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PACIFIC GAS AND ELECTRIC COMPANY

COST OF CAPITAL 2013

REBUTTAL TESTIMONY

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CHAPTER 1
REBUTTAL TESTIMONY OF
WILLIAM E. AVERA

A. Introduction

Q 1 Please state your name and business address.

A 1 William E. Avera, 3907 Red River, Austin, Texas, 78751.

Q 2 Are you the same William E. Avera that previously submitted direct testimony in this case?

A 2 Yes, I am.

Q 3 What is the purpose of your rebuttal testimony?

A 3 My purpose is to address the testimony of Stephen G. Hill, submitted on behalf of The Federal Executive Agencies (FEA), J. Randall Woolridge, on behalf of the Division of Ratepayer Advocates (DRA), Michael P. Gorman, on behalf of the Energy Producers & Users Coalition, Daniel J. Lawton and William B. Marcus, on behalf of The Utility Reform Network (TURN), and Ron Knecht, on behalf of L. Jan Reid (collectively, Intervenors), concerning a fair rate of return on common equity (ROE) for the jurisdictional electric utility operations of Pacific Gas and Electric Company (PG&E or the Company).

B. Summary of Conclusions

Q 4 What is your conclusion regarding Intervenors' ROE recommendations?

A 4 My rebuttal will show that the Intervenors' recommendations ignore economic reality. Their extreme recommendations would deviate sharply from a recent history of supportive regulatory policy by the Public Utilities Commission of the State of California (CPUC or the Commission) with respect to cost of capital, and shake the confidence of the investment community in PG&E. The dramatic reduction in PG&E's financial strength that is implied by Intervenors' ROE recommendations would make capital less available and more expensive for PG&E.

The Intervenors' ROE recommendations fall far below what PG&E is currently authorized to earn by the CPUC, and well outside the benchmarks of established regulatory standards. To support such a dramatic reduction in PG&E's financial strength, Intervenors offer only speculations and conjectures as to how investors and bond rating agencies might react to such an abrupt change in PG&E's financial profile. They ignore evidence of historical experience, and base this deep departure from constructive regulatory policy on arcane academic theory and distorted interpretations of financial data.

Q 5 Please summarize your specific findings regarding the Intervenors' ROE recommendations.

A 5 With respect to the Intervenors' ROE analyses, I conclude that:

- The recommendations of Intervenors are inadequate to compensate investors in PG&E when evaluated against the earnings expected for the proxy utilities that they consider to be comparable;
- PG&E must be granted an opportunity to earn a return that is competitive with other utilities. The allowed ROEs for the companies that Intervenors' consider to be comparable in risk also demonstrate that their recommendations are too low to be credible;
- Cost of equity estimates for the Non-Utility Group presented in my direct testimony provide an important benchmark that is consistent with financial theory, how investors operate, and the guidelines underlying a fair ROE. Consistent with expected earnings and allowed ROEs for other utilities, this benchmark demonstrates that Intervenors' ROE recommendations are far too low;
- In applying quantitative methods to estimate the cost of equity, Intervenors incorporated data that does not reflect investors' expectations and failed to exclude illogical results, which imparts a downward bias to their conclusions;
- Many of the quantitative methods relied on by Intervenors are applied using data that violate the principles of their own methods, and contain computational errors and omissions that bias their results downward; and
- If PG&E 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, and investors will be denied an opportunity to earn their opportunity cost of capital.

It is important to note that the similarity and consistency of their recommendations is not due to any convergence based on sound reasoning, but instead reflects a common aim of reducing PG&E's revenues and a shared willingness to ignore the realities faced by the Company, the requirements of actual investors, and the broader long-term implications for PG&E's customers. In setting the ROE in this case, the CPUC has an opportunity to show that it recognizes the importance of financial strength and supportive regulation. Providing an ROE that reflects capital market realities and the energy policy challenges facing California utilities will reassure investors that the CPUC is not departing from its tradition of supportive regulation. Considered along with the evidence presented in my direct testimony, my evaluation confirms the reasonableness of my recommended 10.2% to 11.4% range, and an ROE of 11.0% for PG&E.

1. Intervenor Recommendations are Punitive and Would Erode Investor Confidence

Q 6 What would be the impact of the radical reduction in earnings implied by the Intervenors' ROE recommendations?

A 6 Investors react swiftly and negatively to evidence of waning regulatory support, and the dramatic cut in PG&E's ROE reflected in the Intervenors' recommendations would severely undermine credit ratings and investor confidence. PG&E's current financial integrity and access to capital are based on investors' expectations of continuity in supportive regulatory treatment. It is not credible for the Intervenors to speculate that the investment community would ignore any dramatic reduction in allowed earnings.[1] This is particularly true when investors are buffeted daily by concerns about the future course of our economy and financial markets.

The experience of Florida Power & Light Company (FPL) confirms that investors react decisively to changes in financial prospects caused by adverse regulatory decisions. The backlash to the Florida Public Service Commission's (FPSC) initial decision in FPL's last rate case is clear evidence that disappointing regulatory decisions have immediate consequences. Investors and bond rating agencies responded within weeks

1 *See, e.g.*, Hill Direct at 89, Schedule 11; Gorman Direct at 2; Lawton Direct at 96.

to what they viewed as a dramatic shift in FPSC's traditional policy of regulatory support. The Value Line Investment Survey (Value Line) informed investors that "FPL was hit by a harsh rate order," and noting that the decision "came as a shock," Value Line cut FPL's Financial Strength rating and Safety rank.[2] Similarly, FPL's credit standing was downgraded by the major rating agencies. Had the negative impact of that decision not been mitigated by a subsequent settlement, FPL would have continued to suffer a loss of investor confidence that would have harmed customers.

As the CPUC has previously recognized:

> A precipitous drop [in ROE] would be unfair to investors and would send the wrong message to all stakeholders – the ratepayer, the utility and its employees, and the investment community.[3]

The Intervenors recommendations ignore past history and evidence of recent experience, and instead lead the CPUC down the path of draconian cuts in PG&E's allowed earnings, based on an ROE that ignores financial and market realities. Their only justification is to save customers money in the short-run by mortgaging their long-term interest, which is better served by maintaining PG&E's financial strength. The end result would be that PG&E's customers would become exposed to more uncertainties in an increasingly risky world.

Q 7 What is the shared misconception underlying all of the intervenors' positions regarding PG&E's ROE?

A 7 The intervenors' position regarding PG&E's ROE is fundamentally unsound. On the one hand, the Intervenors all recognize PG&E's current credit standing, as reflected in its "BBB" rating, and reference comparable measures of investment risk in attempting to tailor their proxy groups to reflect the Company's risk profile. And as these parties recognize, the ability to generate earnings and cash flow is one key component that impacts investors' risk perceptions, with investors' current assessment of PG&E's risks – including the Company's credit ratings – being contingent on its

2 The Value Line Investment Survey at 157 (Feb. 26, 2010).

3 Decision 99-06-057 at 56 (June 10, 1999).

current allowed ROE, and expectations that the CPUC will continue its constructive policies with respect to future determinations.

As Fitch Ratings Ltd. (Fitch) summarized, the authorized ROE has important implications for PG&E's credit profile and cost of capital:

> Lower authorized ROEs constrain profitability and limit financing flexibility, making the utilities more reliant on external financing sources and vulnerable to higher interest rates. Weak internal cash generation, higher interest costs, and weaker interest coverage measures can lead to lower credit ratings and poor market performance for utility debt.[4]

Nevertheless, the Intervenors are operating under the severely misguided belief that PG&E's ROE could somehow be reduced dramatically – to a level that is well below comparable benchmarks – without any ill effects on its credit standing.

Q 8 Is there any logical connection between the Intervenors' position and what takes place in real-world capital markets?

A 8 No. It is illogical to presume that PG&E could suffer an extreme cut in its ROE and simultaneously maintain its current credit rating. First, if the Company's financial parameters exceed those necessary for its present rating, then the rating agencies would have already upgraded PG&E. The Company's financial integrity and credit standing are dependent on two key regulatory outcomes; 1) an ROE that is commensurate with PG&E's risks and other opportunities available to investors, and 2) constructive regulatory treatment that allows the Company a reasonable chance of actually earning its allowed return. Ironically, Intervenors take the position that because one regulatory pillar is sound (California's system of balancing accounts and adjustment mechanisms), the other pillar (ROE) can be all but removed. This would be akin to arguing that because a building's walls will be adequately strengthened to withstand an earthquake, we can now skimp on concrete for the foundation.

Second, the rating agencies clearly state that they look beyond the numbers to consider the individual risk profile of each issuer. In my contact with rating agency personnel, they jealously guard their ability to depart from

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4 Fitch Ratings, Ltd., "Fitch Evaluated Utility ROE Trends," *U.S. Utilities, Power, and Gas Special Report* (Aug. 17, 2011).

broad guidelines to reflect the specific risk of individual issuers. Similarly, Mr. Lawton's and Mr. Hill's analyses of financial ratios is both unreliable and speculative,[5] as it is nothing more than an attempt to second-guess the rating agencies based on their broad guidelines. As Standard and Poor's Corporation (S&P) reiterated:

> The ratings matrix indicative outcomes are what we typically observe – but are not meant to be precise indications or guarantees of future rating opinions. … Moreover, our assessment of financial risk is not as simplistic as looking at a few ratios.[6]

Dr. Woolridge also observed that the notion that bond ratings can be inferred from credit metrics or ratios "is far from the truth."[7] Dr. Woolridge cited the following explanation from Moody's Investors Service (Moody's):

> Because it involves a look into the future, credit rating is by nature subjective. Moreover, because long-term credit judgements involve so many factors unique to particular industries, issuers, and countries, we believe that any attempt to reduce credit rating to a formulaic methodology would be misleading and would lead to serious mistakes.[8]

Accordingly, the fact that a given financial ratio might fall within published guidelines says little about the impact of the underlying ROE on PG&E's credit standing.

As discussed in my direct testimony, financial strength is a good thing for customers and is necessary to offset the inherent financial exposures faced by PG&E. In light of past history and recent experience, it is simply disingenuous to claim that the ROE recommendations proposed by the Intervenors would have no impact on PG&E's credit ratings or the Company's standing with investors.

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5 Lawton Direct at 46-51;Hill Direct at pp. 88-89.

6 Standard & Poor's Corporation. "Criteria Methodology: Business Risk/Financial Risk Matrix Expanded," *RatingsDirect* (May 27, 2009).

7 Woolridge Direct at 3-22.

8 *Id.* at 3-23.

Q 9 Is there recent evidence from the investment community that support this view?

A 9 Yes. In a report issued on August 23, 2012, Fitch confirmed its expectation that the CPUC will remain supportive of PG&E's credit ratings. Fitch also made it clear that:

> [S]ignificant adverse regulatory decisions, indicating an unexpected deterioration to the regulatory compact in California, would likely lead to future credit rating downgrades for PG&E ...[9]

Fitch noted that it "expects authorized returns at the end of the CoC proceeding to remain well above the industry average," and warned investors that, "An unexpectedly large adjustment downward to authorized ROEs by the commission would be an adverse development."[10] This report provides further evidence that adopting the extreme recommendations of Intervenors would undermine investor confidence, impair PG&E's financial integrity and ability to attract capital, and erode the Company's credit standing, which would ultimately lead to higher costs for customers.

2. Intervenors' Analyses Contain Fundamental Flaws

Q 10 What is the primary reason that the Intervenors fail to reach ROE recommendations that would give PG&E an opportunity to earn returns commensurate with companies of comparable risk?

A 10 The primary reason is that they fail to account for actual investors' expectations in their applications of the Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM), and risk premium approaches. Because their applications of these models do not reflect investors' expectations, the resulting cost of equity estimates fail to provide for a return sufficient to attract investors' money.

Q 11 How do the methods used by the Intervenors fail to account for investors' expectations in applying the DCF model?

A 11 As will be documented below, investors have come to rely on projections of professional financial analysts in forming expectations of the earnings

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9 Fitch Ratings, Ltd., "California Regulation: Still Waiting," *Utilities, Power, and Gas / U.S.A Special Report* (Aug. 23, 2012).

10 *Id.*

growth for individual stocks. These professional financial analysts consider the historical record of growth in earnings, dividends, and book value as well as trends in relevant financial parameters such as dividend payouts, profitability, sales, and technology in formulating their growth projections. While the Intervenors consider these growth projections, they dilute them with their own considerations of historical growth rates, projections of the national economy, and their own personal judgments. The flaw in melding these alternative growth estimates with the growth projections by financial analysts is that the financial analysts' growth projections already take into account each companies' historical financial performance, current prospects, and the effects of macroeconomic factors. Intervenors also fail to evaluate the reasonableness of the underlying data that they incorporate into their DCF analysis, much of which leads to illogical results that biases their conclusions downward.

Q 12 Is it reasonable to discount the projections of financial analysts as "over optimistic" or "biased" as Mr. Hill and Dr. Woolridge claim?[11]

A 12 No. As will be discussed in detail below, there is ample evidence that contradicts the specific claims made by these witnesses. But their claims are illogical given the reality of a competitive market for investment advice. If financial analysts' forecasts do not add considerable value to investors' decision making, it would be irrational for investors to pay for these estimates. The reality that analyst estimates are routinely referenced in the financial media and in investment advisory publications (e.g., Value Line) implies that investors use them as a basis for their expectations.

Q 13 How do the CAPM and risk premium methods, as applied by the Intervenors, fail to capture investors' expectations?

A 13 Instead of looking to current expectations in the capital markets, these witnesses apply the CAPM using historical data that violates the assumptions of this approach and fails to account for current capital market conditions. Their risk premium methods ignore available data and fundamental capital market relationships, which leads to distorted results.

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11 Hill Direct p. 40; Woolridge Direct p. 1-3.

In short, the Intervenors' ROE recommendations are flawed, inadequate to compensate investors in PG&E, are not in the long run best interest of PG&E's customers or the state of California, and therefore should be rejected.

C. Capital Market Conditions Do Not Support Intervenors' Recommendations

Q 14 Do changes in capital market conditions since PG&E's last cost of capital proceeding support a dramatic drop in the Company's allowed ROE, as the Intervenors wrongly contend?

A 14 No. The various reviews of capital market trends presented by the Intervenors do not support the extreme nature of their ROE recommendations.[12] Many of the benchmarks that they reference do not provide a meaningful guide to changes in investors' required returns on utility common stocks, while the implications of other trends are misinterpreted and distorted. In no case does their review of capital market conditions support a finding that PG&E's ROE has declined precipitously since the last cost of capital proceeding.

1. Intervenors' Present an Incomplete Picture of Market Conditions

Q 15 Do the Intervenors' conclusions reflect a complete and accurate portrayal of capital market conditions and investor sentiment?

A 15 No. While the Intervenors focus a great deal of attention on trends in Treasury bond yields and related benchmarks, a review of capital market and economic conditions contradicts their rosy conclusions. As discussed in my direct testimony,[13] investors have recently faced a myriad of challenges and uncertainties, with Value Line recognizing that, "It has been a turbulent year for the financial markets, to say the least."[14] The sovereign debt crisis in Europe continues to undermine investor confidence, and speculation that the economy remains exposed to a potential "double-dip" persists, with unemployment remaining stubbornly high, lackluster consumer confidence, and continued weakness plaguing the real estate sector.

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12 *See,* Gorman Direct at 3-5; Woolridge Direct at 2-1 – 2-11; Hill Direct at 18-28; Lawton Direct at 9-15; Knecht Direct at 33-36.

13 Avera Direct at 2-10 – 2-13.

14 The Value Line Investment Survey at 541 (Dec. 9, 2011).

While stock prices have trended higher, market sentiment remains highly sensitive to disappointment, and Value Line recently noted that, "the risks of a selloff are increasing."[15] S&P noted that, "The effect of a potential financial collapse in the eurozone spreading to our shores is at the top of the list of events that could push the U.S. into recession."[16] With respect to utilities, Moody's noted the dangers to credit availability associated with exposure to European banks,[17] and concluded:

> Over the past few months, we have been reminded that global financial markets, which are still receiving extraordinary intervention benefits by sovereign governments, are exposed to turmoil. Access to the capital markets could therefore become intermittent, even for safer, more defensive sectors like the power industry.[18]

These developments have led to periodic turmoil in capital markets, with common stock prices exhibiting the dramatic volatility that is indicative of heightened sensitivity to risk. As Fidelity Investments recently reported to investors:

> It's been quite a year, one of violent mood swings but little overall direction. We seem to be in a time warp where everything happens faster and faster. Everything seems to be correlated. There are very few places to hide, and even those places don't feel like good options anymore.[19]

Q 16 Do these exposures and uncertainties support the Intervenors' conclusion that investors' required return on common stocks has fallen precipitously?

A 16 No. In fact, their conclusion is contradicted by their own testimony, which highlights many of the risks faced by common stock investors. For example, Dr. Woolridge observed that, "the U.S. is still saddled with relatively high unemployment, large government budget deficits, continued housing market

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15 The Value Line Investment Survey, *Selection & Opinion* (Apr. 6, 2012).

16 Standard & Poor's Corporation, "Economic Research: U.S. Economic Forecast: Just Like Ol' Times," *RatingsDirect* (Jan 12., 2012).

17 Moody's Investors Service, "Electric Utilities Stable But Face Increasing Regulatory Uncertainty," *Industry Outlook* (Jul. 22, 2010).

