurs as a result of combining original cost depreciation expense with a current cost regulatory scheme. Plant investment is adjusted for inflation and combined with an 8.0% real cost of capital to compute the return component of revenue requirements, as was done on Page 2. However, this current cost return is then combined with original cost depreciation expense that ignores the impact of price changes, as developed on Page 1. As shown in Page 3, discounting the resulting series of cash flows at the nominal return produces a NPV of $93,867, which falls below the $100,000 initial investment. In other words, the combination of a current cost return with historical cost depreciation expense produces revenue requirements that are insufficient to allow investors the opportunity to earn a return of and on their investment. This outcome violates the *Hope* and *Bluefield* regulatory standards.

As shown in Panel 4 to IPL Witness AMM Attachment16, in order to overcome this attrition shortfall associated with the use of original cost depreciation expense, the allowed RFV must be increased above the real return to produce revenues that are sufficient to return the original $100,000 capital to investors. In the hypothetical example illustrated on page 4 of IPL Witness AMM Attachment 16, the required return must be set 150 basis points higher than the real return, or 9.5%, in order to offset the impact of using original cost depreciation expense in current value ratemaking.

Q124. HAS THE IURC PREVIOUSLY RECOGNIZED THE IMPACT OF INFLATION ON DEPRECIATION EXPENSE IN CURRENT VALUE RATEMAKING?

A124. Yes. In a 1957 decision in *Indiana Telephone Corporation* the IURC noted the importance of changing price levels and its implication for depreciation expense, finding that "the cost of plant capacity consumed, depreciation, is a major factor in this area," observing that "one 1956 dollar received from a customer is not the equivalent of, and does not represent the recovery of, one 1940 dollar of plant consumed."[76] The IURC found:

> Depreciation, or the cost of plant consumed, measured in current dollars, and related to other factors as was done in the evidence presented herein tends to reflect a realistic picture of profits in which there is no understatement of cost or overstatement of profits . . .[77]

The IURC then ordered:

> Indiana Telephone Corporation be and it hereby is . . . authorized to accrue depreciation upon the basis of the cost of its property, repriced

[76] *Indiana Telephone Corporation*, 16 PUR 3d 490, 494 (Ind. PSC 1957).
[77] *Id.* at 497.

in current dollars; and file its annual report with this commission showing depreciation expense accrued on the basis of original cost and on the basis of cost repriced in current dollars.[78]

Q125. IS IPL PROPOSING ANY CHANGE IN THE COMMISSION'S PRACTICE OF CALCULATING DEPRECIATION EXPENSE BASED ON THE HISTORICAL, BOOK COST OF PLANT AND EQUIPMENT?

A125. No. The Company recognizes that the depreciation expense component of a utility's revenue requirements is customarily calculated based on original cost. IPL has employed this same methodology here and is not proposing any adjustment to account for differences in economic depreciation and book depreciation expense in determining revenue requirements under fair value.

Similarly, my examination of the ramifications of inflation on depreciation expense under fair value does not imply any deviation from the IURC's standard practices. Nor does it suggest any form of a "double-dip" in recognizing the impact of inflation, since the Company continues to account for depreciation expense on the basis of historical cost. Rather, this discussion serves to illustrate that deducting expected inflation from the COE will produce an understated measure of RFV exactly *because* the Company continues to base depreciation expense on historical cost accounting.

As the IURC has previously recognized, "simply subtracting inflation from the cost of capital and multiplying that result by the FVRB amount results in an understated return amount that is not methodically consistent with and does not give actual effect to the rate base amount."[79] The IURC concluded that the outcome would be "an

[78] *Id.* at 497-498.
[79] *Verified Petition of IPL Gas Corp.*, Cause No. 43624, Order at 30 (Mar. 10, 2010).

impermissible result under Indiana's fair value statute."[80] As noted earlier, in order to mitigate these concerns, I have proposed to refine the approach used to arrive at the RFV by subtracting an inflation rate from the bottom end of the reasonable range. While this would partially offset the resulting attrition penalty shouldered by investors, it would not serve to double-count the impact of inflation or otherwise alter the determination of depreciation expense or the test year balance of FVRB.

Q126. IS THE PROPOSED 5.70% RETURN ON THE FVRB REASONABLE?

A126. Yes, a RFV of 5.70% for IPL is consistent with Indiana fair value standard and economic logic. As the Commission has previously recognized:

> [T]he requirement for a "fair value" valuation of Petitioner's used and useful property is not just an arcane relic of past federal constitutional requirements, which remains codified in Indiana statutory law merely by accident. Rather, we believe that the requirement to determine a fair value rate base, and to provide a fair return thereon, is grounded both in sound economic principles and the basic tenets of private property and fundamental fairness, expressed in both the federal and the Indiana constitutional requirement of reasonable compensation for the public use of any citizen's property. [81]

The fair value standard remains relevant today, as the weighted FVRB gives tangible effect to current value.

Finally, my application recognizes that inflation is a persistent feature of the economic landscape. My calculation of the fair RFV adjusts for inflation in a manner consistent with the derivation of the corresponding FVRB, which recognizes inflation in the portion attributable to the current valuation of net utility plant, but not in the weighting assigned to original cost. The fair return on fair value also considers efficiency and

[80] *Id.*
[81] 1993 I&M Order, at 41.

attrition as well as the benefits to customers from IPL being able to make investments delivering efficient and effective electricity service.

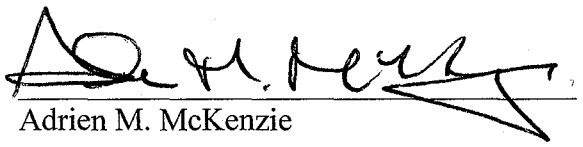
Fair value ratemaking provides the IURC with the ability to craft a regulatory response to the challenges facing utilities in the state. Investors continue to expect that inflation will be present in the economy and it may well become more pronounced. The fair value standard provides the IURC with a more robust regulatory response to the effects of inflation. Also, as discussed above, allowing a utility to earn a bare bones return under the pure original cost standard (particularly if there has been an over reliance on the DCF model) may not create sufficient incentives for a utility to construct and acquire its public utility property efficiently. Often, finding more effective ways to serve the public requires risk-taking by utility management. If the best possible regulatory outcome is a bare bones return on original cost, utility management does not have the same incentive to innovate and improve as companies in competitive markets where successful innovation is rewarded with superior profitability. Where, as in the case of IPL, the current value of utility property exceeds its original cost, Indiana legislative policy, through the statutory fair value standard, provides for a balanced rate case decision that requires more than the bare minimum return based on a pure original cost standard. Tangible consideration must be given to the current value of the utility property, which is what my proposed fair RFV does in this case.

Q127. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY IN THIS CASE?

A127. Yes, it does.

VERIFICATION

I, Adrien M. McKenzie, Vice President of FINCAP, Inc., affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.



Adrien M. McKenzie

Dated: December 22, 2016

QUALIFICATIONS OF ADRIEN M. MCKENZIE

Q. WHAT IS THE PURPOSE OF THIS ATTACHMENT?

A. This attachment describes my background and experience and contains the details of my qualifications.

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 concerning the rate of return on equity ("ROE") in proceedings filed with the Federal Energy Regulatory Commission ("FERC"), the Regulatory Commission of Alaska, the Colorado Public Utilities Commission, the Hawaii Public Utilities Commission, the Idaho Public Utilities Commission, the Indiana Utility Regulatory Commission, the Iowa Utilities Board, the Kansas State Corporation Commission, the Kentucky Public Service Commission, the Maryland Public Service Commission, the Montana Public Service Commission, the Nebraska Public Service Commission, the Ohio Public Utilities Commission, the Oregon Public Utilities Commission, the South Dakota Public Utilities Commission, the Virginia State Corporation Commission, the Washington Utilities and

Transportation Commission, the West Virginia Public Service Commission, and the Wyoming Public Service Commission. 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 ROE 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.

In addition, over the course of my career I have worked with Dr. William Avera to prepare prefiled direct and rebuttal testimony in over 250 regulatory proceedings before FERC, the Canadian Radio-Television and Telecommunications Commission, and regulatory agencies in over 30 states.[1] Prior to joining FINCAP, I was employed by an oil and gas firm and was responsible for operations and accounting. A resume containing the details of my qualifications and experience is attached below.

[1] This testimony was sponsored by Dr. William Avera, who is President of FINCAP, Inc.

ADRIEN M. McKENZIE

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

3907 Red River
Austin, Texas 78751
(512) 458–4644
FAX (512) 458–4768
fincap3@texas.net

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 25 years 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

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

Education

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

Professional Associations

Received Chartered Financial Analyst (CFA) designation in 1990.

Member – CFA Institute.

Bibliography

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

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

Presentations

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

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

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

Representative Assignments

Mr. McKenzie has prepared and supported prefiled testimony submitted in over 250 regulatory proceedings. In addition to filings before regulators in over thirty state jurisdictions, Mr. McKenzie has considerable expertise in preparing expert analyses and testimony before the Federal Energy Regulatory Commission ("FERC") on the issue of ROE, and has broad experience in applying and evaluating the results of quantitative methods to estimate a fair ROE, including discounted cash flow approaches, the Capital Asset Pricing Model, risk premium methods, and other quantitative benchmarks. Other representative assignments have included the application of econometric models to analyze the impact of anti-competitive behavior and estimate lost profits; development of explanatory models for nuclear plant capital costs in connection with prudency reviews; and the analysis of avoided cost pricing for cogenerated power.