18 Moody's Investors Service, "Regulation Provides Stability As Risks Mount," *Industry Outlook* (Jan. 19, 2011).

19 Fidelity Investments, "2012 markets: Expect ups and downs," *Fidelity Viewpoints* (Dec. 21, 2011).

issues, and uncertainty about future economic growth."[20] He concluded that, "the spillover of the financial crisis to the economy has been ongoing, and noted that, the economy is still on an uncertain path."[21] Similarly, Mr. Hill acknowledged "new concerns about the international banking industry,"[22] while Mr. Knecht stated that, "in 2Q2012, financial markets around the world descended into turmoil," and concluded that the U.S. and other developed nations "may be on the cusp of another recession" that could prompt another round of financial chaos.[23]

2. Trends in Treasury Bond Yields are Not Representative

Q 17 Are trends in government bond yields directly representative of changes in the cost of equity capital for a regulated electric utility, such as PG&E?

A 17 No. The developments noted in my direct testimony, and acknowledged by the Intervenors, have led to periodic turmoil in capital markets, with common stock prices exhibiting the dramatic volatility that is indicative of heightened sensitivity to risk. Nowhere has this turmoil been more evident than in the market for Treasury bonds, with yields being pushed significantly lower due to a global "flight to safety" in the face of rising political, economic, and capital market risks. As Mr. Hill recognized:

> More recently, however, with new concerns about the international banking industry … long-term Treasury rates have again taken a dip below historical trends. That drop in Treasury yields results, again, from investors turning to U.S. Treasuries as reliable and safe investment, effectively without default risk.[24]

In turn, this has led to a dramatic increase in risk premiums, as illustrated by the spreads between triple-B utility bond yields and 30-year Treasuries shown in Figure WEA-R1, below:

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[20] Woolridge Direct at 2-7.

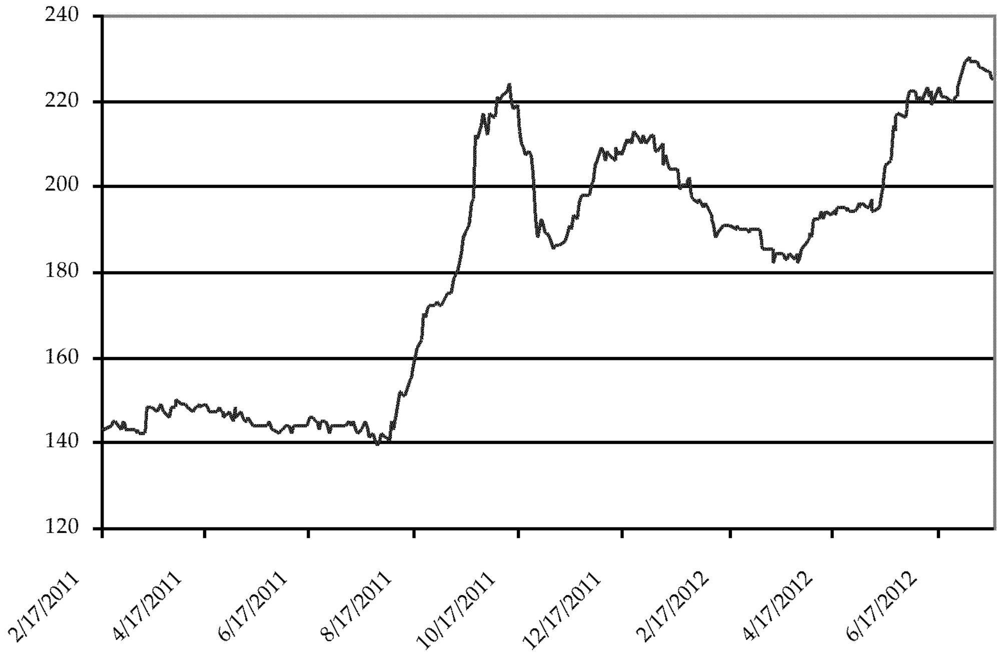
[21] *Id.* at 2-7, 2-9.

[22] Hill Direct at 19.

[23] Knecht Direct at 33.

[24] Hill Direct at 19.

FIGURE WEA-R1
YIELD SPREAD (BASIS POINTS) – BBB UTILITY – 30-YR. TREASURY



This increase in the yield spread indicates that the additional compensation investors demand to take on higher risks has increased. As S&P observed:

> During periods of stress, correlations frequently increase among risky asset classes such as the relationship between the return on speculative-grade bonds and the return from equities.[25]

Equity risk premiums cannot be observed directly, but because common stock investors are the last in line with respect to their claim on a utility's cash flows, higher yield spreads imply an even steeper increase in the additional return required from an investment in common equity. In short, heightened capital market and economic uncertainties, and the increase in risk premiums demanded by investors, further undermine Intervenors' contention that PG&E's ROE has experienced an unprecedented decline.

Similarly, while Mr. Lawton claims that, "the cost of capital continues to decline,"[26] much of the evidence he cites is not directly relevant to

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25 Standard & Poor's Corporation, "Recent Expansion In Credit Spreads Shows Bond Market Stress, But Less Severe Than During The Financial Crisis," *RatingsDirect* (Oct. 11, 2011).

26 Lawton Direct at 9.

investors' required rate of return for electric utilities. Specifically, Mr. Lawton points to the target range for the federal funds rate.[27] This interest rate benchmark is not directly relevant to the returns required from the common stocks of electric utilities, and this target yield is influenced by policies and circumstances that are unrelated to conditions in the utility industry.

The federal funds rate is the interest rate at which depository institutions lend balances to each other on an overnight basis, and it is established by the Federal Open Market Committee. A rate for overnight lending between commercial banks does not reflect required returns for long-term investments, such as utility common stocks, which are perpetuities. In addition, trends in the federal funds rate largely mirror monetary policy actions of the Fed, which has sought to restore confidence and stimulate the economy in the wake of a severe capital market crisis and recession. While trends in the federal funds rate are widely cited in the financial press and are certainly relevant in a variety of business and economic contexts, they have no direct influence on the long-term returns that investors require for utility common stocks.

3. Forecasts Should be Considered

Q 18 Is there any basis for the contention of Mr. Lawton (p. 13) and Dr. Woolridge (p. 1-3) that the implications of forecasted trends in long-term capital costs should be ignored when evaluating a fair ROE for PG&E?

A 18 No. Contrary to Mr. Lawton's position, an historical average does not provide "the best approximation of interest rate levels" for PG&E's 2013 ROE, and Mr. Lawton provides no logical rationale for ignoring evidence that suggests long-term capital costs are expected to increase. Mr. Lawton wrongly concludes that long-term capital costs are expected to decline, but his conclusion was based only on "a review of *historical* bond yields."[28] Mr. Lawton's position is clearly refuted by reference to widely-referenced projections, such as those presented in Table 2-1 to my direct testimony. Similarly, Dr. Woolridge wrongly concludes that incorporating interest rate

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27 Lawton Direct at 10-11.

28 *Id.* at 9 (emphasis added).

forecasts is an error, simply because "they are above current market interest rates."[29]

These arguments are contradicted by Mr. Lawton's own testimony, which concluded that, "given this proceeding is to provide estimates for future proceedings starting in 2013, a forecasted value may provide a more representative estimate."[30] Indeed, Mr. Gorman recognized that projected bond yields provide a sound basis on which to evaluate PG&E's ROE, and he incorporated forecasted data in applying the RPM and CAPM.[31] Similarly, Mr. Hill also acknowledged the relevance of projected interest rates in evaluating investors' expectations, citing Value Lines' forecasts for Treasury bond yields in his assessment of current capital costs.[32]

Consideration of interest rate forecasts recognizes that investors' required returns can and do shift over time with changes in capital market conditions. The importance of projections in establishing the expectations and requirements of investors is well accepted, and there is no basis to ignore information regarding the likely state of capital markets during the time when rates established in this proceeding will take effect. The fact that organizations such as GlobalInsight and EIA devote considerable expertise and resources to developing an informed view of the future – and market participants are willing to expend finite resources to purchase such services – confirms the importance of economic forecasts in the minds of capital market participants.

Utilities such as PG&E must be granted the opportunity to earn an ROE comparable to contemporaneous returns available from alternative investments if they are to maintain their financial flexibility and ability to attract capital. Expected capital market conditions are certainly one very valid barometer to ensure that this fundamental economic and regulatory test is met and the interest rate forecasts embodied in my analyses are entirely consistent with long-established CPUC precedent.

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29 Woolridge Direct at 1-3.

30 Lawton Direct at 40.

31 Gorman Direct at 31, 34.

32 Hill Direct at 28.

4. Authorized ROEs Refute Intervenors' Position

Q 19 Do trends in authorized ROEs support the claim that a haircut to PG&E's allowed ROE of approximately 200 basis points or more is reasonable?

A 19 Absolutely not. Mr. Gorman (p. 4-5), Mr. Hill (p. 12-15), and Mr. Lawton (pp. 14-15) all reference trends in allowed ROEs in attempting to justify their extreme recommendations. While I agree that reference to allowed rates of return for other utilities provides a useful guideline that can be used to assess the extent to which an ROE is sufficient to meet regulatory standards, as discussed subsequently and illustrated on Schedule WEA-12, this benchmark illustrates that Intervenors' recommendations are woefully inadequate.

Q 20 Do the average authorized ROEs presented by Mr. Lawton support a dramatic reduction in PG&E's cost of equity?

A 20 No. As shown in Table 4 to Mr. Lawton's testimony, the average allowed ROE that he reports for the first quarter of 2012 is only 6 basis points below the average value for 2007. This is hardly demonstrative of a significant decline in required rates of return for utilities since the time PG&E's existing ROE was established. Moreover, Mr. Lawton's table does not accurately reflect the actual ROEs that were authorized in 2012.[33]

Q 21 What other inferences are important in an assessment of economic and capital market trends?

A 21 Considering investors' heightened awareness of the risks associated with the electric power industry, and the implications of ongoing volatility in the markets for long-term capital, supportive regulation remains crucial in preserving PG&E's access to capital. Capital markets recognize that constructive regulation is a key ingredient in supporting utility credit ratings and financial integrity, particularly during times of adverse conditions. Moreover, considering the ongoing turmoil faced by investors, sensitivity to market and regulatory uncertainties has increased dramatically.

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33 As noted in footnote 7 to Mr. Lawton's testimony, the actual average authorized ROE for the first quarter of 2012 was 10.84%, which exceeds his recommendation in this case by 144 basis points. While Mr. Lawton chose to ignore authorized returns under surcharge/rider generation cases in Virginia that incorporate ROE premiums, these ROEs also represent other opportunities available to investors.

D. Failed To Consider *Hope* And *Bluefield*

Q 22 Is it widely accepted that a utility's ability to attract capital must be considered in establishing a fair rate of return?

A 22 Yes. This is a fundamental standard underlying the regulation of public utilities. The Supreme Court's *Bluefield* and *Hope* decisions established that a regulated utility's authorized returns on capital must be sufficient to assure investors' confidence and that, if the utility is efficient and prudent on a prospective basis, it will be able to maintain and support its credit and have the opportunity to raise necessary capital.

Q 23 The Intervenors recognized that the allowed ROE must meet certain standards to be considered reasonable. Do you agree?

A 23 Yes. The Intervenors clearly recognized,[34] but then ignored, this fundamental standard, which underlies the regulation of public utilities and a determination of a fair rate of return, pursuant to the Supreme Court's *Bluefield* and *Hope* decisions. These decisions established that a regulated utility's authorized returns on capital must be commensurate with those expected for other investments involving comparable risk.

While the details underlying a determination of the cost of equity are all significant to a rate of return analyst, there is one fundamental requirement that any ROE recommendation must satisfy before it can be considered reasonable. Competition for capital is intense, and utilities such as PG&E must be granted the opportunity to earn an ROE comparable to contemporaneous returns available from alternative investments if they are to maintain their financial flexibility and ability to attract capital. As noted earlier, the Intervenors specifically cited the *Bluefield* and *Hope* decisions in their testimony.

Q 24 What role does regulation play in ensuring the Company's access to capital?

A 24 Considering investors' heightened awareness of the risks associated with the utility industry, and the implications of ongoing volatility in the markets for long-term capital, supportive regulation remains crucial in preserving the

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[34] For example, Dr. Woolridge (p. 4-27) noted that the ROE must "be commensurate with returns on investments in other enterprises having comparable risks." Similarly, Mr. Gorman (p. 12), Mr. HIll (p. 3-4), and Mr. Lawton (p. 7) also recognized these fundamental standards underlying a fair ROE.

Company's access to capital. Capital markets recognize that constructive regulation is a key ingredient in supporting utility credit ratings and financial integrity, particularly during times of adverse conditions. Moreover, considering the ongoing turmoil faced by investors, sensitivity to market and regulatory uncertainties has increased dramatically.

1. Intervenors Ignored Regulatory Requirements

Q 25 Did the Intervenors test their ROE recommendations against these fundamental regulatory requirements?

A 25 No. Expected earned rates of return for other utilities provide one useful benchmark to gauge the reasonableness of ROE recommendations, but none of the Intervenors performed this test. The expected earnings approach is predicated on the comparable earnings test, which developed as a direct result of the Supreme Court decisions in *Bluefield* and *Hope*. From my understanding as a regulatory economist, not as a legal interpretation, these cases require that a utility be allowed an opportunity to earn the same return as companies of comparable risk. That is, the cases recognize that a utility must compete with other companies, including non-utilities, for capital.

Q 26 Did Mr. Hill recognize the economic premise underlying the expected earnings approach?

A 26 Yes. The simple but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. As Mr. Hill recognized, economists refer to the returns that an investor must forgo by not being invested in the next best alternative as "an opportunity cost."[35] Mr. Hill has explained the logic underlying this approach as follows:

> In a regulated rate-setting context such as this, the cost of equity capital can be most easily understood, as the rate of profit the regulated firm should be allowed to earn. A firm's profit is the amount of money that remains from its revenues after it has paid all of its costs – operating costs (commodity supply costs, depreciation, equipment maintenance costs, salaries, fees, taxes, retirement obligations), as well as income taxes and interest costs. That dollar amount of profit, divided

35 Hill Direct at 26.

> by the book value of the common equity capital used to finance the firm's regulated assets – the common equity on the utility's balance sheet – produces a percentage rate of return on equity. If, for example, the profit earned by a utility is $10 million/year and investors have provided $100 million of equity capital, the firm's return on equity (ROE), or its profit, is 10%.[36]

But despite the fact that Mr. Hill has recognized this standard as the "most easily understood" explanation of "the percentage profit that should be allowed for the regulated firm," he ignored this comparison with earned returns in evaluating his recommendation. Similarly, while Dr. Woolridge reported an average return on common equity benchmark of 10.6% for the companies in his proxy group,[37] he failed to evaluate the implications of this result.

Q 27 What are the implications of setting an allowed ROE below the returns available from other investments of comparable risk?

A 27 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. My direct testimony addresses the challenges facing PG&E – including ambitious capital investment plans, nuclear exposure, and ambitious environmental standards – that support an ROE in the upper part of my reasonable range. Accordingly, opportunity cost benchmarks based on the Intervenors' proxy group companies provide an absolute floor on a fair ROE for PG&E.

2. Book Returns are Relevant

Q 28 How is the comparison of opportunity costs typically implemented?

A 28 The traditional comparable earnings test identifies a group of companies that are believed to be comparable in risk to the utility. The actual earnings of those companies on the book value of their investment are then compared to the allowed return of the utility. While the traditional comparable earnings test is implemented using historical data taken from the accounting records, it is also common to use projections of returns on

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36 *Id.* at 4.

37 Exhibit JRW-4, p. 1.

book investment, such as those published by Value Line, which is a recognized investment advisory publication. Because these returns on book value equity 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.

Q 29 Despite recognizing the regulatory standards underlying your reference to earnings on book value, Mr. Gorman, Dr. Woolridge, and Mr. Hill are critical of this method. Has the expected earnings approach been recognized as a valid ROE benchmark?

A 29 Yes. While this method predominated before the DCF model became fashionable with academic experts, I continue to encounter it around the country. Indeed, the Virginia State Corporation Commission (VSCC) is required by statute (Virginia Code § 56-585.1.A.2.a) to consider the earned returns on book value of electric utilities in its region. In orders issued on November 30, 2011 and July 15, 2010 in Dockets PUE-2011-00037 and PUE-2009-00030, the VSCC established the allowed ROE for Appalachian Power Company based solely on the earned returns on book value for a peer group of other electric utilities. Another example is the approach taken by Ms. Terri Carlock, the long-time financial analyst for the Idaho Public Utilities Commission. She has consistently presented evidence on book earnings for decades, and Idaho regulators continue to confirm the relevance of return on book equity evidence.

A textbook prepared for the Society of Utility and Regulatory Analysts labels the comparable earnings approach the "granddaddy of cost of equity methods" and points out that the amount of subjective judgment required to implement this method is "minimal", particularly when compared to the DCF method and CAPM.[38] The *Practitioner's Guide* notes that the comparable earnings test method is "easily understood" and firmly anchored in the regulatory tradition of the *Bluefield* and *Hope* cases,[39] as well as sound regulatory economics. I have used the comparable earnings approach in

[38] Parcell, David C., *The Cost of Capital—a Practitioner's Guide* (1997).

[39] *Id.* at 7-3.

my consulting, teaching, and testimony for 35 years, and it has been widely referenced in regulatory decision-making.[40]

Q 30 What is the relevance of the discussion of market-to-book ratios presented by Dr. Woolridge (pp. 2-1 3 – 2-14, 5-69) and Mr. Hill (pp. 15-16, 123) to the deviation between their recommended ROEs and the earnings of comparable utilities?

A 30 Based on their testimony here and in previous cases, I understand that Dr. Woolridge and Mr. Hill are trying to argue that utility earnings are generally too high because the market-to-book ratios generally exceed one. They want the CPUC to sacrifice PG&E's financial strength to favor a theoretical ideal of market-to-book ratios equaling unity. The CPUC does not regulate utility stock market prices, and as discussed subsequently, there are many leaps between their economic theory and reality. But if the theory is correct, then Dr. Woolridge and Mr. Hill are asking the CPUC to order a return that would almost certainly lead to a capital loss on the value of PG&E's investment. The implication of this distorted train of logic is that investors are willing to purchase the common stock of a utility in expectation of a *negative* ROE.

Q 31 Do you agree with Mr. Gorman and Mr. Hill that a methodology has to depend on market data to be useful in evaluating investors' opportunity costs?[41]

A 31 No. While I agree that market-based models are certainly important tools in estimating investors' required rate of return, this in no way invalidates the usefulness of the expected earnings approach. In fact, this is one of its advantages.

It is a very simple, conceptual principle that when evaluating two investments of comparable risk, investors will choose the alternative with the higher expected return. If PG&E is only allowed the opportunity to earn a 9.0% return on the book value of its equity investment, while other electric

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40 For example, a NARUC survey reported that 19 regulatory jurisdictions cited the comparable earnings test as a primary method favored in determining the allowed rate of return. "Utility Regulatory Policy in the U.S. and Canada, 1995-1996," National Association of Regulatory Utility Commissioners (December 1996). In my experience, while a few Commissions have explicitly rejected comparable earnings, most regard it as a useful tool.

41 Woolridge Direct at 5; Gorman Direct at 51; Hill Direct at 123.

utilities are expected to earn an average of 10.5%,[42] the implications are clear – PG&E's investors will be denied the ability to earn their opportunity cost.

Moreover, regulators do not set the returns that investors earn in the capital markets – they can only establish the allowed return on the value of a utility's investment, as reflected on its accounting records. As a result, the expected earnings approach provides a direct guide to ensure that the allowed ROE is similar to what other utilities of comparable risk will earn on invested capital. This opportunity cost 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.

Q 32 Is there any merit to Dr. Woolridge's and Mr. Hill's concerns about a market-to-book ratio above 1.00?

A 32 No. In fact the majority of stocks currently sell substantially above book value. For example, Value Line reports that over 1,400 of the approximately 1,700 stocks it follows (including utilities and other industries) sell for prices in excess of book value.[43] Moreover, regulators have previously recognized the fallacy of relying on market-to-book ratios in evaluating cost of equity estimates. For example, the Presiding Judge in *Orange & Rockland* concluded, and the FERC affirmed that:

> The presumption that a market-to-book ratio greater than 1.0 will destroy the efficacy of the DCF formula disregards the realities of the market place principally because the market-to-book ratio is rarely equal to 1.0.[44]

The Presiding Judge found that there was no support in FERC precedent for the use of market-to-book ratios to adjust market derived cost of equity

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42 Value Line reports an average expected return on book equity for 2015-17 of 10.5 percent for the electric utility industry. The Value Line Investment Survey at 2237 (Aug. 3, 2012).

43 www.valueline.com (retrieved Aug. 23, 2012).

44 *Orange & Rockland Utilities, Inc.*, Initial Decision, 40 FERC ¶ 63,053, 1987 WL 118,352 (F.E.R.C.).

estimates based on the DCF model and concluded that such arguments were to be treated as “academic rhetoric” unworthy of consideration.

Q 33 What ROE is implied by the expected earnings for the proxy groups used by Intervenors?

A 33 As shown on page 1 of Schedule WEA-11, reference to expected earnings implied an average cost of equity for the utilities in Dr. Woolridge’s proxy group of 10.5%. Pages 2 and 3 of Schedule WEA-11 show that the average expected book return on equity for the proxy groups used by Messrs. Gorman and Lawton and Mr. Hill are 11.4% and 10.4%, respectively.[45] Similar real world data that should have given these witnesses pause was present in their testimony.[46] These book return estimates are an “apples to apples” comparison to the ROE recommendations of the Intervenors, which range from 8.75% to 9.4%.

Q 34 What would be the effect of authorizing a book return that is so far below the average earnings of the utilities that the Intervenors claim are comparable?

A 34 Plain and simple, PG&E will find it difficult to compete for investors’ capital and investors would not be earning up to the *Bluefield* standard of comparable earnings:

> A public utility is entitled to such rates as will permit it to earn on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties.[47]

3. Authorized ROEs Contradict Intervenor Recommendations

Q 35 Can allowed ROEs also be used to evaluate whether the recommendations of Opposing Witnesses are sufficient to meet regulatory standards?

A 35 Yes. Reference to allowed rates of return for other utilities provides another useful guideline that can be used to assess the extent to which an ROE recommendation in the 8.75% to 9.4% range is comparable and sufficient.

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[45] Mr. Gorman and Mr. Lawton both used the same group of utilities identified in my direct testimony as the Utility Group.

[46] Returns on common equity were reported by Dr. Woolridge (Exhibit JRW-4, p. 1) and Mr. Gorman (Exhibit MPG-6, p. 2).

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

Mr. Gorman (p. 4-5), Mr. Hill (p. 12-15), and Mr. Lawton (pp. 14-15) all reference trends in allowed ROEs in attempting to justify their extreme recommendations.

As shown on page 1 of Schedule WEA-12, data from the July 2012 *AUS Monthly Utility Report* (a source relied on by Dr. Woolridge, Mr. Gorman, and Mr. Hill) indicates that the average authorized ROE for the firms in Dr. Woolridge's proxy group is 10.35%, or 160 basis points higher than the ROEs he recommends for PG&E.[48] With respect to the group of electric utilities that Messrs. Gorman and Lawton and Mr. Hill concluded were most comparable to PG&E's jurisdictional utility operations, as shown on pages 2 and 3 of Schedule WEA-12, these firms are presently authorized average rates of return on equity of approximately 10.4% and 10.6%, respectively. As confirmed by a recent report from Fitch, the investment community "expects CPUC-authorized returns to remain above recent industry average levels."[49] It is unreasonable to suppose that investors would be attracted by an ROE in the range of 8.75% to 9.4% for PG&E, which falls significantly below the allowed returns for other utilities the Intervenors consider to be comparable.

Q 36 What do these benchmarks imply with respect to the ROE recommendations of the Intervenors?

A 36 These benchmarks clearly demonstrate that the recommendations of the Intervenors are far too low and violate the economic and regulatory standards underlying a fair ROE. My recommended 10.2% to 11.45% ROE range is consistent with the *Hope* and *Bluefield* standards, and an 11.0% ROE for PG&E recognizes the financial and operational challenges facing the Company, and the need to ensure that capital in available even during times of turmoil in the capital markets.

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48 As reflected on Schedule WEA-12, solely for the purposes of comparing allowed ROEs, I excluded the California utilities from the Intervenors' proxy groups.

49 Fitch Ratings, Ltd., "California Regulation: Still Waiting," *Utilities, Power, and Gas / U.S.A.* (Aug. 23, 2012).

E. Pension Returns Do Not Reflect Investors' Expectations Analysis

Q 37 Do you agree with TURN/Marcus that pension fund equity returns should be considered when setting a reasonable cost of capital for PG&E?[50]

A 37 No. The return on equity for a pension plan is not comparable to the requested ROE of 11.0 percent for three primary reasons. First, the long-run projected return for equity investments assumed for the pension portfolio is a geometric mean return indicative of compound returns earned over a long horizon. This is not equivalent to the specific benchmark for investors' forward-looking required rate of return represented by the requested ROE, which is in the nature of an arithmetic mean.[51] When returns are variable, the geometric mean is always less than the arithmetic mean.

Second, the pension projection applies to the equity investments made in the pension portfolio, which are selected by the pension managers from the many available choices in the equity markets. Pension investments must conform to the requirements of prudence, which includes the "three elements of care, skill, and caution."[52] This standard of care falls under the scrutiny of the U. S. Department of Labor and the prudence requirements of the Employee Retirement Income Security Act of 1974 (ERISA). The requirement for prudence concerning the projections of pension portfolio returns falls under the scrutiny of the U. S. Securities and Exchange Commission. In light of this guidance and oversight, the portfolio return projection represents a compound return that the fiduciaries are confident that they can meet or exceed over long periods of time. Meanwhile, the requested ROE is specific to the risks and circumstances of PG&E's utility operations and a set of comparable risk companies. In order to meet the comparable earnings, financial integrity, and capital attraction

50 TURN/Marcus pp. 51-52.

51 The geometric mean of a series of returns measures the constant rate of return that would yield the same change in the value of an investment over time. The arithmetic mean measures what the expected return would have to be each period to achieve the realized change in value over time.

52 John Train and Thomas A. Melfe, *Investing and Managing Trusts under the New Prudent Investor Rule* (Harvard Business School Press, Boston, MA, 1999), p. 19. I have taught ethical and professional standards for holders of the Chartered Financial Analyst Designation (CFA) for more than 20 years. This reading has been part of the CFA Curriculum to illustrate prudence and the fiduciary obligations of pension fund managers for a number of years.

standards of *Hope* and *Bluefield* the allowed ROE must be measured by reference to investors' expectations and requirements for comparable risk companies.

Third, with respect to the data underlying the respective return estimates, the pension plan projection used some, but not all, of the same historical information referenced in my ROE analysis. For example, the realized bond and stock returns reported by Ibbotson Associates used in my application of the historical CAPM model was also referenced in formulating the pension plan projections. The analyses underlying PG&E's requested ROE and the pension projection also shared the central assumption that earnings growth forms the economic foundation of future dividends and stock prices. This assumption underlies the use of analysts' earnings forecasts in the DCF model applied to estimate investors' current required return for the two proxy groups and for the dividend paying companies in the S&P 500 referenced in implementing the forward-looking CAPM. Similarly, the projected long-run equity returns from the pension portfolio are based on expectations of future earnings growth derived from an analysis of historical economic trends.

At the same time, there were also key differences in the data sets and approaches as well. For example, the pension plan projections were based on other historical series of economic data (*e.g.*, dividend yields, corporate earnings, and inflation) that were not referenced in estimating a fair ROE for PG&E. Similarly, the risk premium analysis underlying PG&E's requested ROE examined historical series for utility stock and bond returns that were not referenced in determining the Company's pension plan assumptions.

Perhaps the biggest difference in data was that the ROE analysis focused on analysts' forecasts of earnings growth in applying the DCF model and forward-looking CAPM that have no counterpart in the pension analysis. These indicators of investors' current expectations are necessary to estimate investors required returns for stock when purchased at the current prices, as required by regulatory standards. In contrast, the objective of the pension projection was to formulate future expectations for the equity investments in the pension portfolio based on an informed interpretation of historical experience and in light of accepted standards of prudence.[53]

Q 38 Is Mr. Hill correct in arguing that the Commission wrongly ruled when it found that utilities' pension plan earnings assumptions are not comparable to utilities ROE?[54]

A 38 No. Mr. Hill is wrong in his criticisms of the Commission's reasoning and arithmetic in Decision 07-012-049. In fact, Mr. Hill's claim of an arithmetic error is contradicted by his own testimony in this docket. Similarly, Mr. Hill's characterization of regulatory history after the Hope case is contradicted by his reference to the development of the DCF model. The simple fact is that pension plan assumptions are not comparable to a utility's allowed ROE. Therefore any assertion that utilities' pension plan assumptions support the extreme ROE recommendations of the intervenors is false.

Q 39 Is Mr. Hill correct to assert (at p. 7) that "it has long been the case in U.S. utility regulation that market-based estimates of the cost of equity capital are applied to utility book value rate base" due to the *Hope* decision in 1944?

A 39 No. Mr. Hill has stood the *Hope* decision on its head. As an economist, my understanding of that decision is that the rate base used did not matter as long as the **end result** met the tests of capital attraction, comparable risk returns, and financial integrity. The Supreme Court reaffirmed this finding in 2002 in when it found that the Federal Communication Commission's use of a rate base other than original cost passed constitutional muster.[55] Moreover, a number of state regulatory agencies use rate base measures that deviate from original cost rate base. Indeed, Arizona has a requirement to use fair value rate base in its state constitution and the courts have ruled that the Arizona Corporation Commission cannot set a utility's rates by

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53 PG&E's pension return projections were prepared in consultation with Russell Investment Group, which, according to their website, was the "largest global pension consultant with approximately US$2 trillion in client assets under advisement." www.russell.com/Institutional/investment_solutions/ consulting.asp (retrieved April 24, 2007).

54 FEA/Hill pp. 6 – 12.

55 *Verizon Communications v. FCC, et al* 535 U.S. 476 (May 13, 2002).

"backing into the result" from original cost ratemaking.[56] Many other regulatory agencies, such as those in Indiana, Kentucky, and Texas continue to operate under statutes that provide for use of rate base other than original cost.

Mr. Hill is also wrong to suggest that market value methods came into use as a result of the *Hope* decision. In fact, as I point out in teaching regulatory history, the *Hope* case led to the use of comparable earnings (on book value) applied to non-utility companies. Because the Supreme Court focused so much on the circularity in its decisions, there was a move to avoid looking to utilities' book returns to set utilities' allowed returns.[57] As Mr. Hill references in his testimony (at p. 15 and footnote 7) Dr. Myron Gordon developed the DCF model as applied to utilities in a 1974 book. He first used the model in rate case testimony as referenced by Dr. Woolridge (at p. 4-31, footnote 11) at the FCC in April 1980. Today, equity cost estimation techniques using comparable or expected returns to book value are in widespread use by ROE witnesses who appear for utilities, commission staffs, and interveners. Indeed, the State of Virginia has recently adopted new legislation that requires that the allowed ROE fall within a range defined by the average earnings on book value of utilities serving the Southeast region of the U.S.

Q 40 Was the Commission correct in its arithmetic reasoning about the implied return to book value as a result of applying the pension plan return to market values?

A 40 Yes. Mr. Hill is wrong to claim that the Commission made an "arithmetic error in its numerical example (Hill testimony at p. 7). If the price of PG&E stock were almost twice book value at a market value return of 9.62%, then the cost of equity must be much less than what investors expect the utility to earn on book value. If the market value return of 9.62% were applied to

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56 *Chaparral City Water Company v. Arizona Corporation Commission* CA-CC-05-0002 (February 13, 2007). The Arizona Corporation Commission has complied with this order in its electric utility decisions by avoiding backing into the result from original cost, see *UNS Electric Decision 71914* (September 30, 2010).

57 The circularity occurs when utilities' book earnings are also used to estimate the fair value of investor equity (by capitalization of projected earnings), since the book earnings are also determined by the regulator.

book value, and investors' actual required return were lower so the market-to-book approached 2.0, then the obvious arithmetic calculation to make to determine the implied cost of equity would be to divide the market return by the market-to-book ratio, so the result would be 4.81%, as the Commission correctly did in its example. Mr. Hill makes this relationship clear in his testimony in stating that since utilities have market-to-book ratios above 1.0, investors must expect the utilities to earn more on book value than their required returns (at p. 15). While he recognizes that the relationship between utilities' market price and book value is not "precise", he claims it is a "valuable indication of the proper range of equity capital costs for utilities." (at p. 16)

Q 41 Is the long-term pension return a geometric mean as denied by Mr. Hill (at p. 9)?

A 41 Yes, without question. The geometric mean measures the compound average rate of growth of wealth in the pension plan. Mr. Hill clearly states that this is the case in his Appendix on the geometric mean when he equates the geometric mean with the compound rate of growth. (Appendix D, p. i). The role of the geometric mean in actuarial analysis is well-established and was one of the subjects of my Ph.D. dissertation and subsequent published refereed research.[58]

Q 42 Are Mr. Hill's speculations correct that pension fund managers would not want to under-estimate pension fund returns to save the sponsoring company pension fund expense (at p. 10)?

A 42 No. First, the projections of pension returns are usually done by pension plan consultants that are purposely independent from the actual investment managers. Second, the projections and management of pension plans involves fiduciary duties to the beneficiaries of the plans, not the sponsoring company. Although I am not an attorney, I have taught fiduciary duties and appeared as an expert witness in a number of cases involving breach of fiduciary duties. In my opinion, if a fiduciary were to make a decision on the assumed return with the interest of the sponsoring company in mind as

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58 See for example Henry A. Latane and William E. Avera, "The Geometric Mean Strategy and Common Stock Investment Management," in *Life Insurance Investment Policies* David E. Cummins, ed. (1975), a text recommended by the American Society of Actuaries.

suggested by Mr. Hill, that fiduciary would have violated their duties and be exposed to civil and criminal penalties.

Q 43 Does Mr. Hill provide any information to contradict the argument that PG&E cost of capital witnesses used different data than was used in the pension fund return projections?

A 43 No. Mr. Hill, citing a discovery response from a prior hearing, argues that the pension fund estimates used a DCF model (at p. 10-11). He did not and could not claim that the DCF model was based on the same data or used in the same way as I did in my direct testimony. He also said "it was worth noting that all the cost of capital witnesses in these proceedings (or any proceedings in which I have participated) use different data in order to reach their conclusions with regard to the expected cost of equity capital." (at p. 11) Yet missing is the link Mr. Hill intimates, that PG&E used the same data in making pension fund estimates (which were actually made by third-party consultants) and the data I used in my analysis of PG&E's cost of equity.

Q 44 In sum, does Mr. Hill present any valid reason why the Commission should change its course and regard pension fund return assumptions as relevant or reliable indicators of the cost of equity to public utilities?