ROE ANALYSES

IPL Witness AMM Attachment 2
IPL 2016 Basic Rates Case
Page 1 of 1

SUMMARY OF RESULTS

DCF	**Average**		**Midpoint**
Value Line	9.1%		9.8%
IBES	8.9%		10.0%
Zacks	8.9%		10.0%
Internal br + sv	8.2%		8.6%
CAPM			
Current Bond Yield	9.7%		9.7%
Projected Bond Yield	10.0%		10.0%
Empirical CAPM			
Current Bond Yield	10.3%		10.3%
Projected Bond Yield	10.6%		10.6%
Utility Risk Premium			
Current Bond Yield		10.2%	
Projected Bond Yields		11.2%	
Expected Earnings			
Industry		10.8%	
Proxy Group	11.0%		12.2%
Recommended Cost of Equity Range			
Cost of Equity Range	9.7%	--	10.8%

ELECTRIC GROUP

	Company	AMS	BDR	DSM	ECA	ESM	FCA	FRP	FTY	ICR	NDT	PCR	PGA	RDM	SCR	TAX	TCR	WNA	Other
1	ALLETE			√	√		√		√	√			√				√		
2	Alliant Energy			√			√		√	√			√				√		
3	Ameren Corp.		√	√	√		√	√	√	√		√	√	√					
4	American Elec Pwr	√			√		√		√	√				√			√		Vegetation mgmt. tracker
5	Avangrid, Inc.					√	√		√	√			√	√					
6	Avista Corp.						√		√				√	√					Attrition adjustment
7	Black Hills Corp.		√	√	√		√		√	√			√	√		√	√	√	Vegetation mgmt. tracker
8	CenterPoint Energy	√	√					√		√	√		√	√	√	√	√	√	
9	CMS Energy Corp.						√		√	√			√	√					
10	Consolidated Edison				√		√		√			√	√	√	√	√		√	
11	DTE Energy Co.				√		√		√	√	√		√	√					
12	Edison International			√	√		√	√	√	√	√	√		√		√	√		
13	El Paso Electric			√			√		√										
14	Exelon Corp.	√	√	√	√		√	√	√	√			√	√			√	√	
15	IDACORP, Inc.						√		√	√		√		√					
16	NorthWestern Corp.						√						√			√			
17	OGE Energy Corp.	√		√			√			√		√		√	√				
18	Otter Tail Corp.			√	√		√		√	√							√		
19	PG&E Corp.			√	√		√	√	√		√			√					
20	Pinnacle West Capital			√	√		√			√				√			√		
21	Portland General Elec.			√			√		√	√				√	√				
22	PPL Corp.	√		√	√		√	√	√	√			√	√	√		√		
23	Pub Sv Enterprise Group		√	√	√		√	√		√		√	√	√	√			√	
24	Sempra Energy			√	√		√	√	√				√	√					
25	Southern Company			√	√		√	√	√	√				√	√	√			
26	Vectren Corp.		√	√			√			√			√	√			√	√	
27	WEC Energy Group		√	√	√		√		√	√			√	√					
28	Xcel Energy Inc.			√	√		√		√	√			√	√			√		

Sources: 2015 Form 10-K Reports; *Alternative Regulation for Emerging Utility Challenges: 2015 Update* , Edison Electric Institute (Nov. 11, 2015); Regulatory Research Associates, Regulatory Focus, *Adjustment Clauses-A State-by-State Overview* (Aug 22, 1016).

AMS--Advanced Metering System Recovery Rider
BDR -- Bad Debt Cost Recovery Rider
DSM -- Demand Side Management / Conservation / Energy Efficiency Adjustment Clause
ECA -- Environmental and/or Emissions Cost Adjustment Clause
ESM -- Earnings Sharing Mechanism
FCA -- Fuel and/or Power Cost Adjustment Clause
FRP--Formula Rate Plan
FTY - Jurisdiction allows for future test year
ICR -- Infrastructure Investment / Renewables Cost Recovery Mechanism
NDT -- Nuclear Decomissioning Tracker
PCR -- Pension Cost Recovery Mechanism
PGA -- Gas Cost Adjustment Clause
RDM -- Full or Partial Revenue Decoupling Mechanism
SCR - Storm Cost Recovery Tracker
TAX--Property / Franchise Tax Recovery Mechanism
TCR -- Transmission Cost Recovery Tracker
WNA -- Weather Normalization Adjustment or other mitigants

ELECTRIC OPERATING COS.

Holding Company/ Operating Company	Type of Svc	State	Type of Adjustment Clause (a): Elec. Fuel/ Gas/ Purch. Pwr	Conserv. Program Expense	Decoupling: Full	Decoupling: Partial	Renew-ables Expense	Environ-mental Compliance	New Capital: Gener-ation Capacity	New Capital: Generic Infra-structure	Trans-mission Expense	Other	Future Test Year (b)
ALLETE													
Minnesota Pwr	Elec.	MN	√	√	--	--	√	√	--	--	√	--	C
ALLIANT ENERGY													
Interstate P&L	Elec.	IA	√	√	--	--	√	√	--	--	√	√	--
Wisconsin P&L	Elec.	WI	√	--	--	--	--	--	LIR	LIR	--	√	C
AMEREN													
Ameren Illinois	Elec.	IL	D	√	--	--	√	√	D	--	√	√	O
Union Electric	Elec.	MO	√	√	--	√	--	√	--	√	√	√	P
AMERICAN ELEC PWR													
AEP Texas Central	Elec.	TX	D	√	--	--	--	--	D	√	√	--	--
AEP Texas North	Elec.	TX	D	√	--	--	--	--	D	√	√	--	--
Appalachian Pwr	Elec.	VA	√	√	--	--	√	√	√	--	√	√	--
Indiana Michigan Pwr	Elec.	IN	√	√	--	√	√	√	--	√	√	√	C
Kentucky Pwr	Elec.	KY	√	√	--	√	√	√	√	--	--	√	O
Ohio Pwr	Elec.	OH	D	√	--	√	√	--	D	√	√	√	P
Public Svc Co. of OK	Elec.	OK	√	√	--	√	--	--	--	√	√	√	--
Southwestern Elec Pwr	Elec.	AR	√	√	--	√	--	√	√	√	--	√	O/P
Wheeling Pwr	Elec.	WV	√	--	--	--	--	--	--	--	√	√	--
AVANGRID													
Central Maine Pwr	Elec.	ME	D	--	√	--	--	--	D	--	--	√	C
NY State E&G	Elec.	NY	D	--	√	--	√	--	D	--	--	--	C
Rochester G&E	Elec.	NY	D	--	√	--	√	--	D	--	--	--	C
United Illuminating	Elec.	CT	D	√	√	--	--	--	D	--	√	--	C
AVISTA CORP.													
Alaska Electric L&P	Elec.	AL	√	--	--	--	--	--	--	--	--	--	C
Avista	Elec.	ID	√	√	√	√	--	--	--	--	--	--	P

ELECTRIC OPERATING COS.

Holding Company/ Operating Company	Type of Svc	State	Type of Adjustment Clause (a): Elec. Fuel/ Gas/ Purch. Pwr	Conserv. Program Expense	Decoupling: Full	Decoupling: Partial	Renew-ables Expense	Environ-mental Compliance	New Capital: Gener-ation Capacity	New Capital: Generic Infra-structure	Trans-mission Expense	Other	Future Test Year (b)
BLACK HILLS CORP.													
BH Power	Elec.	SD	√	√	- -	√	- -	√	- -	- -	√	√	- -
Cheyenne Light	Elec.	WY	√	√	- -	√	√	- -	- -	- -	- -	√	O
BH Colorado Elec	Elec	CO	√	√	- -	- -	√	- -	√	√	- -	√	- -
CENTERPOINT ENERGY													
Houston Electric	Elec.	TX	D	√	- -	- -	- -	- -	D	√	√	√	- -
CMS ENERGY													
Consumers Energy	Elec.	MI	√	√	- -	- -	√	- -	- -	- -	√	- -	C
CONSOLIDATED EDISON													
Con Ed of NY	Elec.	NY	D	- -	√	- -	√	- -	D	- -	- -	- -	C
Orange & Rockland	Elec.	NY	D	- -	√	- -	√	- -	D	- -	- -	- -	C
DTE ENERGY													
DTE Electric	Elec.	MI	√	√	- -	- -	√	- -	- -	- -	√	- -	C
EDISON INT'L													
Southern California Ed.	Elec.	CA	√	- -	√	- -	- -	- -	- -	- -	- -	- -	C
EL PASO ELECTRIC													
El Paso Electric	Elec.	NM	√	√	- -	- -	- -	- -	- -	√	- -	√	O
EXELON CORP.													
Baltimore G&E	Elec.	MD	D	√	√	- -	- -	- -	D	√	- -	√	P
Commonwealth Edison	Elec.	IL	D	√	- -	- -	√	√	D	√	√	√	O
PECO Energy	Elec.	PA	D	√	- -	- -	- -	- -	D	√	- -	√	O
Atlantic City Electric	Elec.	NJ	D	√	- -	- -	√	√	D	- -	- -	√	P
Delmarva P&L	Elec.	MD	D	√	√	- -	- -	- -	D	√	√	- -	P
Potomac Electric Pwr	Elec.	DC	D	√	√	√	√	- -	D	√	- -	√	P
IDACORP													
Idaho Power	Elec.	ID	√	√	√	- -	√	- -	- -	- -	- -	- -	C/P

ELECTRIC OPERATING COS.

Holding Company/ Operating Company	Type of Svc	State	Type of Adjustment Clause (a): Elec. Fuel/ Gas/ Purch. Pwr	Conserv. Program Expense	Decoupling: Full	Decoupling: Partial	Renew-ables Expense	Environ-mental Compliance	New Capital: Gener-ation Capacity	New Capital: Generic Infra-structure	Trans-mission Expense	Other	Future Test Year (b)
NORTHWESTERN CORP.													
NorthWestern Corp.	Elec.	SD	√	√	--	--	--	--	--	--	--	√	--
OGE ENERGY													
Oklahoma G&E	Elec.	AR	√	√	--	√	√	√	√	√	√	√	P
OTTER TAIL CORP.													
Otter Tail Power	Elec.	MN	√	√	--	--	√	√	--	√	√	√	C/O
PG&E CORP.													
Pacific G&E	Elec.	CA	√	--	√	--	--	--	--	--	--	--	C
PINNACLE WEST													
Arizona Public Service	Elec.	AZ	√	√	--	√	√	√	√	--	√	√	--
PORTLAND GEN. ELEC.													
Portland General Electric	Elec.	OR	√	--	--	√	√	--	--	--	--	--	C
PPL CORP.													
Kentucky Utilities	Elec.	KY	√	√	--	√	√	√	--	--	--	√	O
Louisville G&E	Elec.	KY	√	√	--	√	√	√	--	--	--	√	O
PPL Electric Utilities	Elec.	PA	D	√	--	--	--	--	D	√	√	√	O
PUB SV ENTERPRISE GRP													
Pub Service E&G	Elec.	NJ	D	√	--	--	√	√	D	√	--	√	P
SEMPRA ENERGY													
San Diego G&E	Elec.	CA	√	--	√	--	--	--	--	--	--	--	C
SOUTHERN CO.													
Alabama Power	Elec.	AL	√	--	--	--	--	√	√	--	--	√	C
Georgia Power	Elec.	GA	√	--	--	--	--	--	√	--	--	--	C
Gulf Power	Elec.	FL	√	√	--	--	--	√	√	--	--	√	C
Mississippi Power	Elec.	MS	√	√	--	√	--	√	--	--	--	√	O
VECTREN CORP.													
Southern Indiana G&E	Elec.	IN	√	√	--	√	--	--	--	--	√	√	--

ELECTRIC OPERATING COS.

			Type of Adjustment Clause (a)										
					Decoupling				New Capital				
Holding Company/ Operating Company	**Type of Svc**	**State**	**Elec. Fuel/ Gas/ Purch. Pwr**	**Conserv. Program Expense**	**Full**	**Partial**	**Renew-ables Expense**	**Environ-mental Compliance**	**Gener-ation Capacity**	**Generic Infra-structure**	**Trans-mission Expense**	**Other**	**Future Test Year (b)**
WEC ENERGY GROUP													
Wisconsin Electric Pwr	Elec.	MI	√	√	- -	- -	√	- -	- -	- -	- -	√	C
Wisconsin Public Service	Elec.	WI	√	- -	- -	- -	- -	- -	- -	- -	- -	√	C
XCEL ENERGY													
Northern States Pwr	Elec.	MN	√	√	√	√	√	√	√	√	√	√	C/O

(a) Regulatory Research Associates, Regulatory Focus, *Adjustment Clauses-A State-by-State Overview* (Aug. 22, 2016).

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

D - Delivery-only utility.

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

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

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

LIR - Limited issue reopeners.

CAPITAL STRUCTURE

IPL Witness AMM Attachment 4
IPL 2016 Basic Rates Case

ELECTRIC GROUP

		At Fiscal Year-End 2015 (a)			Value Line Projected (b)		
	Company	Debt	Preferred	Common Equity	Debt	Other	Common Equity
1	ALLETE	46.8%	0.0%	53.2%	42.5%	0.0%	57.5%
2	Alliant Energy	49.4%	2.6%	48.0%	49.5%	1.0%	49.5%
3	Ameren Corp.	50.7%	0.0%	49.3%	49.5%	0.5%	50.0%
4	American Elec Pwr	52.2%	0.0%	47.8%	49.0%	0.0%	51.0%
5	Avangrid, Inc.	23.9%	0.0%	76.1%	NA	NA	NA
6	Avista Corp.	50.7%	0.0%	49.3%	50.0%	0.0%	50.0%
7	Black Hills Corp.	56.0%	0.0%	44.0%	48.0%	0.0%	52.0%
8	CenterPoint Energy	63.2%	0.0%	36.8%	68.0%	0.0%	32.0%
9	CMS Energy Corp.	69.7%	0.0%	30.3%	65.5%	0.0%	34.5%
10	Consolidated Edison	49.4%	0.0%	50.6%	45.5%	0.0%	54.5%
11	DTE Energy Co.	51.4%	0.0%	48.6%	53.5%	0.0%	46.5%
12	Edison International	45.7%	8.2%	46.1%	45.0%	7.0%	48.0%
13	El Paso Electric Co.	52.7%	0.0%	47.3%	57.5%	0.0%	42.5%
14	Exelon Corp.	48.0%	0.4%	51.7%	50.0%	0.0%	50.0%
15	IDACORP, Inc.	45.6%	0.0%	54.4%	47.0%	0.0%	53.0%
16	NorthWestern Corp.	52.7%	0.0%	47.3%	50.5%	0.0%	49.5%
17	OGE Energy Corp.	45.3%	0.0%	54.7%	51.0%	0.0%	49.0%
18	Otter Tail Corp.	45.2%	0.0%	54.8%	47.0%	0.0%	53.0%
19	PG&E Corp.	49.0%	0.8%	50.2%	48.5%	0.5%	51.0%
20	Pinnacle West Capital	44.7%	0.0%	55.3%	45.0%	0.0%	55.0%
21	Portland General Elec.	49.4%	0.0%	50.6%	47.5%	0.0%	52.5%
22	PPL Corp.	65.8%	0.0%	34.2%	62.0%	0.0%	38.0%
23	Pub Sv Enterprise Grp.	42.3%	0.0%	57.7%	44.0%	0.0%	56.0%
24	Sempra Energy	52.7%	0.1%	47.2%	58.0%	0.0%	42.0%
25	Southern Company	55.5%	0.0%	44.5%	60.0%	2.0%	38.0%
26	Vectren Corp.	51.6%	0.0%	48.4%	48.5%	0.0%	51.5%
27	WEC Energy Group	51.7%	0.2%	48.2%	48.0%	0.0%	52.0%
28	Xcel Energy Inc.	55.4%	0.0%	44.6%	52.5%	0.0%	47.5%
	Average	**50.6%**	**0.4%**	**49.0%**	**51.2%**	**0.4%**	**48.4%**
	Excluding High and Low	**50.9%**	**0.5%**	**48.6%**	**50.9%**	**0.4%**	**48.7%**

(a) Company Form 10-K and Annual Reports.

(b) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

	Company	(a) Price	(b) Dividends	Yield
1	ALLETE	$ 62.51	$ 2.11	3.4%
2	Alliant Energy	$ 39.58	$ 1.18	3.0%
3	Ameren Corp.	$ 51.71	$ 1.75	3.4%
4	American Elec Pwr	$ 68.45	$ 2.30	3.4%
5	Avangrid, Inc.	$ 44.56	$ 1.73	3.9%
6	Avista Corp.	$ 42.89	$ 1.40	3.3%
7	Black Hills Corp.	$ 61.17	$ 1.76	2.9%
8	CenterPoint Energy	$ 23.42	$ 1.05	4.5%
9	CMS Energy Corp.	$ 44.30	$ 1.28	2.9%
10	Consolidated Edison	$ 78.71	$ 2.74	3.5%
11	DTE Energy Co.	$ 96.79	$ 3.08	3.2%
12	Edison International	$ 76.03	$ 2.03	2.7%
13	El Paso Electric Co.	$ 46.91	$ 1.26	2.7%
14	Exelon Corp.	$ 36.07	$ 1.28	3.5%
15	IDACORP, Inc.	$ 79.50	$ 2.16	2.7%
16	NorthWestern Corp.	$ 60.25	$ 2.04	3.4%
17	OGE Energy Corp.	$ 31.51	$ 1.22	3.9%
18	Otter Tail Corp.	$ 34.41	$ 1.25	3.6%
19	PG&E Corp.	$ 64.16	$ 2.00	3.1%
20	Pinnacle West Capital	$ 78.43	$ 2.59	3.3%
21	Portland General Elec.	$ 43.53	$ 1.30	3.0%
22	PPL Corp.	$ 36.71	$ 1.57	4.3%
23	Pub Sv Enterprise Grp.	$ 44.89	$ 1.68	3.7%
24	Sempra Energy	$110.07	$ 3.15	2.9%
25	Southern Company	$ 53.02	$ 2.28	4.3%
26	Vectren Corp.	$ 51.14	$ 1.64	3.2%
27	WEC Energy Group	$ 63.35	$ 2.03	3.2%
28	Xcel Energy Inc.	$ 43.25	$ 1.40	3.2%
	Average			**3.4%**

(a) Average of closing prices for 30 trading days ended Aug. 22, 2016.

(b) The Value Line Investment Survey, Summary & Index (Aug. 19, 2016); Yahoo!Finance (Aug. 23, 2016). Avangrid based on annualized current quarterly dividend per share of $0.432.

		(a)	(b)	(c)	(d)
		Earnings Growth			br+sv
	Company	V Line	IBES	Zacks	Growth
1	ALLETE	4.0%	5.0%	5.5%	3.3%
2	Alliant Energy	6.0%	6.6%	6.1%	5.0%
3	Ameren Corp.	6.0%	5.2%	6.1%	3.6%
4	American Elec Pwr	4.0%	3.8%	4.9%	3.6%
5	Avangrid, Inc.	NA	9.0%	9.0%	NA
6	Avista Corp.	5.0%	5.0%	5.0%	3.5%
7	Black Hills Corp.	7.5%	8.0%	6.5%	7.4%
8	CenterPoint Energy	2.0%	5.3%	5.5%	2.7%
9	CMS Energy Corp.	6.0%	7.3%	6.6%	5.5%
10	Consolidated Edison	2.5%	2.0%	2.7%	3.2%
11	DTE Energy Co.	5.0%	5.4%	5.8%	4.1%
12	Edison International	3.5%	2.6%	5.3%	5.5%
13	El Paso Electric Co.	2.5%	NA	4.4%	3.6%
14	Exelon Corp.	7.0%	3.6%	4.1%	5.9%
15	IDACORP, Inc.	3.0%	4.0%	4.0%	3.7%
16	NorthWestern Corp.	6.5%	5.0%	5.0%	4.5%
17	OGE Energy Corp.	3.0%	4.3%	5.2%	3.3%
18	Otter Tail Corp.	6.0%	6.0%	NA	5.7%
19	PG&E Corp.	12.0%	5.7%	5.1%	4.9%
20	Pinnacle West Capital	4.0%	3.8%	4.1%	3.6%
21	Portland General Elec.	5.5%	6.3%	6.2%	3.9%
22	PPL Corp.	NA	3.2%	4.5%	4.5%
23	Pub Sv Enterprise Grp.	3.0%	0.9%	2.4%	4.8%
24	Sempra Energy	8.0%	6.8%	6.9%	5.7%
25	Southern Company	4.0%	3.2%	3.9%	4.2%
26	Vectren Corp.	9.0%	5.0%	5.3%	6.3%
27	WEC Energy Group	6.0%	6.7%	6.2%	3.4%
28	Xcel Energy Inc.	5.5%	5.4%	5.4%	4.2%

(a) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

(b) www.finance.yahoo.com (Aug. 21, 2016); Thomson Reuters Company in

(c) www.zacks.com (Aug. 21, 2016).