A 44 No. Mr. Hill's arguments attempting to contradict the Commission's findings in the last case do not stand up to scrutiny and should be rejected.

F. DCF Results Are Understated And Failed To Focus On Investors' Expectations

Q 45 What are the fundamental problems with the DCF analyses conducted by the Intervenors?

A 45 There are numerous fundamental problems with the DCF analyses presented by the Intervenors that lead to biased end-results:

1. Reliance on dividend growth rates and historical growth measures do not reflect a meaningful guide to investors' expectations;
2. Dr. Woolridge and Mr. Hill discount reliance on analysts' growth forecasts for earnings per share (EPS) as somehow biased, and fail to recognize that it is investors' *perceptions and expectations* that must be considered in applying the DCF model;

3. There is no evidence to suggest that investors expect growth for electric utilities to converge to the rate of change in GDP, and because Mr. Gorman's and Mr. Lawton's implementation of the non-constant growth model assumes that investors receive dividend cash flows at the end of the year, the results are understated; and,
4. Because the Intervenors failed to test the reasonableness of model inputs, they incorrectly include data that results in illogical cost of equity estimates;

As a result of these flaws and omissions, the resulting DCF cost of equity estimates are biased downward and fail to reflect investors' required rate of return.

1. Growth Rates Fail to Reflect Investors' Expectations

Q 46 Do the growth rates referenced by Dr. Woolridge mirror investors' long-term expectations in the capital markets?

A 46 No. There is every indication that his growth rates, and resulting DCF cost of equity estimates, are biased downward and fail to reflect investors' required rate of return. If past trends in earnings, dividends, and book value are to be representative of investors' expectations for the future, then the historical conditions giving rise to these growth rates should be expected to continue. That is clearly not the case for utilities, where structural and industry changes have led to declining growth in dividends, earnings pressure, and, in many cases, significant write-offs. While these conditions serve to depress historical growth measures, they are not representative of long-term expectations for the utility industry or the expectations that investors have incorporated into current market prices.

Q 47 Dr. Woolridge argues (p. 4-35) that, "the appropriate growth rate in the DCF model is the dividend growth rate." Do you agree that this is what investors are most likely to consider in developing their long-term growth expectations?

A 47 No. While the DCF model is technically concerned with growth in dividend cash flows, implementation of this DCF model is solely concerned with replicating the forward-looking evaluation of actual investors. In the case of utilities, growth rates in dividends per share (DPS) 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.[59] As a result of this trend towards a more conservative payout ratio, dividend growth in the utility industry has remained largely stagnant as utilities conserve financial resources to provide a hedge against heightened uncertainties. While past conditions for utilities serve to depress DPS growth measures, they are not representative of long-term expectations for the utility industry.

As payout ratios for firms in the utility industry trended downward, investors' focus has increasingly shifted from DPS to earnings as a measure of long-term growth. Future trends in EPS, which provide the source for future dividends and ultimately support share prices, play a pivotal role in determining investors' long-term growth expectations. The importance of earnings in evaluating investors' expectations and requirements is well accepted in the investment community. As noted in *Finding Reality in Reported Earnings* published by the Association for Investment Management and Research:

> [E]arnings, presumably, are the basis for the investment benefits that we all seek. "Healthy earnings equal healthy investment benefits" seems a logical equation, but earnings are also a scorecard by which we compare companies, a filter through which we assess management, and a crystal ball in which we try to foretell future performance.[60]

Value Line's near-term projections and its Timeliness Rank, which is the principal investment rating assigned to each individual stock, are also based primarily on various quantitative analyses of earnings. As Value Line explained:

> The future earnings rank accounts for 65% in the determination of relative price change in the future; the other two variables (current earnings rank and current price rank) explain 35%.[61]

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59 For example, the payout ratio for electric utilities fell from approximately 80 percent historically to on the order of 60 percent. *See, e.g.*, The Value Line Investment Survey (Sep. 15, 1995 at 161, Feb. 24, 2012 at 136).

60 Association for Investment Management and Research, "Finding Reality in Reported Earnings: An Overview" at 1 (Dec. 4, 1996).

61 The Value Line Investment Survey, *Subscriber's Guide* at 53.

The fact that investment advisory services focus primarily on growth in EPS indicates that the investment community regards this as a superior indicator of future long-term growth. Indeed, "A Study of Financial Analysts: Practice and Theory," published in the *Financial Analysts Journal*, reported the results of a survey conducted to determine what analytical techniques investment analysts actually use.[62] Respondents were asked to rank the relative importance of earnings, dividends, cash flow, and book value in analyzing securities. Of the 297 analysts that responded, only 3 ranked dividends first while 276 ranked it last. The article concluded:

> Earnings and cash flow are considered far more important than book value and dividends.[63]

More recently, the *Financial Analysts Journal* reported the results of a study of the relationship between valuations based on alternative multiples and actual market prices, which concluded, "In all cases studied, earnings dominated operating cash flows and dividends."[64]

Q 48 Did Dr. Woolridge recognize the pitfalls associated with historical growth rates?

A 48 Yes. Dr. Woolridge noted that:

> [T]o best estimate the cost of common equity capital using the conventional DCF model, one must look to long-term growth rate expectations.[65]

But as he acknowledged, historical growth rates can differ significantly from the forward-looking growth rate required by the DCF model:

> [O]ne must use historical growth numbers as measures of investors' expectations with caution. In some cases, past growth may not reflect future growth potential. Also, employing a single growth rate number (for example, for five or ten years), is unlikely to accurately measure investors' expectations due to the sensitivity of a single growth rate to

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62 Block, Stanley B., "A Study of Financial Analysts: Practice and Theory", *Financial Analysts Journal* (July/August 1999).

63 *Id.* at 88.

64 Liu, Jing, Nissim, Doron, & Thomas, Jacob, "Is Cash Flow King in Valuations?," *Financial Analysts Journal*, Vol. 63, No. 2 at 56 (March/April 2007).

65 Woolridge Direct at 4-33.

fluctuations in individual firm performance as well as overall economic fluctuations (i.e., business cycles).[66]

Moreover, to the extent historical trends for utilities are meaningful, they are already captured in projected growth rates, including those published by Value Line, First Call, Zacks, and Reuters, since securities analysts also routinely examine and assess the impact and continued relevance (if any) of historical trends.

Q 49 Is the downward bias in historical growth measures self-evident?

A 49 Yes, it is. As shown on page 4 of Exhibit JRW-10, more than one-third of the individual historical growth rates reported by Dr. Woolridge for the companies in his proxy group were essentially zero or *negative*, which implies a cost of equity less than the utility's dividend yield. The implication is that investors are willing to purchase the common stock of a utility in expectation of a *negative* ROE. Of course, investors are not masochistic -- these growth rates provide absolutely no meaningful information regarding their expectations. Indeed, Mr. Lawton recognized (Schedule DJL-27, p. 1) that negative and zero growth rates are properly excluded in applying the DCF model.

Similarly, over two-thirds of Dr. Woolridge's historical DPS growth rates are 1.0% or less. Combining a growth rate of 1.0% with Dr. Woolridge's dividend yield of 4.3% (Exhibit JRW-10, p. 1) implies a DCF cost of equity of approximately 5.3%. This implied cost of equity is not materially different than the yield from triple-B public utility bonds, which averaged 5.0% over the six-months ended July 2012.[67] Clearly, the risks associated with an investment in public utility common stocks exceed those of long-term bonds and Dr. Woolridge's historical and DPS growth measures provide no meaningful information regarding the expectations and requirements of investors.

66 *Id.* at 4-32 – 4-33.

67 Moody's Analytics, Yields & Spreads Data, http://credittrends.moodys.com/chartroom.asp?c=3.

2. Failed To Test The Reasonableness Of Model Inputs

Q 50 Did Dr. Woolridge make any effort to test the reasonableness of the individual growth estimates he relied on to apply the constant growth DCF model?

A 50 No. Despite recognizing that caution is warranted in using historical growth rates, Dr. Woolridge simply calculated the average and median of the individual growth rates with no consideration for the reasonableness of the underlying data. In fact, as demonstrated above, many of the cost of equity estimates implied by Dr. Woolridge's DCF application make no economic sense.

Q 51 Does reference to the median (fn. 9; pp. 4-36, 4-37) correct for any underlying bias in Dr. Woolridge's historical and DPS growth rates?

A 51 No. The median is simply the observation with an equal number of data values above and below. For odd-numbered samples, the median relies on only a <u>single number</u>, *e.g.*, the fifth number in a nine-number set. Reliance on the median value for a series of illogical values does not correct for the inability of individual cost of equity estimates to pass fundamental tests of economic logic.

Q 52 Has Dr. Woolridge recognized the importance of evaluating model inputs in other forums?

A 52 Yes. As Dr. Woolridge noted in his testimony (Appendix A, p. 1), he is a founder and managing director of *ValuePro*, which is an online valuation service largely based on application of the DCF model. *ValuePro* confirmed the importance of evaluating the reasonableness of inputs to the DCF model:

> Garbage in, Garbage out! Like any other computer program, if the inputs into our Online Valuation Service are garbage, the resulting valuation also will be garbage.[68]

Unlike his approach here, Dr. Woolridge advised investors to use common sense in interpreting the results of valuation models, such as the DCF:

> If a figure comes up for a certain input that is either highly implausible or looks wrong, indeed it may be. If a valuation is

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68 http://www.valuepro.net/abtonline/abtonline.shtml.

> way out of line, figure out where the Service may have strayed on a valuation, and correct it.[69]

Given the fact that many of the growth rates relied on by Dr. Woolridge result in illogical cost of equity estimates, it is appropriate to take the same critical viewpoint when evaluating inputs to his DCF model.

Q 53 Did Messrs. Gorman, Lawton, or Hill make any effort to test the reasonableness of the individual growth estimates presented in their testimony?

A 53 No. Mr. Gorman's application of the constant growth DCF model based on analysts' growth projections (Exhibit MPG-4) simply averaged his growth rate sources and added the result to the utility's dividend yield, without any evaluation of the results. Unlike Dr. Woolridge, Mr. Lawton properly recognized that negative growth rates should be excluded – and he completely ignored the historical growth rates presented in his testimony – but like Mr. Gorman and Mr. Hill, he nevertheless simply averaged his individual growth rates with no consideration for the reasonableness of the underlying data. Consider the 5-year historical DPS growth rates reported on page 2 of Mr. Hill's Schedule 4, for example. As shown there, Mr. Hill calculated an average growth rate of 4.52% based on individual growth estimates ranging from zero to 19.14%. Clearly, these values are illogical and provide no information regarding the expectations of investors.

Q 54 What approach should the Intervenors have used to evaluate low-end DCF estimates?

A 54 As explained in detail in my direct testimony,[70] it is a basic economic principle that investors can be induced to hold more risky assets only if they expect to earn a return to compensate them for their risk bearing. 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 senior, long-term debt. Consistent with this principle, these witnesses should have eliminated growth rates that produce illogical DCF results for their proxy companies. Regulators apply similar tests, with FERC consistently recognizing that it is appropriate to eliminate

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69 *Id.*

70 Avera Direct at 2-25 – 2-28.

estimates that do not sufficiently exceed observable yields on long-term public utility debt.

Q 55 Has Dr. Woolridge adopted this exact same test of low-end DCF estimates in recent testimony before FERC?

A 55 Yes. In testimony filed with FERC on September 30, 2011, Dr. Woolridge applied this test to the results of his DCF analysis.[71] As Dr. Woolridge concluded:

> These data suggest that the prospective yield on utility bonds with a rating similar to the proxy group (A-/BBB+) is in the 5.0% range. Given this figure, and FERC's bond yield plus 100 basis point threshold for the low-end outliers, the elimination [of] the low-end results for Entergy (5.6%) and Great Plains Energy (6.2%) is supported.[72]

Q 56 If Dr. Woolridge had eliminated low-end values, as he did in his recent FERC testimony, what cost of equity would have resulted from his DCF analysis based on historical growth rates?

A 56 As indicated above, Dr. Woolridge's DPS growth measures provide no meaningful information regarding the expectations and requirements of investors and should be entirely ignored. As shown on Schedule WEA-13, screening Dr. Woolridge's DCF cost of equity estimates based on historical EPS and BVPS growth rates to eliminate illogical, low-end values, as well as high-end outliers, resulted in an implied cost of equity range of 9.8% to 10.8%, with the average cost of equity implied by Dr. Woolridge's corrected historical DCF analysis being 10.3%.

Q 57 What DCF cost of equity estimates are implied by Mr. Hill's historical growth rates after correcting this deficiency?

A 57 As shown on Schedule WEA-15, screening Mr. Hill's DCF cost of equity estimates based on historical EPS and book value per share (BVPS) growth rates to eliminate illogical values resulted in an implied cost of equity of 10.2%.

71 *Testimony of J. Randall Woolridge,* FERC Docket No. EL-66 (2011).

72 *Id.* at 35-36.

Q 58 Mr. Hill implies that there should be symmetry in eliminating low and high-end outliers.[73] Is this logical?

A 58 No. As discussed in my direct testimony, the evaluation of DCF results to eliminate outliers properly considers each of the cost of equity estimates on a stand-alone basis. This test may eliminate more values at one end of the distribution than the other, but such an outcome does not imply bias or distortion. It is simply a function of the inputs to the DCF formula at a particular point in time.

Meanwhile, Mr. Hill's suggestion that, for every value excluded on one end of the range, another value at the opposite end should be ignored makes no sense whatsoever. Consider DCF estimates of 4.0%, 4.5%, 9.8%, 10.5%, 11.2%, and 11.5%. Of these six estimates, only two – 4.0% and 4.5% – are outliers, because they fall below the yields on utility bonds. But Mr. Hill is implying that removing these two values requires a symmetrical narrowing of the two highest DCF estimates, even though there is no basis to believe that these values are extreme outliers. Rather than eliminating bias, such an approach would distort the conclusions because valid estimates would be eliminated without any logical basis.

3. Focus On Investors And Not On Theory

Q 59 Did Mr. Hill properly apply the constant growth DCF model?

A 59 No. Mr. Hill began his DCF analysis by correctly stating:

> The DCF model relies on the equivalence of the market price of the stock (P) with the present value of the cash flows investors expect from the stock, providing the discount rate equals the cost of capital.[74]

Nevertheless, his applications of the constant growth DCF model to his proxy group of utilities departed from this fundamental proposition because of his strict reliance on the mathematical DCF theory instead of the realities of investors' actual expectations in financial markets. The use of DCF models to estimate the cost of equity is essentially an attempt to replicate the market pricing mechanism that led to the observed stock price, with investors' required rate of return simply being inferred. In contrast, Mr. Hill's

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73 Hill Direct at 92-93. Mr. Knecht makes a similar argument at page 36 of his direct testimony.

74 Hill Direct at 31.

applications of the DCF model reflect a strict interpretation of the academic theory underlying its derivation.

Q 60 What is wrong with adhering strictly to the theory underlying the constant growth DCF model?

A 60 Enumerated in my direct testimony, many unrealistic assumptions are required to derive the constant growth form of the DCF model, with Mr. Hill noting some of these infirmities in his testimony:

> The model also assumes that the company whose equity cost is to be measured exists in a steady state environment, i.e., the payout ratio and the expected return are constant and the earnings, dividends, book value and stock price all grow at the same rate, forever.[75]

Because the assumptions underlying the constant growth DCF model are never met in practice, the constant growth DCF model can, at best, only be considered an abstraction of reality. As such, the DCF model cannot universally produce correct measures of the cost of equity; rather, it can only serve as a potential guide to investors' required rate of return. Mr. Hill granted this limitation of the DCF model in his testimony:

> As with all mathematical models of real-world phenomena, the DCF theory does not precisely "track" reality.[76]

Therefore, the only inputs (*i.e.,* cash flows) that matter in implementing the DCF model are those that investors used to value the utility's stock. Any application of the DCF model that does not focus exclusively on investors' actual expectations is a misuse of the DCF model to estimate the cost of equity.

Q 61 Can you provide an example of how Mr. Hill disregards this principle?

A 61 Yes. Consider Mr. Hill's discussion of his hypothetical firm inAttachment B to his testimony. He stated that certain actual growth rates can be "unreliable" within DCF theory, and concluded that the proper growth rate to use with the DCF model is the theoretical "sustainable growth rate."[77] But Mr. Hill's contention is wrong. The only correct growth rate to be used in the

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75 *Id.* at 32.

76 *Id.*

77 *Id.* at Appendix B, p. 3.

DCF model is the long-term growth rate investors actually incorporated into the observed stock price, irrespective of whether Mr. Hill considers it "ridiculous" or inconsistent with "the underlying fundamentals of growth in the DCF model."[78]

The fact is Mr. Hill confused the theory of the DCF model with its application. Professor Myron J. Gordon's complete mathematical DCF model is tautological. In other words, the constant growth DCF model is true by virtue of the strict assumptions made to derive it, and given these assumptions, any number of propositions can be "demonstrated."[79] But to the extent that these assumptions are not met in practice and the DCF model does not "track reality," the theoretical DCF model will not conform to the real world. In turn, cost of equity estimates that are based solely on mathematical identities instead of investors' actual long-term growth expectations will not accurately measure their required rate of return. In a 2005 case decided by the New Hampshire Public Service Commission, regulators specifically concluded that Mr. Hill's DCF growth analysis "does not in our view reflect true market conditions."[80]

Q 62 Is it possible to replicate the method Mr. Hill used to determine the individual growth rates he arrives at for each of his proxy companies?