(d) See IPL Witness AMM Attachment 6.

		(a)	(a)	(a)	(a)
		Earnings Growth			br+sv
	Company	V Line	IBES	Zacks	Growth
1	ALLETE	7.4%	8.4%	8.9%	6.6%
2	Alliant Energy	9.0%	9.6%	9.1%	8.0%
3	Ameren Corp.	9.4%	8.6%	9.5%	7.0%
4	American Elec Pwr	7.4%	7.2%	8.2%	7.0%
5	Avangrid, Inc.	NA	12.9%	12.9%	NA
6	Avista Corp.	8.3%	8.3%	8.3%	6.8%
7	Black Hills Corp.	10.4%	10.9%	9.4%	10.2%
8	CenterPoint Energy	6.5%	9.7%	10.0%	7.2%
9	CMS Energy Corp.	8.9%	10.2%	9.5%	8.4%
10	Consolidated Edison	6.0%	5.5%	6.2%	6.7%
11	DTE Energy Co.	8.2%	8.5%	9.0%	7.3%
12	Edison International	6.2%	5.2%	8.0%	8.1%
13	El Paso Electric Co.	5.2%	NA	7.1%	6.3%
14	Exelon Corp.	10.5%	7.2%	7.6%	9.4%
15	IDACORP, Inc.	5.7%	6.7%	6.7%	6.5%
16	NorthWestern Corp.	9.9%	8.4%	8.4%	7.9%
17	OGE Energy Corp.	6.9%	8.2%	9.0%	7.1%
18	Otter Tail Corp.	9.6%	9.6%	NA	9.3%
19	PG&E Corp.	15.1%	8.8%	8.2%	8.1%
20	Pinnacle West Capital	7.3%	7.1%	7.4%	6.9%
21	Portland General Elec.	8.5%	9.3%	9.1%	6.9%
22	PPL Corp.	NA	7.5%	8.7%	8.8%
23	Pub Sv Enterprise Grp.	6.7%	4.7%	6.1%	8.5%
24	Sempra Energy	10.9%	9.6%	9.8%	8.5%
25	Southern Company	8.3%	7.5%	8.2%	8.5%
26	Vectren Corp.	12.2%	8.2%	8.5%	9.5%
27	WEC Energy Group	9.2%	9.9%	9.4%	6.6%
28	Xcel Energy Inc.	8.7%	8.7%	8.7%	7.5%
	Average (b)	**9.1%**	**8.9%**	**8.9%**	**8.2%**
	Midpoint (c)	**9.8%**	**10.0%**	**10.0%**	**8.6%**

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

(b) Excludes highlighted figures.

(c) Average of low and high values.

ELECTRIC GROUP

		(a)	(a)	(a)			(b)	(c)		(d)	(e)		
			2020				Adjustment			"sv" Factor			
	Company	EPS	DPS	BVPS	b	r	Factor	Adjusted r	br	s	v	sv	br + sv
1	ALLETE	$3.75	$2.40	$43.75	36.0%	8.6%	1.0196	8.7%	3.1%	0.0072	0.1667	0.12%	**3.3%**
2	Alliant Energy	$2.45	$1.50	$20.00	38.8%	12.3%	1.0086	12.4%	4.8%	0.0047	0.4286	0.20%	**5.0%**
3	Ameren Corp.	$3.25	$2.05	$33.75	36.9%	9.6%	1.0173	9.8%	3.6%	-	0.2500	0.00%	**3.6%**
4	American Elec Pwr	$4.25	$2.75	$44.00	35.3%	9.7%	1.0213	9.9%	3.5%	0.0049	0.2667	0.13%	**3.6%**
5	Avangrid, Inc.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**
6	Avista Corp.	$2.50	$1.60	$28.50	36.0%	8.8%	1.0203	9.0%	3.2%	0.0142	0.1857	0.26%	**3.5%**
7	Black Hills Corp.	$4.25	$2.20	$39.25	48.2%	10.8%	1.0494	11.4%	5.5%	0.0546	0.3458	1.89%	**7.4%**
8	CenterPoint Energy	$1.40	$1.19	$9.25	15.0%	15.1%	1.0135	15.3%	2.3%	0.0061	0.6224	0.38%	**2.7%**
9	CMS Energy Corp.	$2.50	$1.60	$19.25	36.0%	13.0%	1.0344	13.4%	4.8%	0.0140	0.4500	0.63%	**5.5%**
10	Consolidated Edison	$4.50	$3.00	$53.50	33.3%	8.4%	1.0235	8.6%	2.9%	0.0145	0.2621	0.38%	**3.2%**
11	DTE Energy Co.	$6.00	$3.70	$60.75	38.3%	9.9%	1.0245	10.1%	3.9%	0.0083	0.2636	0.22%	**4.1%**
12	Edison International	$5.00	$2.60	$45.00	48.0%	11.1%	1.0253	11.4%	5.5%	-	0.4000	0.00%	**5.5%**
13	El Paso Electric Co.	$2.50	$1.50	$29.50	40.0%	8.5%	1.0174	8.6%	3.4%	0.0040	0.3059	0.12%	**3.6%**
14	Exelon Corp.	$3.50	$1.50	$35.75	57.1%	9.8%	1.0287	10.1%	5.8%	0.0096	0.1063	0.10%	**5.9%**
15	IDACORP, Inc.	$4.50	$2.70	$49.75	40.0%	9.0%	1.0207	9.2%	3.7%	0.0021	0.2346	0.05%	**3.7%**
16	NorthWestern Corp.	$4.00	$2.32	$40.00	42.0%	10.0%	1.0214	10.2%	4.3%	0.0075	0.2727	0.20%	**4.5%**
17	OGE Energy Corp.	$2.25	$1.65	$19.75	26.7%	11.4%	1.0180	11.6%	3.1%	0.0036	0.5063	0.18%	**3.3%**
18	Otter Tail Corp.	$2.10	$1.33	$20.25	36.7%	10.4%	1.0337	10.7%	3.9%	0.0388	0.4600	1.79%	**5.7%**
19	PG&E Corp.	$4.50	$2.70	$42.75	40.0%	10.5%	1.0308	10.9%	4.3%	0.0191	0.3160	0.60%	**4.9%**
20	Pinnacle West Capital	$4.75	$3.10	$49.00	34.7%	9.7%	1.0192	9.9%	3.4%	0.0062	0.2741	0.17%	**3.6%**
21	Portland General Elec.	$2.75	$1.60	$30.50	41.8%	9.0%	1.0194	9.2%	3.8%	0.0026	0.1286	0.03%	**3.9%**
22	PPL Corp.	$2.50	$1.76	$19.25	29.6%	13.0%	1.0300	13.4%	4.0%	0.0111	0.5188	0.57%	**4.5%**
23	Pub Sv Enterprise Grp.	$3.50	$2.00	$32.25	42.9%	10.9%	1.0224	11.1%	4.8%	0.0004	0.3550	0.02%	**4.8%**
24	Sempra Energy	$7.50	$4.00	$55.25	46.7%	13.6%	1.0123	13.7%	6.4%	(0.0125)	0.5907	-0.74%	**5.7%**
25	Southern Company	$3.50	$2.54	$32.00	27.4%	10.9%	1.0350	11.3%	3.1%	0.0273	0.3905	1.06%	**4.2%**
26	Vectren Corp.	$3.40	$1.95	$26.75	42.6%	12.7%	1.0309	13.1%	5.6%	0.0149	0.4905	0.73%	**6.3%**
27	WEC Energy Group	$3.50	$2.40	$32.75	31.4%	10.7%	1.0174	10.9%	3.4%	0.0000	0.4045	0.00%	**3.4%**
28	Xcel Energy Inc.	$2.75	$1.70	$25.50	38.2%	10.8%	1.0209	11.0%	4.2%	0.0003	0.3625	0.01%	**4.2%**

ELECTRIC GROUP

		(a)	(a)	(f)	(a)	(a)	(f)	(g)	(a)	(a)		(h)	(a)	(a)	(g)
			2015			2020		Chg		2020 Price				Common Shares	
	Company	Eq Ratio	Tot Cap	Com Eq	Eq Ratio	Tot Cap	Com Eq	Equity	High	Low	Avg.	M/B	2015	2020	Growth
1	ALLETE	53.7%	$3,389	$1,820	57.5%	$3,850	$2,214	4.0%	$60.00	$45.00	$52.50	1.200	49.10	50.60	0.60%
2	Alliant Energy	51.4%	$7,246	$3,725	49.5%	$8,200	$4,059	1.7%	$40.00	$30.00	$35.00	1.750	226.92	230.00	0.27%
3	Ameren Corp.	49.7%	$13,968	$6,942	50.0%	$16,500	$8,250	3.5%	$50.00	$40.00	$45.00	1.333	242.63	242.63	0.00%
4	American Elec Pwr	50.2%	$35,633	$17,888	51.0%	$43,400	$22,134	4.4%	$70.00	$50.00	$60.00	1.364	491.05	500.00	0.36%
5	Avangrid, Inc.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	Avista Corp.	50.0%	$3,060	$1,530	50.0%	$3,750	$1,875	4.1%	$40.00	$30.00	$35.00	1.228	62.31	66.00	1.16%
7	Black Hills Corp.	44.0%	$3,333	$1,466	52.0%	$4,625	$2,405	10.4%	$70.00	$50.00	$60.00	1.529	51.19	61.00	3.57%
8	CenterPoint Energy	30.5%	$11,362	$3,465	32.0%	$12,400	$3,968	2.7%	$30.00	$19.00	$24.50	2.649	430.00	435.00	0.23%
9	CMS Energy Corp.	31.4%	$12,534	$3,936	34.5%	$16,100	$5,555	7.1%	$40.00	$30.00	$35.00	1.818	277.16	288.00	0.77%
10	Consolidated Edison	52.1%	$25,058	$13,055	54.5%	$30,300	$16,514	4.8%	$80.00	$65.00	$72.50	1.355	293.00	309.00	1.07%
11	DTE Energy Co.	49.8%	$17,607	$8,768	46.5%	$24,100	$11,207	5.0%	$95.00	$70.00	$82.50	1.358	179.47	185.00	0.61%
12	Edison International	46.7%	$24,352	$11,372	48.0%	$30,500	$14,640	5.2%	$85.00	$65.00	$75.00	1.667	325.81	325.81	0.00%
13	El Paso Electric Co.	47.3%	$2,151	$1,017	42.5%	$2,850	$1,211	3.6%	$50.00	$35.00	$42.50	1.441	40.44	41.00	0.28%
14	Exelon Corp.	51.3%	$50,272	$25,790	50.0%	$68,700	$34,350	5.9%	$50.00	$30.00	$40.00	1.119	919.92	960.00	0.86%
15	IDACORP, Inc.	54.4%	$3,783	$2,058	53.0%	$4,775	$2,531	4.2%	$75.00	$55.00	$65.00	1.307	50.34	50.75	0.16%
16	NorthWestern Corp.	46.9%	$3,409	$1,599	49.5%	$4,000	$1,980	4.4%	$65.00	$45.00	$55.00	1.375	48.17	49.50	0.55%
17	OGE Energy Corp.	55.7%	$5,972	$3,326	49.0%	$8,125	$3,981	3.7%	$45.00	$35.00	$40.00	2.025	199.70	201.50	0.18%
18	Otter Tail Corp.	57.6%	$1,051	$605	53.0%	$1,600	$848	7.0%	$45.00	$30.00	$37.50	1.852	37.86	42.00	2.10%
19	PG&E Corp.	50.4%	$32,858	$16,560	51.0%	$44,200	$22,542	6.4%	$75.00	$50.00	$62.50	1.462	492.03	525.00	1.31%
20	Pinnacle West Capital	57.0%	$8,046	$4,586	55.0%	$10,100	$5,555	3.9%	$75.00	$60.00	$67.50	1.378	110.98	113.50	0.45%
21	Portland General Elec.	52.2%	$4,329	$2,260	52.5%	$5,225	$2,743	4.0%	$40.00	$30.00	$35.00	1.148	88.79	89.80	0.23%
22	PPL Corp.	34.8%	$28,482	$9,912	38.0%	$35,200	$13,376	6.2%	$45.00	$35.00	$40.00	2.078	673.86	692.00	0.53%
23	Pub Sv Enterprise Grp.	59.7%	$21,900	$13,074	56.0%	$29,200	$16,352	4.6%	$55.00	$45.00	$50.00	1.550	505.28	506.00	0.03%
24	Sempra Energy	47.3%	$24,963	$11,807	42.0%	$31,800	$13,356	2.5%	$155.00	$115.00	$135.00	2.443	248.30	242.00	-0.51%
25	Southern Company	44.0%	$46,788	$20,587	38.0%	$76,900	$29,222	7.3%	$60.00	$45.00	$52.50	1.641	911.72	990.00	1.66%
26	Vectren Corp.	49.4%	$3,407	$1,683	51.5%	$4,450	$2,292	6.4%	$60.00	$45.00	$52.50	1.963	82.80	86.00	0.76%
27	WEC Energy Group	48.6%	$17,809	$8,655	52.0%	$19,800	$10,296	3.5%	$60.00	$50.00	$55.00	1.679	315.68	315.70	0.00%
28	Xcel Energy Inc.	45.9%	$23,092	$10,599	47.5%	$27,500	$13,063	4.3%	$45.00	$35.00	$40.00	1.569	507.54	508.00	0.02%

(a) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).
(b) Computed using the formula 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
(c) Product of average year-end "r" for 2020 and Adjustment Factor.
(d) Product of change in common shares outstanding and M/B Ratio.
(e) Computed as 1 - B/M Ratio.
(f) Product of total capital and equity ratio.
(g) Five-year rate of change in common equity.
(h) Average of High and Low expected market prices divided by 2020 BVPS.

ELECTRIC GROUP

		(a)	(b)		(c)		(d)		(e)	(f)	
		Market Return (R_m)									Size
	Company	Div Yield	Proj. Growth	Cost of Equity	Risk-Free Rate	Risk Premium	Beta	Unadjusted K_e	Market Cap	Size Adjustment	Adjusted K_e
1	ALLETE	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 3,022.8	1.49%	10.8%
2	Alliant Energy	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 8,982.0	0.86%	10.2%
3	Ameren Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 12,457.5	0.57%	9.9%
4	American Elec Pwr	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 33,138.1	-0.36%	8.5%
5	Avangrid, Inc.	2.6%	9.0%	11.6%	2.5%	9.1%	NA	NA	$ 13,450.0	0.57%	NA
6	Avista Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 2,702.3	1.49%	10.8%
7	Black Hills Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.90	10.7%	$ 3,094.5	1.49%	12.2%
8	CenterPoint Energy	2.6%	9.0%	11.6%	2.5%	9.1%	0.85	10.2%	$ 9,826.6	0.57%	10.8%
9	CMS Energy Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 12,169.1	0.57%	9.4%
10	Consolidated Edison	2.6%	9.0%	11.6%	2.5%	9.1%	0.55	7.5%	$ 21,743.8	0.57%	8.1%
11	DTE Energy Co.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 17,347.8	0.57%	9.4%
12	Edison International	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 24,455.4	-0.36%	8.5%
13	El Paso Electric Co.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 1,871.6	1.63%	10.5%
14	Exelon Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 30,822.5	-0.36%	8.5%
15	IDACORP, Inc.	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 3,930.9	0.99%	10.3%
16	NorthWestern Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 3,088.3	1.49%	10.4%
17	OGE Energy Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.95	11.1%	$ 6,180.8	0.86%	12.0%
18	Otter Tail Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.80	9.8%	$ 1,338.0	1.62%	11.4%
19	PG&E Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.65	8.4%	$ 32,464.0	-0.36%	8.1%
20	Pinnacle West Capital	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 8,637.1	0.86%	9.7%
21	Portland General Elec.	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 3,838.7	0.99%	10.3%
22	PPL Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 24,107.2	-0.36%	8.5%
23	Pub Sv Enterprise Grp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.70	8.9%	$ 22,326.1	-0.36%	8.5%
24	Sempra Energy	2.6%	9.0%	11.6%	2.5%	9.1%	0.80	9.8%	$ 27,115.0	-0.36%	9.4%
25	Southern Company	2.6%	9.0%	11.6%	2.5%	9.1%	0.55	7.5%	$ 49,234.2	-0.36%	7.1%
26	Vectren Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	0.75	9.3%	$ 4,188.9	0.99%	10.3%
27	WEC Energy Group	2.6%	9.0%	11.6%	2.5%	9.1%	0.65	8.4%	$ 19,549.5	0.57%	9.0%
28	Xcel Energy Inc.	2.6%	9.0%	11.6%	2.5%	9.1%	0.65	8.4%	$ 21,821.7	0.57%	9.0%
	Average							**9.1%**			**9.7%**
	Midpoint (g)							**9.3%**			**9.7%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (Jun. 9, 2016).

(b) Average of weighted average earnings growth rates from IBES and Value Line Investment Survey for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Jun. 9, 2016). and www.valueline.com (Jun. 9, 2016).

(c) Average yield on 30-year Treasury bonds for the six-months ending Jul. 2016 based on data from the Federal Reserve at http://www.federalreserve.gov/releases/h15/data.htm.

(d) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

(e) www.valueline.com (retrieved Aug. 23, 2016); Yahoo! Finance (Aug. 23, 2016).

(f) Duff & Phelps, "2016 Valuation Handbook - Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3.

(g) Average of low and high values.

ELECTRIC GROUP

		(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	Size Adjusted K_e
1	ALLETE	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$ 3,022.8	1.49%	11.1%
2	Alliant Energy	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$ 8,982.0	0.86%	10.5%
3	Ameren Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$12,457.5	0.57%	10.2%
4	American Elec Pwr	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$33,138.1	-0.36%	8.9%
5	Avangrid, Inc.	2.6%	9.0%	11.6%	3.8%	7.8%	NA	NA	$13,450.0	0.57%	NA
6	Avista Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$ 2,702.3	1.49%	11.1%
7	Black Hills Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.90	10.8%	$ 3,094.5	1.49%	12.3%
8	CenterPoint Energy	2.6%	9.0%	11.6%	3.8%	7.8%	0.85	10.4%	$ 9,826.6	0.57%	11.0%
9	CMS Energy Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$12,169.1	0.57%	9.8%
10	Consolidated Edison	2.6%	9.0%	11.6%	3.8%	7.8%	0.55	8.1%	$21,743.8	0.57%	8.7%
11	DTE Energy Co.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$17,347.8	0.57%	9.8%
12	Edison International	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$24,455.4	-0.36%	8.9%
13	El Paso Electric Co.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$ 1,871.6	1.63%	10.9%
14	Exelon Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$30,822.5	-0.36%	8.9%
15	IDACORP, Inc.	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$ 3,930.9	0.99%	10.6%
16	NorthWestern Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$ 3,088.3	1.49%	10.8%
17	OGE Energy Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.95	11.2%	$ 6,180.8	0.86%	12.1%
18	Otter Tail Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.80	10.0%	$ 1,338.0	1.62%	11.7%
19	PG&E Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.65	8.9%	$32,464.0	-0.36%	8.5%
20	Pinnacle West Capital	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$ 8,637.1	0.86%	10.1%
21	Portland General Elec.	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$ 3,838.7	0.99%	10.6%
22	PPL Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$24,107.2	-0.36%	8.9%
23	Pub Sv Enterprise Grp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.70	9.3%	$22,326.1	-0.36%	8.9%
24	Sempra Energy	2.6%	9.0%	11.6%	3.8%	7.8%	0.80	10.0%	$27,115.0	-0.36%	9.7%
25	Southern Company	2.6%	9.0%	11.6%	3.8%	7.8%	0.55	8.1%	$49,234.2	-0.36%	7.7%
26	Vectren Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	0.75	9.7%	$ 4,188.9	0.99%	10.6%
27	WEC Energy Group	2.6%	9.0%	11.6%	3.8%	7.8%	0.65	8.9%	$19,549.5	0.57%	9.4%
28	Xcel Energy Inc.	2.6%	9.0%	11.6%	3.8%	7.8%	0.65	8.9%	$21,821.7	0.57%	9.4%
	Average							**9.5%**			**10.0%**
	Midpoint (g)							**9.7%**			**10.0%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (Jun. 9, 2016).