A 62 No. The process by which Mr. Hill selected a growth rate for each utility, as presented in his Attachment C, was entirely subjective. There was no uniformity to Mr. Hill's consideration of the individual growth rates he purported to examine for each utility and, rather than considering investors' expectations, his review largely reflects his own opinions regarding what might be "reasonably expected." Moreover, while Mr. Hill claims to consider a wide variety of information, as discussed above, his evaluation of alternative growth rates was viewed strictly through the prism of DCF theory and not through the eyes of real-world investors.[81]

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78 *Id.* at Appendix B, p. 2-5.

79 *Id.* at Appendix B, p. 4.

80 Order No. 24,473, New Hampshire Public Utilities Commission (June 8, 2005).

81 As shown on Mr. Hill's Schedule 7, the growth rates he ultimately used to calculate DCF cost of equity estimates are equal to the "br+sv" growth rates on page 1 of Schedule 4.

4. Internal Growth Rates Are Distorted

Q 63 Dr. Woolridge (Exhibit JRW-10, p. 6) and Mr. Hill (Schedule 4, p. 1) relied on internal, "br" growth rates. Should the CPUC place any weight on these values?

A 63 No. The internal growth rates calculated by Dr. Woolridge and Mr. Hill are downward biased because of computational errors and omissions.

Dr. Woolridge and Mr. Hill based their calculations of the internal, "br" retention growth rate on data from Value Line, which reports end-of-period results. If the rate of return, or "r" component of the internal growth rate, is based on end-of-year book values, such as those reported by Value Line, it will understate actual returns because of growth in common equity over the year. This downward bias, which has been recognized by regulators,[82] is illustrated in the table below.

Consider a hypothetical firm that begins the year with a net book value of common equity of $100. During the year the firm earns $15 and pays out $5 in dividends, with the ending net book value being $110. Using the year-end book value of $110 to calculate the rate of return produces an "r" of 13.6%. As the FERC has recognized, however, this year-end return "must be adjusted by the growth in common equity for the period to derive an average yearly return."[83] In the example below, this can be accomplished by using the average net book value over the year ($105) to compute the rate of return, which results in a value for "r" of 14.3%. Use of the average rate of return over the year is consistent with the theory of this approach to estimating investors' growth expectations, and as illustrated on Exhibit WEA-25, it can have a significant impact on the calculated retention growth rate:

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82 *See, e.g., Southern California Edison Company,* Opinion No. 445 (Jul. 26, 2000), 92 FERC ¶ 61,070.

83 *Id.*

TABLE WEA-R-2
BR + SV GROWTH RATE – AVERAGE RATE OF RETURN

Beginning Net Book Value	$100
Earnings	15
Dividends	5
Retained Earnings	10
Ending Net Book Value	$110

"b x r" Growth	End-of Year	Average
Earnings	$ 15	$ 15
Book Value	$110	$105
"r"	13.6%	14.3%
"b"	66.7%	66.7%
"b x r" Growth	**9.1%**	**9.5%**

Unlike Mr. Gorman and Mr. Lawton, Dr. Woolridge and Mr. Hill did not adjust to account for this reality in their analyses. As a result, the "internal" growth rates that they calculated are downward-biased.

Q 64 What other consideration leads to a downward bias in Dr. Woolridge's calculation of internal, "br" growth?

A 64 Dr. Woolridge ignored the impact of additional issuances of common stock in his analysis of the sustainable growth rate. Under DCF theory, the "sv" factor is a component designed to capture the impact on growth of issuing new common stock at a price above, or below, book value. As noted by Myron J. Gordon in his 1974 study:

> When a new issue is sold at a price per share P = E, the equity of the new shareholders in the firm is equal to the funds they contribute, and the equity of the existing shareholders is not changed. However, if P > E, part of the funds raised accrues to the existing shareholders. Specifically…[v] is the fraction of the funds raised by the sale of stock that increases the book value of the existing shareholders' common equity. Also, "v" is the fraction of earnings and dividends generated by the new funds that accrues to the existing shareholders.[84]

In other words, the "sv" factor recognizes that when new stock is sold at a price above (below) book value, existing shareholders experience equity accretion (dilution). In the case of equity accretion, the increment of proceeds above book value (P > E in Professor Gordon's example) leads to higher growth because it increases the book value of the existing

[84] Gordon, Myron J., "The Cost of Capital to a Public Utility," MSU Public Utilities Studies (1974), at 31–32.

shareholders' equity. In short, the "sv" component is entirely consistent with DCF theory, and the fact that Dr. Woolridge failed to consider the incremental impact on growth is yet another downward bias to his “internal” growth rates, which should be given no weight.

Q 65 Has Dr. Woolridge recognized these adjustments to the sustainable growth rate in testimony before other regulators?

A 65 Yes. In his recent testimony before FERC referenced earlier, Dr. Woolridge incorporated an adjustment to correct for the downward bias attributable to end-of-year book values, and recognized the additional growth from new share issues by incorporating the “sv” component discussed above.[85] Similarly, Mr. Gorman and Mr. Lawton incorporated both of these adjustments in their calculation of sustainable, br+sv growth rates.[86]

Q 66 Does it make sense to “test” analysts' growth projections against sustainable, “br+sv” growth rates, as Mr. Gorman implies?

A 66 No. Mr. Gorman suggests (p. 18) that “sustainable,” br+sv growth rates provide a benchmark to evaluate analysts' current three- to five-year EPS growth projections. I do agree that the sustainable growth rates referenced by Mr. Gorman, and which I considered in my application of the DCF model, provide one guide to investors' expectations that is consistent with the theory underlying the DCF approach. But there is no basis for Mr. Gorman's suggestion that this alternative measure can be used to test the veracity of analysts' estimates. As indicated earlier, Mr. Gorman correctly concluded that investors' expectations are the guide to the growth rate required to apply the DCF model, and that analysts' projections provide the more accurate estimate. Sustainable br+sv growth rates provide no basis to “test” these independent estimates.

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85 *Testimony of J. Randall Woolridge,* FERC Docket No. EL-66 at Exhibit JRW-8, pp. 3-4 (2011).

86 Gorman Direct at Exhibit MPG-6, p. 2; Lawton Direct at Schedule DJL-27, p. 2.

5. No Basis For Multi-Stage DCF Model

Q 67 Does the multi-stage form of the DCF model used by Mr. Gorman (Schedule MPG-9), Mr. Lawton (Schedule DJL-29), and Mr. Knecht (p. 19) provide a better guide to investors' requirements?

A 67 No. While multi-stage analyses can be used to estimate the cost of equity, these approaches increase the number of inputs that must be estimated and add to the computational difficulties. This makes the results of non-constant growth DCF applications sensitive to changes in assumptions, and therefore subject to greater controversy in a rate case setting. Just as importantly, to the extent that each of these time-specific suppositions about future cash flows do not reflect what real-world investors actually anticipate, the resulting cost of equity estimate will be biased.

Mr. Gorman uses the following argument to support use of his two-stage model:

> The limitation on the constant growth DCF model is that it cannot reflect a rational expectation that a period of high/low short-term growth can be followed by a change in growth to a rate that is more reflective of long-term sustainable growth.[87]

But despite acknowledging that "one must attempt to estimate investors' consensus about what the dividend or earnings growth rate will be, and not what an individual investors or analyst may use,"[88] there is no demonstrable link between the assumptions of his multi-stage DCF application and the consensus expectations of investors. The only relevant growth rate is the growth rate used by investors. Investors do not have clarity to see far into the future, and Messrs. Gorman, Lawton, and Knecht present no evidence that investors evaluate the future based on the assumptions and data sources that were required to apply their two-stage models.

Q 68 Are there times when a two-stage model could fit investors' expectations?

A 68 Yes. For example, in the 1990s when investors thought the electric utility was transitioning to non-regulated markets, two-stage models did fit investors' expectations. The first stage was based on expectations of growth rates under regulation and the second stage would be more akin to

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87 *Id.* at 19.

88 *Id.* at 16.

non-utility growth rates. A number of experts, including me, presented two-stage models based on investors' expectations of a transition and a number of regulatory agencies found these models to be reasonable, including FERC. As industry restructuring was implemented and expectations of widespread deregulation waned, the two-stage model no longer fit the expectations that investors built into electric utility stock prices, and FERC abandoned the two-stage DCF model to a constant growth model using earnings per share projections and sustainable growth, just as I have presented in my direct testimony. While Mr. Gorman asserts that his multi-stage rendition of the DCF model is "more reflective of long-term sustainable growth,"[89] he has not shown that investors view the future the way he has constructed it in his model. That is, Mr. Gorman's DCF analysis is a mechanistic approach that ignores the expectations and requirements of capital markets.

Q 69 Is there any evidence to conclude that investors currently agree with or use the multi-state DCF approach outlined by Mr. Gorman or Mr. Knecht?

A 69 No. On the contrary, in the financial media one observes many references to 3-5 year EPS growth forecasts for individual companies and very few references to long-term GDP forecasts. Long-term GDP growth rates are simply not discussed within the context of establishing investors' expectations for individual firms. Few investors are likely to adopt such a theoretical approach, and growth in excess of the economy as a whole is consistent with investors' expectations. Indeed, Multex Investor, a publisher of financial research and investment information that is now an arm of Thomson Reuters, advised that, "all equity investors … should look for growth rates that are at least as strong as growth of Real GDP and Inflation."[90] And to the extent economic trends are influential, they are already captured in analysts' growth estimates for electric utilities.

Meanwhile, Mr. Gorman, Mr. Knecht, and Dr. Woolridge suggest that it would be illogical for investors to expect long-term growth for an electric utility that exceeds the rate of growth of the economy.[91] Based on this

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89 *Id.* at 19.

90 www.multexinvestor.com

91 Gorman Direct at 23-24; Knecht Direct at 19; Woolridge Direct at 5-60 – 5-61.

subjective assertion, Mr. Gorman assumed that each company's growth rate would begin to converge to that of the economy as a whole after 5 years, and then extended his analysis for an additional 195 years.[92] While few investors are likely to consider Mr. Gorman's projected cash flows in the year 2212 to be within their foreseeable horizon, it is entirely logical for investors to recognize the potential for certain companies to grow faster than the overall economy.

But as Mr. Gorman himself has recently testified, "Analysts' growth rate forecasts generally are the best reflection of investors' outlook, and three- to five-year analysts' growth rate forecasts are reasonable estimates of long-term sustainable growth."[93] While the complexity of multi-stage DCF models may impart an aura of accuracy, the fact remains that the investment community does not look to GDP growth over the next 200 years when evaluating an investment in one of Mr. Gorman's comparable utilities, and investors' current view of electric utilities does not anticipate a series of discrete, clearly defined stages. As a result, there is no discernible transition that would support use of the multi-stage DCF approach relied on by Mr. Gorman or Mr. Knecht.

If Mr. Gorman and Mr. Knecht were seeking to be absolutely true to the theory underlying the DCF model, the proper growth rate would be in perpetuity. Of course, perpetual growth rates do not exist, but from a more practical standpoint, they do not matter. As a practical matter, investors do not look to that distant horizon where all companies must grow at the rate of the economy. Not only is it impossible to predict the distant future, it simply doesn't matter. The present value of cash flows in the far distant future is so small as to be largely irrelevant to investors, who are more rationally concerned with company-specific performance in the next several years than with GDP growth in some future decade.

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92 *Id.* at workpapers, Exhibits MPG-2 thru 16, 18.xlsx.

93 *Direct Testimony of Michael P. Gorman*, Indiana Utility Regulatory Commission, Cause No. 44075 at 23 (Apr. 27, 2012).

Q 70 Are the GDP growth rates referenced by Mr. Gorman or Mr. Knecht supported by expectations for the utility industry?

A 70 No. As Mr. Gorman recognized, growth is in part created by "additional rate base investment."[94] Contrary to Mr. Gorman's assertion that trends in utility investment will somehow mirror GDP, investors recognize that the electric utility industry has entered a long-term cycle of significant capital spending on utility infrastructure. As noted in my direct testimony and documented by Mr. Hill,[95] the investment community understands that utilities are facing the prospect of a long-term commitment to infrastructure investment associated with meeting environmental mandates, enhancing the transmission grid, and otherwise meeting reliability needs.

S&P recently noted that despite slow economic growth, capital spending in the electric utility industry is rising significantly,[96] with Mr. Gorman's own source noting that the electric utility industry "may boost capex spending by 30% in the years ahead."[97] This long-term cycle of capital investment and its implications for investors' growth expectations contradicts Mr. Gorman's and Mr. Knecht's suppositions regarding GDP growth and supports the reasonableness of the analysts' growth estimates referenced in my direct testimony.

Q 71 Does the example that Mr. Gorman presents in Table 4 to his direct testimony provide any link between GDP growth rates and investors' expectations?

A 71 No. There is no relationship between Mr. Gorman's mathematical exercise and real-world expectations, just as there is no evidence that investors view GDP growth as a ceiling when evaluating common stocks. Beyond the first year of Mr. Gorman's example, he assumes that utility plant additions will grow at the rate of inflation, which clearly is not in-line with what the investment community is anticipating. As shown in Schedule WEA-15, assuming a 5-year cycle of capital spending identical to the initial year of

94 Gorman Direct at 18.

95 Hill Direct at 77-78.

96 Standard & Poor's Corporation, "U.S. Utilities' Capital Spending Is Rising, And Cost Recovery Is Vital," *RatingsDirect* (May 14, 2012).

97 Gorman Direct at 8.

Mr. Gorman's example produces growth rates that are consistently higher than GDP.

Q 72 Is there a computational error that also biases Mr. Gorman's multi-stage DCF cost of equity estimates downward?

A 72 Yes. Under his multi-stage DCF approach, Mr. Gorman predicted the cash flows that would accrue to investors over the next 200 years. To arrive at his cost of equity estimates, Mr. Gorman used the internal rate of return (IRR) function available in Microsoft's Excel spreadsheet program to determine the discount rate (*i.e.*, investors' required rate of return) that would equate these cash flows with the current market price of the stock. This IRR calculation, however, assumes that annual cash flows are received at the end of each year, which is inconsistent with the periodic dividend payments that investors receive and results in a downward bias in the implied cost of equity.

Q 73 Is the two-stage DCF approach presented in Schedule DJL-29 to Mr. Lawton's testimony subject to these same criticisms?

A 73 Yes. While Mr. Lawton argues that, "it is often the case where short-term growth estimates are not consistent with long-term sustainable growth projections,"[98] he presents no evidence to suggest that investors share his view. Moreover, Mr. Lawton's two-stage DCF analysis did not rely on any alternative growth rate projections to capture his supposed distinction between short and long-term growth expectations. As Mr. Lawton granted, "For the two-stage DCF I employ the same price, dividend, and growth rate data as employed on the constant growth DCF analysis described above."[99] Finally, because Mr. Lawton's application of the multi-stage DCF model relied on the same IRR function used by Mr. Gorman, it builds in the same inaccuracy and downward bias.

Q 74 What do you conclude based on your review of Intervenors' DCF analyses?

A 74 Historical growth measures do not reflect investors forward-looking expectations, trends in DPS are distorted by fundamental changes in industry financial policies, and Intervenors failed to evaluate the underlying

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98 Lawton Direct at 37.

99 *Id.* at 37.

reasonableness of individual growth rates. In addition, the calculations used to arrive at Dr. Woolridge's and Mr. Hill's internal growth rates are flawed and incomplete, and the multi-stage DCF analyses presented by Messrs. Gorman, Lawton, and Knecht lack any demonstrable connection to investors' expectations and contain computational errors. As a result, the DCF cost of equity estimates presented by Intervenors are biased downward and fail to reflect investors' required rate of return.

G. Criticisms Of Analysts' Growth Rates Are Misguided

Q 75 Should the Commission give any credence to the allegations of Dr. Woolridge and Mr. Hill that projected EPS growth rates are biased?

A 75 No. Despite the fact that he relied on analysts' projections in applying the DCF model, Dr. Woolridge devoted over ten pages of his testimony to argue the misguided notion that analysts' EPS growth rates are "overly optimistic and upwardly biased."[100] But in applying the DCF model to estimate the cost of equity, the only relevant growth rate is the forward-looking expectations of investors that are captured in current stock prices. Any claim that analysts' estimates are not relied upon by investors is 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 would be irrational for investors to pay for these estimates. Similarly, those financial analysts who fail to provide credible forecasts will lose out in competitive markets relative to those analysts whose forecasts are favored by investors. The reality that analyst estimates are routinely referenced in the financial media and in investment advisory publications implies that investors *do* use them as a basis for their expectations.

The continued success of investment services such as IBES and Value Line, and the fact that projected growth rates from such sources are widely referenced, provides strong evidence that investors give considerable weight to analysts' earnings projections in forming their expectations for future growth. Earnings growth projections of security analysts provide the most frequently referenced guide to investors' views and are widely accepted in applying the DCF model.

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100 Woolridge Direct at Appendix A. Mr. Hill makes similar arguments at pp. 39-42.

Q 76 Does the fact that analysts' EPS projections may deviate from actual results hamper their use in applying the DCF model, as Dr. Woolridge contends?[101]

A 76 No. 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. 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. Moreover, as discussed earlier, there is every indication that expectations for earnings growth are instrumental in investors' evaluation and the fact that analysts' projections deviate from actual results provides no basis to ignore this relationship.