(b) Average of weighted average earnings growth rates from IBES and Value Line Investment Survey for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Jun. 9, 2016). and www.valueline.com (Jun. 9, 2016).

(c) Average yield on 30-year Treasury bonds for 2017-21 based on data from the Value Line Investment Survey, Forecast for the U.S. Economy (Jun. 3, 2016); IHS Global Insight (Apr. 6 & Jun. 27, 2016); & Wolters Kluwer, Blue Chip Financial Forecasts, Vol. 35, No. 6 (Jun. 1, 2016).

(d) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

(e) www.valueline.com (retrieved Aug. 23, 2016); Yahoo! Finance (Aug. 23, 2016).

(f) Duff & Phelps, "2016 Valuation Handbook - Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3.

(g) Average of low and high values.

ELECTRIC GROUP

		(a)	(b)		(c)		(d)		(e)	(d)				(f)	(g)	
		Market Return (R_m)				Market										Size
		Div	Proj.	Cost of	Risk-Free	Risk	Unadjusted RP		Beta Adjusted RP			Total	Unadjusted	Market	Size	Adjusted
	Company	Yield	Growth	Equity	Rate	Premium	Weight	RP^1	Beta	Weight	RP^2	RP	K_e	Cap	Adjustment	K_e
1	ALLETE	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 3,022.8	1.49%	11.4%
2	Alliant Energy	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 8,982.0	0.86%	10.8%
3	Ameren Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 12,457.5	0.57%	10.5%
4	American Elec Pwr	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 33,138.1	-0.36%	9.2%
5	Avangrid, Inc.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	NA	75%	NA	NA	NA	$ 13,450.0	0.57%	NA
6	Avista Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 2,702.3	1.49%	11.4%
7	Black Hills Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.90	75%	6.1%	8.4%	10.9%	$ 3,094.5	1.49%	12.4%
8	CenterPoint Energy	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.85	75%	5.8%	8.1%	10.6%	$ 9,826.6	0.57%	11.1%
9	CMS Energy Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 12,169.1	0.57%	10.1%
10	Consolidated Edison	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.55	75%	3.8%	6.0%	8.5%	$ 21,743.8	0.57%	9.1%
11	DTE Energy Co.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 17,347.8	0.57%	10.1%
12	Edison International	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 24,455.4	-0.36%	9.2%
13	El Paso Electric Co.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 1,871.6	1.63%	11.2%
14	Exelon Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 30,822.5	-0.36%	9.2%
15	IDACORP, Inc.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 3,930.9	0.99%	10.9%
16	NorthWestern Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 3,088.3	1.49%	11.0%
17	OGE Energy Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.95	75%	6.5%	8.8%	11.3%	$ 6,180.8	0.86%	12.1%
18	Otter Tail Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.80	75%	5.5%	7.7%	10.2%	$ 1,338.0	1.62%	11.9%
19	PG&E Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.65	75%	4.4%	6.7%	9.2%	$ 32,464.0	-0.36%	8.9%
20	Pinnacle West Capital	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 8,637.1	0.86%	10.4%
21	Portland General Elec.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 3,838.7	0.99%	10.9%
22	PPL Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 24,107.2	-0.36%	9.2%
23	Pub Sv Enterprise Grp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.70	75%	4.8%	7.1%	9.6%	$ 22,326.1	-0.36%	9.2%
24	Sempra Energy	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.80	75%	5.5%	7.7%	10.2%	$ 27,115.0	-0.36%	9.9%
25	Southern Company	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.55	75%	3.8%	6.0%	8.5%	$ 49,234.2	-0.36%	8.2%
26	Vectren Corp.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.75	75%	5.1%	7.4%	9.9%	$ 4,188.9	0.99%	10.9%
27	WEC Energy Group	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.65	75%	4.4%	6.7%	9.2%	$ 19,549.5	0.57%	9.8%
28	Xcel Energy Inc.	2.6%	9.0%	11.6%	2.5%	9.1%	25%	2.3%	0.65	75%	4.4%	6.7%	9.2%	$ 21,821.7	0.57%	9.8%
	Average												**9.7%**			**10.3%**
	Midpoint (h)												**9.9%**			**10.3%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (Jun. 9, 2016).

(b) Average of weighted average earnings growth rates from IBES and Value Line Investment Survey for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Jun. 9, 2016). and www.valueline.com (Jun. 9, 2016).

(c) Average yield on 30-year Treasury bonds for the six-months ending Jul. 2016 based on data from the Federal Reserve at http://www.federalreserve.gov/releases/h15/data.htm.

(d) Morin, Roger A., "New Regulatory Finance," *Public Utilities Reports, Inc.* at 190 (2006).

(e) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

(f) www.valueline.com (retrieved Aug. 23, 2016); Yahoo! Finance (Aug. 23, 2016).

(g) Duff & Phelps, "2016 Valuation Handbook - Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3.

(h) Average of low and high values.

ELECTRIC GROUP

		(a)	(b)		(c)		(d)		(e)	(d)				(f)	(g)	
		Market Return (R_m)				Market										Size
		Div	Proj.	Cost of	Risk-Free	Risk	Unadjusted RP		Beta Adjusted RP			Total	Unadjusted	Market	Size	Adjusted
	Company	Yield	Growth	Equity	Rate	Premium	Weight	RP^1	Beta	Weight	RP^2	RP	K_e	Cap	Adjustment	K_e
1	ALLETE	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 3,022.8	1.49%	11.6%
2	Alliant Energy	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 8,982.0	0.86%	11.0%
3	Ameren Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 12,457.5	0.57%	10.7%
4	American Elec Pwr	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 33,138.1	-0.36%	9.5%
5	Avangrid, Inc.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	NA	75%	NA	NA	NA	$ 13,450.0	0.57%	NA
6	Avista Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 2,702.3	1.49%	11.6%
7	Black Hills Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.90	75%	5.3%	7.2%	11.0%	$ 3,094.5	1.49%	12.5%
8	CenterPoint Energy	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.85	75%	5.0%	6.9%	10.7%	$ 9,826.6	0.57%	11.3%
9	CMS Energy Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 12,169.1	0.57%	10.4%
10	Consolidated Edison	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.55	75%	3.2%	5.2%	9.0%	$ 21,743.8	0.57%	9.5%
11	DTE Energy Co.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 17,347.8	0.57%	10.4%
12	Edison International	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 24,455.4	-0.36%	9.5%
13	El Paso Electric Co.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 1,871.6	1.63%	11.5%
14	Exelon Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 30,822.5	-0.36%	9.5%
15	IDACORP, Inc.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 3,930.9	0.99%	11.1%
16	NorthWestern Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 3,088.3	1.49%	11.3%
17	OGE Energy Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.95	75%	5.6%	7.5%	11.3%	$ 6,180.8	0.86%	12.2%
18	Otter Tail Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.80	75%	4.7%	6.6%	10.4%	$ 1,338.0	1.62%	12.1%
19	PG&E Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.65	75%	3.8%	5.8%	9.6%	$ 32,464.0	-0.36%	9.2%
20	Pinnacle West Capital	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 8,637.1	0.86%	10.7%
21	Portland General Elec.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 3,838.7	0.99%	11.1%
22	PPL Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 24,107.2	-0.36%	9.5%
23	Pub Sv Enterprise Grp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.70	75%	4.1%	6.0%	9.8%	$ 22,326.1	-0.36%	9.5%
24	Sempra Energy	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.80	75%	4.7%	6.6%	10.4%	$ 27,115.0	-0.36%	10.1%
25	Southern Company	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.55	75%	3.2%	5.2%	9.0%	$ 49,234.2	-0.36%	8.6%
26	Vectren Corp.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.75	75%	4.4%	6.3%	10.1%	$ 4,188.9	0.99%	11.1%
27	WEC Energy Group	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.65	75%	3.8%	5.8%	9.6%	$ 19,549.5	0.57%	10.1%
28	Xcel Energy Inc.	2.6%	9.0%	11.6%	3.8%	7.8%	25%	2.0%	0.65	75%	3.8%	5.8%	9.6%	$ 21,821.7	0.57%	10.1%
	Average												**10.0%**			**10.6%**
	Midpoint (h)												**10.1%**			**10.6%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (Jun. 9, 2016).

(b) Average of weighted average earnings growth rates from IBES and Value Line Investment Survey for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Jun. 9, 2016). and www.valueline.com (Jun. 9, 2016).

(c) Average yield on 30-year Treasury bonds for 2017-21 based on data from the Value Line Investment Survey, Forecast for the U.S. Economy (Jun. 3, 2016); IHS Global Insight (Apr. 6 & Jun. 27, 2016); & Wolters Kluwer, Blue Chip Financial Forecasts, Vol. 35, No. 6 (Jun. 1, 2016).

(d) Morin, Roger A., "New Regulatory Finance," *Public Utilities Reports, Inc.* at 190 (2006).

(e) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

(f) www.valueline.com (retrieved Aug. 23, 2016); Yahoo! Finance (Aug. 23, 2016).

(g) Duff & Phelps, "2016 Valuation Handbook - Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3.

(h) Average of low and high values.

Current Equity Risk Premium

(a)	Avg. Yield over Study Period	8.48%
(b)	Average Utility Bond Yield	4.12%
	Change in Bond Yield	-4.36%
(c)	Risk Premium/Interest Rate Relationship	-0.4281
	Adjustment to Average Risk Premium	1.87%
(a)	Average Risk Premium over Study Period	3.62%
	Adjusted Risk Premium	**5.49%**

Implied Cost of Equity

(b)	Baa Utility Bond Yield	4.73%
	Adjusted Equity Risk Premium	5.49%
	Risk Premium Cost of Equity	**10.22%**

(a) IPL Witness AMM Attachment 9, page 3.