Comparisons between forecasts of future growth expectations and the historical trend in actual earnings are largely irrelevant in evaluating the use of analysts' projections in the DCF model. For example, Dr. Woolridge references a study he conducted based on just such a historical comparison.[102] But as noted above, the investment community can only make decisions based on their best estimate of what the future holds in the way of long-term growth for a particular stock, and the fact that actual results may eventually deviate from forecasts says nothing about whether investors rely on analysts' projections. In using the DCF model to estimate investors' required returns, the purpose is not to prejudge the accuracy or rationality of investors' growth expectations. Instead, to accurately estimate the cost of equity we must base our analyses on the growth expectations investors actually used in determining the price they are willing to pay for common stocks – even if we do not agree with their assumptions. Indeed, despite the findings of his research, Dr. Woolridge reportedly "remains somewhat puzzled that so many continue to put great weight in what [analysts] have to

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101 *Id.*

102 *Id.* at Appendix A.

say."[103] As Robert Harris and Felicia Marston noted in their article in *Journal of Applied Finance*:

> …Analysts' optimism, if any, is not necessarily a problem for the analysis in this paper. If investors share analysts' views, our procedures will still yield unbiased estimates of required returns and risk premia.[104]

Similarly, there is no logical foundation for criticisms such as those raised by Dr. Woolridge that the purported upward bias of analysts' growth rates limits their usefulness in applying the DCF model. If investors base their expectations on these growth rates, then they are useful in inferring investors' required returns – even if the analysts' forecasts prove to be wrong in hindsight.[105]

Q 77 Do the selected articles referenced by Dr. Woolridge in support of his contention that analysts are overly optimistic paint a complete picture of the financial research in this area?

A 77 No. In contrast to Dr. Woolridge's assertions, peer-reviewed empirical studies do not uniformly support his contention that analysts' earnings projections are optimistically biased. For example, a study reported in "Analyst Forecasting Errors: Additional Evidence" found no optimistic bias in earnings projections for large firms (market capitalization of \$500-\$3,000 million), with data for the largest firms (market capitalization > \$3,000 million) demonstrating a *pessimistic* bias.[106] Similarly, a 2005 article that examined analyst growth forecasts over the period 1990 through 2001 illustrated that Wall Street's forecasting is not inherently optimistic. Other

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103 Boselovic, Len, "Study Finds Analysts' Forecasts Have Been Too Sunny," *Pittsburgh Post-Gazette* (Mar. 30, 2008).

104 Harris, Robert S. and Marston, Felicia C., "The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts," *Journal of Applied Finance* 11 (2001) at 8.

105 I began my military career in the Navy in the weather office at a Naval Air Station. Using the best methods then available, we provided pilots with weather forecasts for their flight plans. In hindsight we were not very accurate, but I do not recall any pilot ignoring our forecast in planning a mission. In finance, as in weather, no one **knows** the future. But no one can afford to ignore the best available forecasts.

106 Brown, Lawrence D., "Analyst Forecasting Errors: Additional Evidence," *Financial Analysts Journal* (November/December 1997).

research on this topic also concludes that there is no clear support for the contention that analyst forecasts contain upside bias.[107]

Q 78 Did Dr. Woolridge provide any meaningful support for his allegation that Value Line forecasts are "overly optimistic"?

A 78 No. Dr. Woolridge asserted his belief that Value Line projections have "a decidedly positive bias," based only on his personal belief that Value Line does not report a sufficient number of negative growth rates.[108] But a negative long-term growth rate implies a DCF cost of equity below the firm's dividend yield and is hardly representative of investors' expectations. As noted earlier, Mr. Lawton recognized that negative growth rates should be excluded in applying the DCF model.

Contrary to Dr. Woolridge's conclusion, Value Line is a well-recognized source in the investment and regulatory communities. For example, *Cost of Capital – A Practitioners' Guide*, published by the Society of Utility and Financial Analysts, noted that:

> [A] number of studies have commented on the relative accuracy of various analysts' forecasts. Brown and Rozeff (1978) found that Value Line was superior to other forecasts. Chatfield, Hein and Moyer (1990, 438) found, further "Value Line to be more accurate than alternative forecasting methods" and that "investors place the greatest weight on the forecasts provided by Value Line".[109]

Given the fact that Value Line is perhaps the most widely available source of information on common stocks, the projections of Value Line analysts provide an important guide to investors' expectations. As Mr. Lawton

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107 Ciccone, Stephen, "Trends in analyst earnings forecast properties," *International Review of Financial Analysis*, 14:2-3 (2005); Abarbanell, Jeffery and Reuven Lehavy, "Biased forecasts or biased earnings? The role of reported earnings in explaining apparent bias and over/under reaction in analysts earnings forecasts," *Journal of Accounting and Economics*, 36: 142 (2003). Similarly, while Dr. Woolridge cites a 2003 *Wall Street Journal* ("WSJ") article (Appendix A, fn. 15), an April 26, 2010 study reported in this publication contradicts his position. The WSJ concluded that analysts' earnings forecasts, "are actually too pessimistic when it comes to predicting company earnings, particularly in the wake of recession." Denning, Liam, "Wall Street's Missed Expectations," *Wall Street Journal* at C8 (Apr. 26, 2010).

108 Woolridge Direct at Appendix A, p. 13-14.

109 Parcell, David C., "The Cost of Capital – A Practitioner's Guide," *Society of Utility and Regulatory Financial Analysts* (1997) at 8-28.

concluded, "Value Line is widely available to the public, and is a good source of earnings projections."[110]

Moreover, in contrast to Dr. Woolridge's and Mr. Hill's unsupported claims of bias, the fact that Value Line is not engaged in investment banking or other sell-side relationships with the companies that it follows reinforces its impartiality in the minds of investors. Indeed, Value Line was among the providers of "independent research" that benefited from the Global Settlement cited by Dr. Woolridge (Appendix A, p. 10).[111]

H. CAPM Analyses Fail To Reflect A Realistic Market Risk Premium

Q 79 What is the fundamental problem associated with the approach that the Intervenors used to apply the CAPM?

A 79 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 data that reflects the expectations of actual investors in the market. Despite recognizing the inherent limitations of historical data, and rejecting historical information as unreliable,[112] the market risk premium used in Mr. Gorman's application of the CAPM – and those of Dr. Woolridge and Messrs. Lawton, Hill, and Knecht – was based entirely on *historical* rates of return, not current projections. *Morningstar* (formerly Ibbotson Associates) recognized the primacy of current expectations:

> The cost of capital is always an expectational or forward-looking concept. While the past performance of an investment and other historical information can be good guides and are often used to estimate the required rate of return on capital, the expectations of future events are the only factors that actually determine cost of capital.[113]

Because they failed to look directly at the returns investors are currently requiring in the capital markets, the CAPM estimates developed by

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110 Lawton Direct at 35.

111 Tsao, Amy, "The New Era of Indie Research," *Business Week Online Edition* (June 12, 2003).

112 Gorman Direct at 16.

113 Morningstar, *Ibbotson SBBI, 2011 Valuation Yearbook* at 21.

these witnesses fall woefully short of investors' current required rate of return.

Q 80 Dr. Woolridge attempts to characterize CAPM study as incorporating a "contemporaneous market risk premium." Is this an accurate assessment?

A 80 No. In order to be considered a forward-looking, *ex ante* estimate of the current market risk premium, the analysis must be predicated on investors' current expectations. Dr. Woolridge did not attempt to develop a market risk premium using current capital market information. Rather, he simply presented the results of various studies and surveys conducted in the past. Certain of these studies may have attempted to infer the equity risk premium using expected data at the time they were developed, but expectations at some point in the past are not equivalent to investors *ex ante* requirements in capital markets today.

Q 81 Is there good reason to entirely disregard the results of historical CAPM analyses such as those presented by Intervenors?

A 81 Yes. As explained in my direct testimony, applying the CAPM is complicated by the impact of the recent capital market turmoil and recession on investors' risk perceptions and required returns.[114] The CAPM cost of common equity estimate is calibrated from investors' required risk premium between Treasury bonds and common stocks. As discussed earlier and in my direct testimony, in response to heightened uncertainties, investors have repeatedly sought a safe haven in U.S. government bonds and this "flight to safety" has pushed Treasury yields significantly lower while yield spreads for corporate debt widened. This distortion not only impacts the absolute level of the CAPM cost of equity estimate, but it also affects estimated risk premiums. Economic logic would suggest that investors' required risk premium for common stocks over Treasury bonds has also increased.

Meanwhile, the backward-looking approaches used by the Intervenors incorrectly assume that investors' assessment of the relative risk differences, and their required risk premium, between Treasury bonds and common stocks is constant and equal to some historical average. At no time in recent history has the fallacy of this assumption been demonstrated

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114 Avera Direct at 2-33 –2-36.

more concretely. This incongruity between investors' current expectations and requirements and historical risk premiums is particularly relevant during periods of heightened uncertainty and rapidly changing capital market conditions, such as those experienced recently.

As a result, there is every indication that the historical CAPM approach fails to fully reflect the risk perceptions of real-world investors in today's capital markets, which would violate the standards underlying a fair rate of return by failing to provide an opportunity to earn a return commensurate with other investments of comparable risk. As the Staff of the FPSC concluded:

> [R]ecognizing the impact the Federal Government's unprecedented intervention in the capital markets has had on the yields on long-term Treasury bonds, staff believes models that relate the investor-required return on equity to the yield on government securities, such as the CAPM approach, produce less reliable estimates of the ROE at this time.[115]

Q 82 Did Dr. Woolridge also recognize the frailties of the historical CAPM approach?

A 82 Yes. Dr. Woolridge noted that *ex-post*, historical rates of return "are not the same as *ex-ante* expectations," and observed that, "The use of historical returns as market expectations has been criticized in numerous academic studies."[116] Dr. Woolridge granted that "risk premiums can change over time ... such that *ex post* historical returns are poor estimates of *ex ante* expectations."[117] Finally, Dr. Woolridge recently testified that his historical CAPM approach provides "a less reliable indication of equity cost rates for public utilities."[118] Similarly, Mr. Hill concluded, "the CAPM analysis may not be a reliable primary indicator of equity capital costs."[119]

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115 *Staff Recommendation for Docket No. 080677-E1 - Petition for increase in rates by Florida Power & Light Company*, at p. 280 (Dec. 23, 2009).

116 Woolridge Direct at 4-41.

117 *Id.*

118 *Direct Testimony of J. Randall Woolridge,* Docket No. 120015-EI, Florida Public Service Commission (July 2, 2012) at 26.

119 Hill Direct at 55.

Q 83 Is there evidence that the studies and surveys referenced by Dr. Woolridge and Mr. Hill do not reflect investors' expectations?

A 83 Yes. The vast majority of the results of the equity risk premium studies reported by Dr. Woolridge do not make economic sense and contradict his own testimony. For example, page 5 of Dr. Woolridge's Exhibit JRW-11 reveals that almost two-thirds of the historical studies included in Dr. Woolridge's review found market equity risk premiums of approximately 5.0% or below.[120] This was also true for over one-half of the individual risk premium studies that Dr. Woolridge relied on directly to apply the CAPM.[121] But combining a market equity risk premium of 5.0% with Dr. Woolridge's 4.0% risk-free rate results in an indicated cost of equity for the <u>market as a whole</u> of 9.0%, which exceeds Dr. Woolridge's ROE recommendations for PG&E in this case by a meager 25 basis points. Many of his other benchmarks for the market rate of return fall *below* the anemic cost of equity he recommends for PG&E. For example, Dr. Woolridge conjures a <u>market</u> rate of return of 7.9% based on his "building blocks" approach,[122] which falls 85 basis points *below* his recommended ROE in this case.

Meanwhile, after noting that beta is the only relevant measure of investment risk under modern capital market theory, Dr. Woolridge concluded that his comparison of beta values (Exhibit JRW-8) indicates that investors' required return on the market as a whole should exceed the cost of equity for electric utilities.[123] Based on Dr. Woolridge's own logic, it follows that a market rate of return that does not exceed his own downward biased ROE recommendation by a significant margin has no relation to the current expectations of real-world investors. The fact that much of his CAPM "evidence" violates the risk-return tradeoff that is fundamental to finance clearly illustrates the frailty of Dr. Woolridge's analyses.

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120 Similarly, Dr. Woolridge reported equity risk premiums of 4.5%, 2.8%, and 5.0% (p. 4-43) based on selected surveys.

121 Exhibit JRW-11, p. 6.

122 Exhibit JRW-11, p. 7. Similarly, Dr. Woolridge reported market rates of return of 6.8% and 6.3% from the selected surveys cited at pages B-4 and B-5 of his testimony.

123 Woolridge Direct Testimony at 2-16.

Q 84 Mr. Hill cites the results of a single survey to support his view that your market risk premium is "overstated."[124] Do these survey results reflect investors' expectations?

A 84 No. The market return and 4.0% equity risk premium reported by Mr. Hill do not make economic sense in light of current capital market conditions, and they actually contradict his own testimony. Combining a market equity risk premium of 4.0% with average yield on 30-year Treasury bonds for July 2012 of 2.6% results in an indicated cost of equity for the <u>market as a whole</u> of 6.6%, which is 2.4% *below* Mr. Hill's ROE recommendation for PG&E in this case.

While Mr. Hill's beta value of 0.68 (Schedule 7) suggests that his proxy companies are less risky that the market as a whole, the survey data contradicts the natural conclusion that electric utilities should have returns that are lower – not higher – than the market as a whole. Based on this fundamental risk-return tradeoff principle that underlies our understanding of investor behavior, it follows that a market rate of return that does not exceed his own downward biased ROE recommendation has no relation to the current expectations of real-world investors.

Q 85 Mr. Hill (p. 104) points out that you have relied on historical realized rates of return to apply the CAPM in the past. Please respond.

A 85 Mr. Hill is correct that I have used historical realized rates of return in prior testimony, but any implication that my position is inconsistent is baseless. As I noted in my testimony in PG&E's last cost of capital proceeding:

> While reference to historical data represents one way to apply the CAPM, these realized rates of return reflect, at best, an indirect estimate of investors' current requirements. The cost of capital is a forward-looking, or expectational concept that is focused on the perceptions of today's capital market investors. While past investment returns are frequently referenced and may provide a useful benchmark, the only factors that actually determine the current required rate of return are investors' expectations for the future. As a result, forward-looking applications of the CAPM that look directly at investors' expectations in the capital markets are apt to provide a more meaningful guide to investors' required rate of return.[125]

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[124] Hill Direct at 104-105.

[125] *Direct Testimony of William E. Avera*, Application 07-05-003 at 2-26.

Since that time, the financial market crisis and ensuing recession have resulted in dramatic shifts in capital market relationships, including a precipitous drop in Treasury bond yields in response to investors' flight to safety and Federal Reserve policies – all of which were discussed at length in my direct testimony and earlier here. These developments have made any reliance on historical returns to apply the CAPM untenable.

Q 86 Do the risk premiums presented by Mr. Marcus (pp. 54-61) mark any improvement on Dr. Woolridge's and Mr. Hill's distorted guidance about "the market risk premium in the real world?"

A 86 No. The ad hoc selection of citations from the press and financial literature that Mr. Marcus cites in defense of his position that the equity risk premium used in my CAPM analysis is "well above reasonable" suffer from the same fundamental flaw – namely, the implied market returns are at odds with any notion of a reasonable return and contradict Intervenors' own findings, including the recommendations of TURN's ROE witness, Mr. Lawton.

For example, Mr. Marcus (p. 55-56) cites a market risk premium range of 0.5% to 4.0% from a WSJ report. The 2.25% midpoint of this range, when combined with Mr. Lawton's beta and risk-free rate,[126] results in an implied cost of equity for an electric utility of 5.54%, which is essentially equal to the yields available on long-term bonds and falls some 380 basis points below TURN's recommended ROE. Other data reported by Mr. Marcus result in similar, nonsensical cost of equity estimates.

Mr. Marcus cites an academic article that concludes, "risk premium estimates of between 2% and 3% would otherwise be reasonable based on history, but that a risk premium of closer to 1% would be more reasonable."[127] The "real world" implications of Mr. Marcus' evidence is an implied cost of equity for the utilities in Mr. Lawton's proxy group of 4.6%,[128] which is less than the returns to less-risky long-term bonds, and barely exceeds Mr. Lawton's risk-free rate.

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126 Schedule DJL-30.

127 Marcus Direct at 28.

128 Calculated as (1% x 0.73) + 3.9%.

Q 87 Aside from the fact that the data cited by Mr. Marcus implies market returns and utility cost of equity estimates that do not make any economic sense, are there other fundamental problems with his approach?

A 87 Yes. As discussed earlier, the cost of equity is a forward-looking concept, and the pitfalls of historical information have been well documented. Nevertheless, Mr. Marcus is suggesting that a Barron's article from 2005 can provide an appropriate substitute for my estimate of the market risk premium, which is predicated directly on current market expectations. Similarly, historical articles from the financial literature, such as the 2002 publication underlying the 2.4% historical equity risk premium cited by Mr. Marcus (p. 57), do not provide any guidance as to the equity risk premium in the real world of today's investor.

Q 88 Dr. Avera, are you in any way alleging that all these studies and surveys are incorrect?

A 88 No, not at all. I am challenging the inferences that Dr. Woolridge and Mr. Marcus draw from them, and the particular use being made of the cited studies. The point that I am making is that there is more than one way to define and calculate an equity risk premium. The problem with the approach used by Dr. Woolridge and Mr. Marcus is that, instead of looking directly at an equity risk premium based on current expectations – which is what is required in order to properly apply the CAPM – they undertake an unrelated exercise of compiling a list of selected computations culled from the historical record. Average realized risk premiums computed over some selected time period may be an accurate representation of what was actually earned in the past, but they do not answer the question as to what risk premium investors were actually expecting to earn on a forward-looking basis during these same time periods. Similarly, calculations of the equity risk premium developed at a point in history – whether based on actual returns in prior periods or contemporaneous projections – are not the same as the forward-looking expectations of today's investors, which are premised on an entirely different set of capital market and economic expectations.