(b) Average bond yield on all utility bonds and Baa subset for six-months ending Jul. 2016 based on data from Moody's Investors Service at www.credittrends.com.

(c) IPL Witness AMM Attachment 9, page 4.

Current Equity Risk Premium

(a)	Avg. Yield over Study Period	8.48%
(b)	Average Utility Bond Yield 2017-2021	5.88%
	Change in Bond Yield	-2.60%
(c)	Risk Premium/Interest Rate Relationship	-0.4281
	Adjustment to Average Risk Premium	1.11%
(a)	Average Risk Premium over Study Period	3.62%
	Adjusted Risk Premium	**4.73%**

Implied Cost of Equity

(b)	Baa Utility Bond Yield 2017-2021	6.49%
	Adjusted Equity Risk Premium	4.73%
	Risk Premium Cost of Equity	**11.22%**

(a) IPL Witness AMM Attachment 9, page 3.

(b) Yield on all utility bonds and Baa subset based on data from IHS Global Insight (Apr. 6 & Jun. 27, 2016); Energy Information Administration, Annual Energy Outlook 2016 Early Release (May 17, 2016); & Moody's Investors Service at www.credittrends.com.

(c) IPL Witness AMM Attachment 9, page 4.

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	12.55%	9.21%	3.34%
1992	12.09%	8.57%	3.52%
1993	11.41%	7.56%	3.85%
1994	11.34%	8.30%	3.04%
1995	11.55%	7.91%	3.64%
1996	11.39%	7.74%	3.65%
1997	11.40%	7.63%	3.77%
1998	11.66%	7.00%	4.66%
1999	10.77%	7.55%	3.22%
2000	11.43%	8.09%	3.34%
2001	11.09%	7.72%	3.37%
2002	11.16%	7.53%	3.63%
2003	10.97%	6.61%	4.36%
2004	10.75%	6.20%	4.55%
2005	10.54%	5.67%	4.87%
2006	10.36%	6.08%	4.28%
2007	10.36%	6.11%	4.25%
2008	10.46%	6.65%	3.81%
2009	10.48%	6.28%	4.20%
2010	10.34%	5.56%	4.78%
2011	10.29%	5.13%	5.16%
2012	10.17%	4.26%	5.91%
2013	10.02%	4.55%	5.47%
2014	9.92%	4.41%	5.51%
2015	9.85%	4.37%	5.48%
Average	12.10%	8.48%	3.62%

(a) Major Rate Case Decisions, *Regulatory Focus* , Regulatory Research Associates; *UtilityScope Regulatory Service* , Argus.

(b) Moody's Investors Service.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9270912
R Square	0.8594981
Adjusted R Square	0.8559856
Standard Error	0.0050171
Observations	42

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.006159143	0.006159	244.6937	1.2107E-18
Residual	40	0.001006833	2.52E-05		
Total	41	0.007165976			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0725018	0.002446981	29.62907	7.81E-29	0.06755625	0.07744732	0.067556248	0.077447316
X Variable 1	-0.4281032	0.027367621	-15.6427	1.21E-18	-0.48341523	-0.37279118	-0.48341523	-0.37279118

	Company	(a) Expected Return on Common Equity	(b) Adjustment Factor	(c) Adjusted Return on Common Equity
1	ALLETE	8.5%	1.0196	8.7%
2	Alliant Energy	12.5%	1.0086	12.6%
3	Ameren Corp.	9.5%	1.0173	9.7%
4	American Elec Pwr	9.5%	1.0213	9.7%
5	Avangrid, Inc.	NA	NA	NA
6	Avista Corp.	8.5%	1.0203	8.7%
7	Black Hills Corp.	10.5%	1.0494	11.0%
8	CenterPoint Energy	15.5%	1.0135	15.7%
9	CMS Energy Corp.	13.5%	1.0344	14.0%
10	Consolidated Edison	8.5%	1.0235	8.7%
11	DTE Energy Co.	10.0%	1.0245	10.2%
12	Edison International	11.5%	1.0253	11.8%
13	El Paso Electric Co.	8.5%	1.0174	8.6%
14	Exelon Corp.	10.0%	1.0287	10.3%
15	IDACORP, Inc.	9.0%	1.0207	9.2%
16	NorthWestern Corp.	10.0%	1.0214	10.2%
17	OGE Energy Corp.	12.0%	1.0180	12.2%
18	Otter Tail Corp.	10.5%	1.0337	10.9%
19	PG&E Corp.	10.5%	1.0308	10.8%
20	Pinnacle West Capital	10.0%	1.0192	10.2%
21	Portland General Elec.	9.0%	1.0194	9.2%
22	PPL Corp.	13.0%	1.0300	13.4%
23	Pub Sv Enterprise Grp.	10.5%	1.0224	10.7%
24	Sempra Energy	13.5%	1.0123	13.7%
25	Southern Company	10.5%	1.0350	10.9%
26	Vectren Corp.	12.5%	1.0309	12.9%
27	WEC Energy Group	11.0%	1.0174	11.2%
28	Xcel Energy Inc.	11.0%	1.0209	11.2%
	Average			**11.0%**
	Midpoint (d)			**12.2%**

(a) The Value Line Investment Survey (Jun. 17, Jul. 29, & Aug. 19, 2016).

(b) Adjustment to convert year-end return to an average rate of return from IPL Witness AMM Attachment 6.

(c) (a) x (b).

(d) Average of low and high values.

	Company	Industry Group	(a) Price	(b) Dividends	Yield
1	Church & Dwight	Household Products	$ 99.69	$ 1.42	1.4%
2	Coca-Cola	Beverage	$ 44.39	$ 1.40	3.2%
3	Colgate-Palmolive	Household Products	$ 74.44	$ 1.58	2.1%
4	ConAgra Foods	Food Processing	$ 46.94	$ 1.00	2.1%
5	Costco Wholesale	Retail Store	$ 167.46	$ 1.80	1.1%
6	Everest Re Group Ltd.	Reinsurance	$ 186.30	$ 4.80	2.6%
7	Gen'l Mills	Food Processing	$ 71.26	$ 1.84	2.6%
8	Hormel Foods	Food Processing	$ 36.80	$ 0.62	1.7%
9	Johnson & Johnson	Medical Supplies	$ 123.46	$ 3.25	2.6%
10	Kellogg	Food Processing	$ 83.06	$ 2.04	2.5%
11	Kimberly-Clark	Household Products	$ 131.09	$ 3.68	2.8%
12	Lilly (Eli)	Drug Industry	$ 81.04	$ 2.04	2.5%
13	McDonald's Corp.	Restaurant	$ 120.55	$ 3.60	3.0%
14	PepsiCo, Inc.	Beverage	$ 108.67	$ 3.01	2.8%
15	Procter & Gamble	Household Products	$ 86.09	$ 2.68	3.1%
16	Public Storage	REIT	$ 239.80	$ 7.20	3.0%
17	Smucker (J.M.)	Food Processing	$ 153.33	$ 2.77	1.8%
18	Sysco Corp.	Wholesale Food	$ 51.90	$ 1.26	2.4%
19	Target Corp.	Retail Store	$ 73.94	$ 5.10	6.9%
20	Verizon Com.	Telecommunications	$ 54.47	$ 2.26	4.1%
21	Wal-Mart Stores	Retail Store	$ 73.47	$ 2.00	2.7%
	Average				**2.7%**

(a) Average of closing prices for 30 trading days ended Jun. 17, 2016.
(b) The Value Line Investment Survey, *Summary & Index* (Jun. 10, 2016).

		(a)	(b)	(c)
		Earnings Growth		
	Company	**V Line**	**IBES**	**Zacks**
1	Church & Dwight	7.50%	9.83%	9.77%
2	Coca-Cola	4.00%	3.00%	5.95%
3	Colgate-Palmolive	14.00%	7.37%	7.78%
4	ConAgra Foods	5.50%	7.28%	8.50%
5	Costco Wholesale	9.00%	9.13%	9.98%
6	Everest Re Group Ltd.	2.50%	-7.28%	10.00%
7	Gen'l Mills	7.00%	6.66%	7.84%
8	Hormel Foods	14.00%	12.40%	9.98%
9	Johnson & Johnson	8.50%	6.52%	5.89%
10	Kellogg	5.00%	7.13%	6.28%
11	Kimberly-Clark	10.00%	7.10%	7.06%
12	Lilly (Eli)	9.50%	13.06%	12.20%
13	McDonald's Corp.	6.00%	9.34%	9.66%
14	PepsiCo, Inc.	7.00%	7.10%	7.37%
15	Procter & Gamble	6.50%	6.77%	6.84%
16	Public Storage	NA	7.13%	6.03%
17	Smucker (J.M.)	8.00%	10.80%	8.56%
18	Sysco Corp.	11.00%	10.06%	8.60%
19	Target Corp.	10.00%	8.00%	9.46%
20	Verizon Com.	8.00%	3.25%	4.66%
21	Wal-Mart Stores	1.00%	3.28%	3.61%

(a) The Value Line Investment Survey (Jun. 17, Jun. 24, Jul. 8, Jul. 22, Jul. 29, Aug. 19, & Aug. 26, 2016).

(b) www.finance.yahoo.com (retrieved Aug. 22, 2016).

(c) www.zacks.com (retrieved Aug. 23, 2015).