Likewise, surveys of selected corporate executives or economists, or building blocks based on academic research, are not equivalent to investors' required returns in the coming period. Since the benchmark for a fair ROE requires that the utility be able to compete for capital in the current capital market, the relevant inquiry is to determine the return that real world investors in today's markets require from PG&E in order to compete for capital with other comparable risk alternatives. In short, while there are many potential definitions of the equity risk premium, the only relevant issue for application of the CAPM in a regulatory context is the return investors currently expect to earn on money invested today in the risky market portfolio versus the risk-free U.S. Treasury alternative.

Q 89 Was Dr. Woolridge (Exhibit JRW-11, p. 5-6) or Mr. Lawton (Table 8) justified in relying on geometric means as a measure of average rate of return when applying the historical CAPM?

A 89 No. While both the arithmetic and geometric means are legitimate measures of average return, they provide different information. Each may be used correctly, or misused, depending upon the inferences being drawn from the numbers. The geometric mean of a series of returns measures the constant rate of return that would yield the same change in the value of an investment over time. The arithmetic mean measures what the expected return would have to be each period to achieve the realized change in value over time.

In estimating the cost of equity, the goal is to replicate what investors expect going forward, not to measure the average performance of an investment over an assumed holding period. When referencing realized rates of return in the past, investors consider the equity risk premiums in each year independently, with the arithmetic average of these annual results providing the best estimate of what investors might expect in future periods. As *Morningstar* concluded

> For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. … The geometric average is more appropriate for reporting past performance, since it represents the compound average return.[129]

[129] Morningstar, *Ibbotson SBBI 2011 Valuation Yearbook* at 56.

I certainly agree that both geometric and arithmetic means are useful, since my Ph.D. dissertation was on the usefulness of the geometric mean.[130] But the issue is not whether both measures can be useful; it is which one fits the use for a forward-looking CAPM in this case. One does not have to get deeply into finance theory to see why the arithmetic mean is more appropriate to use in a forward-looking CAPM analysis. The CPUC is not setting a constant return that PG&E is guaranteed to earn over a long period. Rather, the exercise is to set an expected return based on test year data. In the real world, PG&E's yearly return will be volatile, depending on a variety of economic and industry factors, and investors do not expect to earn the same return each year.

The usefulness of the arithmetic mean for making forward-looking estimates was confirmed in *Quantitative Investment Analysis* (2007), one of the textbooks included in the study curriculum for the Chartered Financial Analyst designation. The authors of this text concluded that the arithmetic mean is the appropriate measure when calculating an expected equity risk premium in a forward-looking context.[131] Just as importantly, by relying directly on expectations and estimates of investors' required rate of return, as incorporated in the CAPM analysis presented in my direct testimony, there is no need to debate the merits of geometric versus arithmetic means, because neither is required to apply this forward-looking approach.

Q 90 What does this imply with respect to the CAPM analyses of Dr. Woolridge and Mr. Lawton?

A 90 For a variable series, such as stock returns, the geometric average will always be less than the arithmetic average. Accordingly, Dr. Woolridge's and Mr. Lawton's reference to geometric average rates of return provides yet another element of built-in downward bias.

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130 William E. Avera, *The Geometric Mean Strategy as a Theory of Multiperiod Portfolio Choice* (1972).

131 DeFusco, Richard A., Dennis W. McLeavey, Jerald E. Pinto, and David E. Runkle, *Quantitative Investment Analysis*, John Wiley & Sons, Inc. (2007) at 128.

Q 91 Does the risk premium that Dr. Woolridge (Exhibit JRW-11, p. 6) and Mr. Lawton (Table 8) derive from *Morningstar* data comport to what this publication reports?

A 91 No. *Morningstar* computes the equity risk premium by subtracting the arithmetic mean income return (not the total return) on long-term Treasury bonds from the arithmetic average return on common stocks. As *Morningstar* explained:

> Price changes in bonds due to unanticipated changes in yields introduce price risk into the total return. Therefore, the total return on the bond series does not represent the riskless rate of return. The income return better represents the unbiased estimate of the purely riskless rate of return, since an investor can hold a bond to maturity and be entitled to the income return with no capital loss.[132]

In other words, *Morningstar* concluded that using only the income component of the long-term government bond return provides a more reliable estimate of the expected risk premium because investors do not anticipate capital losses for a risk-free security. Dr. Woolridge and Mr. Gorman, however, calculated their equity risk premium using the *total* return for *Morningstar's* long-term government bond series. As a result, the equity risk premium falls far below what their own data source reports and the resulting CAPM cost of equity estimates are understated.

Q 92 What equity risk premium does *Morningstar* report?

A 92 The most recent edition of this source calculates the long-horizon equity risk premium by subtracting the arithmetic mean average income return on long-term Treasury bonds of 5.15% from the arithmetic mean average return on the S&P 500 of 11.77%, resulting in an equity risk premium of 6.62%.[133] This is significantly greater than the 5.7% and 6.1% values used by Dr. Woolridge and Mr. Lawton, respectively.

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[132] Morningstar, *Ibbotson SBBI, 2010 Valuation Yearbook* at 56.

[133] *Id.* at 54.

Q 93 What is the primary difference between Mr. Gorman's "forward-looking" CAPM analysis and the approach described in your direct testimony?

A 93 As Mr. Gorman observed, the appropriate "R_m" to use in applying the CAPM is the "[e]xpected return for the market portfolio."[134] The fundamental difference between my approach and that of Mr. Gorman is that, while my analysis actually looked to the future return expectations of investors in the capital markets, Mr. Gorman's "forward-looking" CAPM was actually based almost entirely on historical data. Mr. Gorman explained:

> I estimated the expected return on the S&P 500 by adding an expected inflation rate to the long-term historical arithmetic average real return on the market.[135]

In other words, the relatively small portion of Mr. Gorman's "forward-looking" market return constituting inflation was based on projected data, but the actual return on the market itself was completely backward looking. Thus, Mr. Gorman essentially predicated his CAPM analysis on two risk premiums based on historical data. Neither one of these approaches is consistent with the assumptions of the CAPM because as noted above, the CAPM seeks to determine the expected return, and is predicated on the forward-looking expectations of investors. Therefore, Mr. Gorman's use of historical returns in the CAPM is inconsistent with the underlying assumptions of the model.

Similarly, while Mr. Lawton refers to his market risk premium as a "forward estimate,"[136] it was based purely on historical, backward-looking data.

Q 94 What about the criticisms of the Intervenors that your forward-looking estimate of the market rate of return is too high?

A 94 The use of forward-looking expectations in estimating the market risk premium is well accepted in the financial literature. For example, in "The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts" [*Journal of Applied Finance*, Vol. 11 No. 1, 2001], Robert S. Harris and Felicia C. Marston employed the DCF model and earnings growth

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134 Gorman Direct at 32.

135 *Id.* at 34 (emphasis added).

136 Lawton Direct at 41).

projections from IBES – just as I did in my direct testimony. The Intervenors criticisms of my forward-looking CAPM approach seem to hinge on the fact that this method produces an equity risk premium for the S&P 500 that is considerably higher than their historical benchmarks – the majority of which produce illogical results.

But estimating investors' required rate of return by reference to current, forward-looking data, as I have done, is entirely consistent with the theory underlying the CAPM methodology. As noted above, 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 required rates of return, the CAPM is best-applied using data that reflects the expectations of actual investors in the market. Rather than look backwards to a risk premium based largely on historical data, as the Opposing Witnesses suggest, my analysis appropriately focused on the expectations of actual investors in today's capital markets.

All quantitative methods used to estimate the cost of equity have their own strengths and weakness. The Intervenors do not suggest that the CAPM model is "wrong" to focus on forward-looking projections instead of backward, historical results, nor do they claim that looking to the future, as I have done, is a misapplication of the CAPM. Instead, they simply believe that the result of applying the CAPM in a manner that is consistent with the underlying assumptions produces a result that they view as being too high. But the application of alternative methods is not a process of deviating from the underlying assumptions of the model until the results are consistent with those produced using an alternative approach.

Q 95 Have other regulators relied on a forward-looking CAPM approach similar to the one presented in your direct testimony?

A 95 Yes. I based my CAPM approach on the methods used by the Staff at the Illinois Commerce Commission, whose witnesses have routinely relied on a forward-looking market rate of return estimate to apply the CAPM. For example, Illinois Staff witness Rochelle Langfeldt employed an expected market return of 15.31% based on an analysis analogous to the approach described in my direct testimony:

> Q. How was the expected rate of return on the market portfolio estimated?
>
> A. The expected rate of return on the market was estimated by conducting a DCF analysis on the firms composing the S&P 500 Index ("S&P 500"). … Firms not paying a dividend as of June 28, 2001, or for which neither Zacks nor IBES growth rates were available were eliminated from the analysis. The resulting company-specific estimates of the expected rate of return on common equity were then weighted using market value data from Salomon Smith Barney, Performance and Weights of the S&P 500: Second Quarter 2001. The estimated weighted averaged expected rate of return for the remaining 365 firms composing 78.31% of the market capitalization of the S&P 500 equals 15.31%.[137]

Q 96 Does correcting the historical CAPM applications of the Intervenors confirm that their market risk premiums are far too low?

A 96 Yes. Application of the CAPM to the firms in Dr. Woolridge's, Messrs. Gorman and Lawton, and Mr. Hill's proxy groups based on a forward-looking estimate for investors' required rate of return from common stocks is presented on Schedule WEA-16. 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 based on the year-ahead projections obtained from Value Line. The growth rate was equal to the earnings growth projections for each firm published by IBES, 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 10.8%. Combining this average growth rate with the average Value Line dividend yield of 2.5% results in a current cost of common equity estimate for the market as a whole (R_m) of approximately 13.3%. Subtracting a 2.7% risk-free rate based on the average yield on 30-year Treasury bonds produced a market equity risk premium of 10.6%.

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137 Direct Testimony of Rochelle Langfeldt, Illinois Commerce Commission Docket No. 01-0423 at 23-24 (2001).

Q 97 Did the Intervenors fail to consider other important factors in evaluating the CAPM?

A 97 Yes. As noted in my direct testimony,[138] empirical research indicates that the CAPM does not fully account for observed differences in rates of return attributable to firm size. To account for this, *Morningstar* – a source relied on by Dr. Woolridge, Mr. Lawton, and Mr. Hill – has 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. Accordingly, my revisions to the Intervenors' CAPM analyses incorporated an adjustment to recognize the impact of size distinctions, as measured by the average market capitalization. As Mr. Knecht granted, "A firm-size adjustment reflects the fact that small firms generally earn returns above those based on betas computed from historic data."[139]

Q 98 Do the arguments advanced by Intervenors undermine the need for this adjustment?

A 98 No. Mr. Gorman simply observes that the average beta associated with the lower size deciles examined by *Morningstar* is greater than 1.00.[140] While I don't dispute the observation, this fact has no relevance whatsoever to the implications of *Morningstar's* findings regarding the impact of firm size. The fact that the average beta for smaller size deciles is greater than 1.00 says nothing about the range of individual beta values underlying this average. While the size premiums reported by *Morningstar* were not estimated on an industry-by-industry basis, this provides no basis to ignore this relationship in estimating the cost of equity for utilities. Utilities are included in the companies used by *Morningstar* to quantify the size premium, and firm size has important practical implications with respect to the risks faced by investors in the utility industry.

Similarly, Mr. Hill's and Dr. Woolridge's arguments concerning the implications of "survivor bias" are equally misplaced.[141] The expected

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138 Avera Direct at 2-32.

139 Knecht Direct at 27.

140 Gorman Direct at 46; Baudino Direct at 56.

141 Hill Direct at 106; Woolridge Direct at 5-64.

returns of failed companies that are in decline or go out of business are irrelevant to the question of whether or not the CAPM fully accounts for investors' risk perceptions when applied to companies included in broad market indices, such as those reflected in *Morningstar's* analysis. The companies in the proxy groups used by all of the witnesses are not start-ups – they are seasoned utilities that have been publicly traded for many years, just like the listed companies in the *Morningstar* data base. The arguments relative to survivor bias may have been relevant to the studies in the 1980's and 1990's, but they do not take away from the solid empirical basis of the size adjustment reported by *Morningstar* that are all based on surviving companies.

Further, it is not necessary to use the historical market risk premium from *Morningstar* to correctly apply the size adjustment. As noted in the reference in my direct testimony, *Morningstar's* size adjustment is based on empirical research using their return data and betas.[142] There is no reason the size differential could not be properly applied to a CAPM using forward-looking risk premiums, as I have done. Moreover, the fact that the impact of firm size may be more pronounced in certain months during the year or may vary over time provides no basis to ignore a well-established market phenomenon, since returns are calculated on an annual basis for the ROE used in regulation and in the CAPM.

Q 99 Does this size adjustment apply to utilities?

A 99 Yes. I grant that there are any number of specific factors that distinguish a utility's risks from other firms in the non-regulated sector, just as there are important distinctions between the circumstances faced by airlines and drug manufacturers. But under the assumptions of modern capital market theory on which the CAPM rests, these considerations are reduced to a single risk measure – beta – which captures stock price volatility relative to the market.[143] Within the CAPM paradigm, the degree of regulation, the nature of competition in the industry, the competence of management, and every other firm-specific consideration is boiled down to a single question; namely,

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142 Avera Direct at 2-32.

143 Dr. Woolridge also recognized that beta is the only relevant risk measure within the context of the CAPM. Woolridge Direct at 2-16.

how much does the stock's price fluctuate in relation to the market as a whole? Beta is the measure of that variability, and research demonstrates that beta does not fully account for the impact of firm size.

Q 100 What cost of equity estimates were indicated by correcting the CAPM applications of Intervenors?

A 100 As shown on page 1 of Schedule WEA-16, application of the forward-looking CAPM approach resulted in an unadjusted ROE of 10.7% for the firms in Dr. Woolridge's proxy group, or 11.5% after adjusting for the impact of firm size. As shown on page 2 of Schedule WEA-16, this CAPM approach also implied an unadjusted CAPM result of 10.7% for the proxy group of Messrs. Gorman and Lawton, and an adjusted ROE of 11.2%. Finally, correcting Mr. Hill's CAPM analysis resulted in cost of equity estimates of 10.2% and 11.2% (Schedule WEA-16, page 3).

I. Risk Premium Applications Are Incomplete

Q 101 Do the results of the risk premium approach based on authorized returns applied by Mr. Gorman and Mr. Lawton provide a reliable guide to a fair ROE for PG&E?

A 101 No. Mr. Gorman subjectively chose to truncate the data available to apply his risk premium approach by ignoring all observations prior to 1986, while Mr. Lawton relied on data beginning in 1980. Mr. Gorman explained that he selected his time period "because public utility stocks consistently traded at a premium to book value over that period,"[144] but such manipulation of this data runs counter to the assumptions underlying the study of historical risk premiums. Ibbotson Associates (now *Morningstar*) noted the pitfalls of such a subjective approach:

> Some analysts estimate the expected risk premium using a shorter, more recent time period on the basis that recent events are more likely to be repeated in the near future … This view is suspect …[145]

By choosing a truncated time period for their risk premium studies, Mr. Gorman and Mr. Lawton unnecessarily introduce a subjective bias that taints their analyses and artificially lowers their results.

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[144] Gorman Direct at 28.

[145] Ibbotson Associates, *2005 Yearbook, Valuation Edition* at 80.

Q 102 What other flaws are associated with Mr. Gorman's risk premium application?

A 102 Mr. Gorman failed to incorporate the inverse relationship between interest rates and equity risk premiums in his analysis of historical authorized rates of return. There is considerable empirical evidence that when interest rates are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums are greater. This inverse relationship between equity risk premiums and interest rates has been widely reported in the financial literature.

The CPUC also recognizes that the cost of equity does not move in tandem with interest rates, and its long-standing practice has been to adjust the cost of equity by one-half to two-thirds of the change in bond yields.[146] Similarly, Mr. Lawton also recognized the imperative of incorporating the impact of this fundamental relationship when applying the risk premium approach.[147]

As shown on Mr. Gorman's Exhibit MPG-13, current interest rates are significantly less than those prevailing in the late 1980s and early 1990s. Given that interest rates are currently lower than the average over his study period, current equity risk premiums should be relatively higher, which Mr. Gorman's analysis entirely ignores.

J. No Basis To Disregard Non-Utility Group

Q 103 Intervenors reject any reference to non-utility companies in evaluating a fair ROE for PG&E. Please respond.

A 103 These witnesses dismiss out of hand my analysis of the cost of equity for non-utility firms based only on the faulty premise that these companies have higher risk. The implication that an estimate of the required return for firms in the competitive sector of the economy is not useful in determining the appropriate return to be allowed for rate-setting purposes is wrong and inconsistent with investor behavior, and the *Bluefield* and *Hope* decisions.

The idea that investors evaluate utilities against the returns available from other investment alternatives – including the low-risk companies in my

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146 *See, e.g.,* Decision 08-05-035 (May 29, 2008).

147 Lawton Direct at Schedule DJL-8.

Non-Utility Group – is a fundamental cornerstone of modern financial theory. Aside from this theoretical underpinning, any casual observer of stock market commentary and the investment media quickly comes to the realization that investors' choices are almost limitless, and simple common sense supports the notion that utilities must offer a return that can compete with other risk-comparable alternatives, or capital will simply go elsewhere.