		(a)	(a)	(a)
		Earnings Growth		
	Company	**V Line**	**IBES**	**Zacks**
1	Church & Dwight	8.9%	11.3%	11.2%
2	Coca-Cola	7.2%	6.2%	9.1%
3	Colgate-Palmolive	16.1%	9.5%	9.9%
4	ConAgra Foods	7.6%	9.4%	10.6%
5	Costco Wholesale	10.1%	10.2%	11.1%
6	Everest Re Group Ltd.	5.1%	-4.7%	12.6%
7	Gen'l Mills	9.6%	9.2%	10.4%
8	Hormel Foods	15.7%	14.1%	11.7%
9	Johnson & Johnson	11.1%	9.2%	8.5%
10	Kellogg	7.5%	9.6%	8.7%
11	Kimberly-Clark	12.8%	9.9%	9.9%
12	Lilly (Eli)	12.0%	15.6%	14.7%
13	McDonald's Corp.	9.0%	12.3%	12.6%
14	PepsiCo, Inc.	9.8%	9.9%	10.1%
15	Procter & Gamble	9.6%	9.9%	10.0%
16	Public Storage	NA	10.1%	9.0%
17	Smucker (J.M.)	9.8%	12.6%	10.4%
18	Sysco Corp.	13.4%	12.5%	11.0%
19	Target Corp.	16.9%	14.9%	16.4%
20	Verizon Com.	12.1%	7.4%	8.8%
21	Wal-Mart Stores	3.7%	6.0%	6.3%
	Average	**10.0%**	**10.7%**	**10.5%**
	Midpoint (b)	**10.3%**	**11.1%**	**11.6%**

(a) Sum of dividend yield (IPL Witness AMM Attachment 11, p. 1) and respective growth rate (IPL Witness AMM Attachment 11, p. 2).

(b) Average of low and high values.

FAIR VALUE RATE BASE

IPL Witness AMM Attachment 12
IPL 2016 Basic Rates Case
Page 1 of 1

NOI AT RECOMMENDED RFV

Fair Value Rate Base	$ 3,749,885	(a)
WACC - Recommended RFV	6.14%	
NOI	**$ 230,394**	

Weighted Average Cost of Capital

Component	(b) Balance at June 30, 2016	(b) Percent of Total	(b) Return Rate		Weighted Return Rate
Long-Term Debt	$ 1,718,071	50.81%	5.00%		2.54%
Preferred Stock	59,784	1.77%	5.37%		0.09%
Common Equity	1,337,205	39.55%	8.70%	(c)	3.44%
Customer Deposits	33,168	0.98%	6.00%		0.06%
Deferred Income Taxes	(157,907)	-4.67%	0.00%		0.00%
Pre-1971 ITC	387,879	11.47%	0.00%		0.00%
Post 1970 ITC	3,295	0.10%	7.33%		0.01%
Totals	$ 3,381,495	100.00%			6.14%

(a) IPL Financial Exhibit IPL-RB, Schedule RB1.
(b) IPL Financial Exhibit IPL-CC, Schedule CC3.
(c) RFV computed as COE - projected inflation, or 10.4% - 1.7%.

Original Cost Rate Base	$ 3,041,396	(a)
NOI	230,394	(b)
Implied Overall Rate of Return	**7.58%**	

Weighted Average Cost of Capital

Component	(c) Balance at June 30, 2016	(c) Percent of Total	(c) Return Rate		Weighted Return Rate
Long-Term Debt	$ 1,718,071	50.81%	5.00%		2.54%
Preferred Stock	59,784	1.77%	5.37%		0.09%
Common Equity	1,337,205	39.55%	12.33%	(c)	4.88%
Customer Deposits	33,168	0.98%	6.00%		0.06%
Deferred Income Taxes	(157,907)	-4.67%	0.00%		0.00%
Pre-1971 ITC	387,879	11.47%	0.00%		0.00%
Post 1970 ITC	3,295	0.10%	7.33%		0.01%
Totals	$ 3,381,495	100.00%			7.58%

(a) IPL Financial Exhibit IPL-RB, Schedule RB2.
(b) IPL Witness AMM Attachment 12.
(c) IPL Financial Exhibit IPL-CC, Schedule CC3.
(c) Implied COE to produce 7.58% WACC.

Original Cost Rate Base	$ 3,041,396	(a)
WACC	7.03%	(b)
NOI	**$ 213,842**	

Weighted Average Cost of Capital

Component	(c) Balance at June 30, 2016	(c) Percent of Total	(c) Return Rate		Weighted Return Rate
Long-Term Debt	$ 1,718,071	50.75%	5.00%		2.54%
Preferred Stock	59,784	1.77%	5.37%		0.09%
Common Equity	1,338,861	39.55%	10.95%	(d)	4.33%
Customer Deposits	33,168	0.98%	6.00%		0.06%
Deferred Income Taxes	(157,907)	-4.66%	0.00%		0.00%
Pre-1971 ITC	390,116	11.52%	0.00%		0.00%
Post 1970 ITC	3,295	0.10%	7.33%		0.01%
Totals	$ 3,385,388	100.00%			7.03%

(a) IPL Financial Exhibit IPL-RB, Schedule RB2.
(b) IPL Witness AMM Attachment 14.
(c) IPL Financial Exhibit IPL-CC, Schedule CC3.
(d) COE at upper end of reasonable range.

IMPLIED RFV

Fair Value Rate Base	$ 3,749,885	(a)
NOI	213,842	(b)
Implied Overall Rate of Return	**5.7026%**	

Fair Value Rate Base	$ 3,749,885	
Rounded Implied Overall Rate of Return	5.7000%	
Allowable Electric Operating Income	**$ 213,743**	(c)

Weighted Average Cost of Capital

Component	(d) Balance at June 30, 2016	(d) Percent of Total	(d) Return Rate		Weighted Return Rate
Long-Term Debt	$ 1,718,071	50.75%	5.00%		2.54%
Preferred Stock	59,784	1.77%	5.37%		0.09%
Common Equity	1,338,861	39.55%	7.58%	(e)	3.00%
Customer Deposits	33,168	0.98%	6.00%		0.06%
Deferred Income Taxes	(157,907)	-4.66%	0.00%		0.00%
Pre-1971 ITC	390,116	11.52%	0.00%		0.00%
Post 1970 ITC	3,295	0.10%	7.33%		0.01%
Totals	$ 3,385,388	100.00%			5.70%

(a) IPL Financial Exhibit IPL-RB, Schedule RB1.
(b) IPL Witness AMM Attachment 14.
(c) *See,* IPL Financial Exhibit-REVREQ, Schedule REVREQ1.
(d) IPL Financial Exhibit IPL-CC, Schedule CC3.
(e) Implied RFV to produce 5.70% WACC.

Panel 1 -- Original Cost Regulation

Cost of Capital **10.0%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	100,000	10,000	90,000	10,000	10,000	20,000	0.9091	18,182
2	100,000	20,000	80,000	9,000	10,000	19,000	0.8264	15,702
3	100,000	30,000	70,000	8,000	10,000	18,000	0.7513	13,524
4	100,000	40,000	60,000	7,000	10,000	17,000	0.6830	11,611
5	100,000	50,000	50,000	6,000	10,000	16,000	0.6209	9,935
6	100,000	60,000	40,000	5,000	10,000	15,000	0.5645	8,467
7	100,000	70,000	30,000	4,000	10,000	14,000	0.5132	7,184
8	100,000	80,000	20,000	3,000	10,000	13,000	0.4665	6,065
9	100,000	90,000	10,000	2,000	10,000	12,000	0.4241	5,089
10	100,000	100,000	-	1,000	10,000	11,000	0.3855	4,241
				55,000	100,000	155,000		100,000

IMPACT OF DEPRECIATION EXPENSE

Panel 2 -- Fair Value Regulation

Cost of Capital	**10.0%**
Future Inflation	**2.0%**
Rate of Return	**8.0%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	102,000	10,200	91,800	8,000	10,200	18,200	0.9091	16,545
2	104,040	20,808	83,232	7,344	10,404	17,748	0.8264	14,668
3	106,121	31,836	74,285	6,659	10,612	17,271	0.7513	12,976
4	108,243	43,297	64,946	5,943	10,824	16,767	0.6830	11,452
5	110,408	55,204	55,204	5,196	11,041	16,236	0.6209	10,082
6	112,616	67,570	45,046	4,416	11,262	15,678	0.5645	8,850
7	114,869	80,408	34,461	3,604	11,487	15,091	0.5132	7,744
8	117,166	93,733	23,433	2,757	11,717	14,473	0.4665	6,752
9	119,509	107,558	11,951	1,875	11,951	13,826	0.4241	5,863
10	121,899	121,899	-	956	12,190	13,146	0.3855	5,068
				46,749	111,687	158,436		100,000

Panel 3 -- Fair Value Regulation w. Book Depreciation

Cost of Capital	**10.0%**
Future Inflation	**2.0%**
Implied Return	**8.0%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	102,000	10,200	91,800	8,000	10,000	18,000	0.9091	16,364
2	104,040	20,808	83,232	7,344	10,000	17,344	0.8264	14,334
3	106,121	31,836	74,285	6,659	10,000	16,659	0.7513	12,516
4	108,243	43,297	64,946	5,943	10,000	15,943	0.6830	10,889
5	110,408	55,204	55,204	5,196	10,000	15,196	0.6209	9,435
6	112,616	67,570	45,046	4,416	10,000	14,416	0.5645	8,138
7	114,869	80,408	34,461	3,604	10,000	13,604	0.5132	6,981
8	117,166	93,733	23,433	2,757	10,000	12,757	0.4665	5,951
9	119,509	107,558	11,951	1,875	10,000	11,875	0.4241	5,036
10	121,899	121,899	-	956	10,000	10,956	0.3855	4,224
				46,749	100,000	146,749		93,867

IMPACT OF DEPRECIATION EXPENSE

Panel 4 -- Fair Value Regulation w. Book Depreciation & Adjusted Return

Cost of Capital	**10.0%**
Future Inflation	**2.0%**
Implied Return	**8.0%**
Required Return	**9.5%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	102,000	10,200	91,800	9,513	10,000	19,513	0.9091	17,739
2	104,040	20,808	83,232	8,733	10,000	18,733	0.8264	15,482
3	106,121	31,836	74,285	7,918	10,000	17,918	0.7513	13,462
4	108,243	43,297	64,946	7,067	10,000	17,067	0.6830	11,657
5	110,408	55,204	55,204	6,178	10,000	16,178	0.6209	10,046
6	112,616	67,570	45,046	5,252	10,000	15,252	0.5645	8,609
7	114,869	80,408	34,461	4,285	10,000	14,285	0.5132	7,331
8	117,166	93,733	23,433	3,278	10,000	13,278	0.4665	6,194
9	119,509	107,558	11,951	2,229	10,000	12,229	0.4241	5,186
10	121,899	121,899	-	1,137	10,000	11,137	0.3855	4,294
				55,591	100,000	155,591		100,000