In fact, returns in the competitive sector of the economy form the very underpinning for utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets. True enough, utilities are sheltered from competition, but they undertake other obligations and lose the ability to set their own prices and decide when to exit a market. The Supreme Court has recognized that it is the degree of risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a utility.[148] Consistent with this view, Mr. Gorman, Mr. Lawton, and Mr. Knecht all noted the opportunity cost principle that underlies the Supreme Court's economic standards, and also recognized that returns should be commensurate with returns investors could earn by investing in other enterprises of comparable risk."[149] Similarly, Mr. Hill specifically acknowledged that, "The expected return, and the cost of equity capital, at its core, is an opportunity cost."[150]

My reference to a low-risk group of non-utility companies is entirely consistent with the guidance of the Supreme Court and the principles outlined in Mr. Gorman's, Mr. Hill's, Mr. Lawton's, and Mr. Knecht's testimony.

Q 104 You stated above that the Intervenors acknowledge that the concept of "opportunity cost" underlies the economic standards reflected in the supreme courts' *Bluefield* and *Hope* decisions. Are non-regulated firms important to the consideration of opportunity costs?

A 104 Absolutely. 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

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

149 Gorman Direct at 12. Knecht Direct at 18.

150 Hill Direct at 26.

of total common stock investment and there are a plethora of "other investment of similar risk"[151] available to investors beyond those in the utility industry. Mr. Hill specifically acknowledged that the allowed ROE should be "comparable to returns investors would expect <u>in the unregulated sector</u> for assuming the same degree of risk."[152]

Q 105 Does Dr. Woolridge apparently consider non-utility stock returns relevant to determining the cost of capital?

A 105 Indeed he does. Dr. Woolridge cites many studies of past and expected stock market returns in his testimony, including a list of over 30 studies included on Exhibit JRW-11. *Not one* of these studies is limited to utilities, and all include a predominance of non-utility common stocks, *e.g.,* the S&P 500 Index. Moreover, while Dr. Woolridge references a study of industry betas done at New York University that suggests utilities have lower risks than the average firm in the non-regulated sector,[153] this establishes nothing more than the obvious – while some unregulated firms have higher risks than utilities, others have lower risks. As documented in my direct testimony and discussed further in my rebuttal testimony, the firms in my Non-Utility Group are also in the lower range of risk as measured by objective, widely referenced benchmarks.

Q 106 Do the Intervenors raise any meaningful criticisms regarding the use of your Non-Utility Group?

A 106 No. The Intervenors inappropriately dismiss my analysis of the cost of equity for non-utility firms based only on the misguided notion that my Non-Utility Group "is much riskier than the utility industry."[154] Dr. Woolridge simply observes that the "lines of business are vastly different from the electric utility business and they do not operate in a highly regulated environment."[155] Intervenors ignored any comparison of accepted measures of investment risks, and instead simply noted that there are

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151 Lawton Direct at 7.

152 Hill Direct at 3 (emphasis added).

153 Woolridge Direct at 2-16.

154 Gorman Direct at 41. *See also*; Hill Direct at 93-94, Lawton Direct at 88.

155 Woolridge Direct at 5-55.

distinctions in the operating circumstances and degree of regulation between utilities and firms in the competitive sector.

My direct testimony did not contend that the operations of the companies in the Non-Utility Group are comparable to those of electric utilities. Clearly, operating a worldwide enterprise in the beverage, pharmaceutical, retail, or food industry involves unique circumstances that are as distinct from one another as they are from an electric utility. But as the Supreme Court recognized, investors consider the expected returns available from all these opportunities in evaluating where to commit their scarce capital. So long as the risks associated with my Non-Utility Group are comparable to PG&E and other utilities – and my direct testimony demonstrates conclusively that they are lower – the resulting DCF estimates provide a meaningful benchmark for the cost of equity.

My Non-Utility Group is comprised of 12 of the best-known and most stable corporations in America *and has risk measures that are comparable to, or less than the proxy group of utilities referenced in my analyses*. While these companies are not regulated to the same degree, they also do not bear the burdens of losing control over their prices, undertaking the obligation to serve, and having to invest in infrastructure even in unfavorable market conditions. PG&E cannot relocate its facilities to an area with a more attractive business climate or higher prospects for economic growth, or abandon customers when turmoil roils energy or capital markets. Investors are quite aware that utilities are not guaranteed recovery of reasonable and necessary costs incurred to provide service and that there are many instances in which utilities are unable to increase rates to fully recoup reasonable and necessary costs, resulting in an inability to earn the allowed ROE – and potentially, even bankruptcy. The simple observation that a firm operates in non-utility businesses says nothing at all about the overall investment risks perceived by investors, which is the very basis for a fair ROE.

Q 107 Did Intervenors present any objective evidence to support their contention that your Non-Utility Group is riskier than PG&E or your proxy group of electric utilities?

A 107 No. It is telling to recognize that these witnesses all acknowledged the relevance of the objective risk measure afforded by published credit ratings in evaluating the relative risk of other utilities.[156] For example, Dr. Woolridge noted that, "DRA is relying on bond ratings to assess the relative riskiness of the [California Energy Companies] relative to each other and the two proxy groups.[157] Similarly, Mr. Hill stated that bond ratings "are reliable indicators of relative common equity risk," that takes into account business as well as financial risks.[158] But when it came time to assess the comparable risks of my Non-Utility Group, Dr. Woolridge, Mr. Hill, and the other Intervenors failed to consider this commonly referenced benchmark.

Table 2-2 to my direct testimony (reproduced below) compares the Utility Group with the Non-Utility Group and PG&E across four key indicators of investment risk:

TABLE 2-2
COMPARISON OF RISK INDICATORS

	S&P	Value Line		
Proxy Group	**Credit Rating**	**Safety Rank**	**Financial Strength**	**Beta**
Utility	BBB+	2	B++	0.73
Non-Utility	A	1	A+	0.58
PG&E	BBB	3	B+	0.55

As shown above, the average corporate credit rating for the Non-Utility Group of "A" is <u>higher</u> than the "BBB+" average for the Utility Group and the "BBB" rating assigned to PG&E. As Mr. Hill acknowledged, I screened my Non-Utility Group "with risk criteria that are similar, on average, to

156 Woolridge Direct at Attachment JRW-4, p. 1; Gorman Direct at 13 and Schedule MPG-2; Hill Direct at Schedule 1; Lawton Direct at Schedule DJL-25.

157 Woolridge Direct at 3-26.

158 Hill Direct at 65.

utilities."[159] This analysis contradicts the unsupported assertions of Intervenors that the companies in my Non-Utility Group have higher risks.

Given that Value Line is a widely available source of investment advisory information, its Safety Rank also provides useful guidance regarding the risk perceptions of investors. As discussed in my direct testimony, all of the firms in my Non-Utility Group have a Safety Rank of "1", which classifies them among the least risky stocks covered by Value Line. Meanwhile, the Safety Rank corresponding to the firms in the Utility Group and PG&E is "2" and "3", respectively. In other words, according to the key risk indicator from one of the principle sources relied on by all of these witnesses, my Non-Utility Group is less risky in the minds of investors. Similarly, the average beta value of 0.58 for the Non-Utility Group is less that the 0.73 average for Utility Group and essentially equal to the 0.55 value corresponding to PG&E. This review of objective indicators of investment risk demonstrates that, if anything, the Non-Utility Group could be considered <u>less</u> risky in the minds of investors than PG&E or the common stocks of the proxy utilities.[160]

Q 108 Is there any merit to Mr. Gorman's (pp. 41-42) and Mr. Hill's (p. 93) contention that differences across industries undermine comparisons of risk measures between firms?

A 108 No. In fact, the very purpose of credit ratings is to provide investors with a uniform, well-understood indicator of investment risks that accounts for firm and industry-specific characteristics. If Mr. Gorman's and Mr. Hill's assertions were true, credit ratings would be virtually useless to investors, since there would be no way to evaluate distinctions between an "A" rating in, say the airline industry, versus drug manufacturers, home builders, conglomerates, or utilities. While Mr. Gorman premises his flawed argument on yield differentials between U.S. government bonds and corporate bonds, such yield spreads are impacted by a host of considerations, including Federal Reserve actions, that do not bear on comparisons between utilities and other corporate issuers.

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159 Hill Direct at 93.

160 Mr. Lawton (p. 88).

In fact, comparisons between credit ratings for utilities and non-utility firms are reinforced by the fact that S&P ceased publishing separate ratings guidelines for regulated utilities in 2007, and now applies the same matrix of business and financial risks used to evaluate non-regulated companies. As S&P concluded, "This is designed to present our rating conclusions in a clear and standardized manner across all corporate sectors."[161]

Mr. Gorman recognized that:

> S&P ranks the business risk of a utility company as part of its corporate credit rating review. S&P considers total investment risk in assigning bond ratings to issuers, including utility companies. In analyzing total investment risk, S&P considers both the business risk and the financial risk of a corporate entity, including a utility company.[162]

Mr. Gorman's observation directly rebuts Mr. Hill's incorrect argument (p. 93) that distinctions in business and financial risk between utilities and unregulated firms invalidate a comparison of objective risk indicators.

Q 109 Does the fact that utilities are regulated somehow invalidate this comparison of objective risk indicators?

A 109 Absolutely not. Mr. Gorman and Dr. Woolridge argue that regulatory protections make utilities less risky than firms operating in competitive markets.[163] First, it is important to note that my analysis did not focus on the average firm in the competitive sector. Rather, it was restricted to a low-risk group of companies that represent the pinnacle of corporate America. In addition, while I don't disagree that utilities operate under a regulatory regime that differs from firms in the competitive sector, any risk-reducing benefit of regulation is already incorporated in the overall indicators of investment risk presented above.

As Mr. Lawton documents,[164] the impact of regulation on a utility's investment risks is one of the key elements considered by credit rating agencies and investment advisory services, such as S&P and Value Line, when establishing corporate credit ratings and other risk measures. As a

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161 Standard & Poor's Corporation, "U.S. Utilities Ratings Analysis Now Portrayed In The S&P Corporate Ratings Matrix," *RatingsDirect* (Nov. 30, 2007). S&P's corporate benchmarks were cited by Mr. Gorman at p. 14, fn. 10.

162 Gorman Direct at 14, fn. 10.

163 *Id.* at 41; Woolridge Direct at 5-55.

164 Lawton Direct at 17-18.

result, the impact of regulatory protections is already reflected in my risk analysis presented in Table 2-2 to my direct testimony. Meanwhile, the beta values supported by modern financial theory are premised on stock price volatility relative to the market as a whole, and are not dependent on an assessment of firm-specific considerations. Because the impact of regulatory differences is accounted for in the published indicators relied on by investors and cited in my direct testimony, there is no support for Intervenors' arguments that regulation somehow distorts a comparison of relative risks.

Q 110 Do the higher DCF estimates for the non-utility proxy group demonstrate higher risk?

A 110 No. As discussed in my direct testimony,[165] while we are accustomed to associating higher risk with higher returns, DCF estimates of investors' required rate of return do not always produce that result. Performing the DCF calculations for the Non-Utility Group produced ROE estimates that are higher than the DCF estimates for the Utility Group, even though the risks that investors associate with the group of non-utility firms – as measured by S&P's credit ratings and Value Line's Safety Rank, Financial Strength, and Beta – are lower than the risks investors associate with the Utility Group and PG&E. The actual cost of equity is unobservable, and DCF estimates may depart from these values because investors' expectations may not be captured by the inputs to the ROE model, particularly the assumed growth rate. The divergence between the DCF estimates for the Utility and Non-Utility Groups suggests that both should be considered to ensure a balanced end-result.

Q 111 Is there any merit to Mr. Hill's argument (pp. 93-94) that differences in market share can be used to assess risk comparability?

A 111 No, none whatsoever. Again, I don't dispute the fact that there are considerable differences in market share between a regulated monopoly provider of utility services and Coca-Cola, which competes against a variety of soft drink manufacturers and suppliers of other beverage alternatives. But in measuring the opportunity cost of capital, financial theory and the

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165 Avera Direct at 56-57.

Supreme Court are concerned with overall relative risks. While a review of market share would be one factor considered in investors' review of the business conditions faced by a particular firm, this narrow attribute is not an indicator of investment risk. Similarly, distinctions between the manner in which prices are established in regulated and competitive markets do not provide a basis to make any conclusions regarding risk comparability. Investors' risk assessment is reflected in the objective, comparable benchmarks discussed in my testimony, and these clearly illustrate that the Non-Utility Group provides a low-risk, conservative basis on which to evaluate the DCF results produced for utilities, and an ROE that meets the opportunity cost standard. By ignoring accepted risk indicators like credit ratings and beta, Mr. Hill and the other intervenor witnesses are effectively telling the CPUC to ignore the investment community and financial market research, in favor of their personal (and unsupported) views on the topic of relative risk.

K. TURN's Review Of PG&E's Relative Risks Is Irrelevant

Q 112 Mr. Marcus presents approximately 40 pages of testimony regarding various aspects of the regulatory and business risks faced by California utilities. Please respond.

A 112 Other PG&E witnesses discuss the fallacies underlying the specific claims contained in Mr. Marcus' discussion. The central implication that Mr. Marcus suggests based on his commentary is that there is no reason to consider the specific exposures faced by PG&E in establishing the ROE in this case. First, I would note that Mr. Marcus' review has no practical implications in supporting Mr. Lawton's recommended ROE. All of the witnesses in this proceeding – including Mr. Lawton – have based their ROE findings on the results of quantitative analyses applied to proxy groups of other utilities. All of the Intervenor witnesses reference well-accepted measures of investment risk, such as credit ratings, in assessing the comparability of these proxy groups to PG&E. Because these risk measures capture the relative impact of regulatory mechanisms, including balancing accounts, Mr. Marcus' review adds no useful information.

In fact, Mr. Lawton presents compelling information that demonstrates the irrelevance of Mr. Marcus' review, because any impact associated with the various factors he discusses is already captured in observable risk indicators. Mr. Lawton (pp. 17-19) documents that the investment community, and the major credit rating agencies in particular, pay close attention to regulatory mechanisms. Mr. Lawton quoted a Moody's report, which observed that recovery mechanisms such as decoupling "are among the most important analytical considerations when assessing utility credit quality and assigning credit ratings."[166] In other words, the implications of PG&E's balancing accounts and other regulatory mechanisms are fully reflected in its credit ratings and other risk measures, which are comparable to those of the other firms in my Utility Group, which Mr. Lawton also adopted.

Moreover, as discussed in my direct testimony,[167] established regulatory mechanisms in California do not remove the overhanging exposures to changing policies that can lead to unintended but severe consequences faced by PG&E. PG&E's current financial standing is based on its existing regulatory environment, including approved adjustment mechanisms and an expectation of continued balance in establishing allowed ROEs. On the other hand, Intervenors' ROE recommendations would represent a dramatic sea-change that would severely undermine investor support and PG&E's financial integrity.

L. Flotation Costs Should Be Considered

Q 113 Please address Mr. Gorman's position (p. 38) that any flotation cost adjustment must be based on "actual and verifiable" flotation costs for PG&E?

A 113 Like Mr. Gorman, Dr. Woolridge also suggests that flotation costs should be ignored unless they are predicated on a precise accounting for PG&E. This argument belies the entire point of the adjustment. PG&E does not issue common stock, and will never incur flotation costs directly. The approach outlined in my direct testimony is supported by recognized regulatory textbooks and based on research reported in the academic literature, and the fact that PG&E does not incur issuance expenses directly provides no

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166 Lawton Direct at 18.

167 Avera Direct at 2-6 - 2-10; 2-12 – 2-13; 2-48 – 2-49.

basis to ignore a flotation cost adjustment. PG&E has been and will continue to invest massive amounts of equity capital to serve the public, and the earnings base of this equity is permanently reduced by the amount of flotation costs. Without a flotation adjustment, these legitimate costs of providing utility service will be excluded for ratemaking purposes and will undercut PG&E's ability to earn its authorized ROE.

Q 114 Please respond to other specific criticisms of a flotation cost adjustment.

A 114 Dr. Woolridge (p. 5-70) and Mr. Hill (p. 62) also mistakenly claim that a flotation cost adjustment "is needed to prevent dilution of existing shareholders' investment." In fact, a flotation cost adjustment is required in order to allow the utility the opportunity to recover the issuance costs associated with selling common stock. Dr. Woolridge's (p. 5-70) and Mr. Hill's (p. 61) observations about the level of market-to-book ratios may be factually correct, but it has nothing to do with flotation costs. The fact that market prices may be above book value does not alter the fact that a portion of the capital contributed by equity investors is not available to earn a return because it is paid out as flotation costs. Even if the utility is not expected to issue additional common stock, a flotation cost adjustment is necessary to compensate for flotation costs incurred in connection with <u>past</u> issues of common stock.

Dr. Woolridge's (p. 5-71) and Mr. Hill's (p. 62) that flotation costs are "not out-of-pocket expenses" is simply wrong. Dr. Woolridge and Mr. Hill apparently believe that if investors in past common stock issues had paid the full issuance price directly to the utility and the utility had then paid underwriters' fees by issuing a check to its investment bankers, that flotation cost would be a legitimate expense. Their observation merely highlights the absence of an accounting convention to properly accumulate and recover these legitimate and necessary costs.

Dr. Woolridge (p. 73) and Mr. Hill (p. 62) also contend that flotation costs are somehow accounted for in current stock prices. This is incorrect. Whatever price that investors' establish in the capital markets, the net proceeds received by the utility from the sale of new common shares will always be lower due to issuance costs. As a result, the only way for the utility to have the opportunity to earn investors' required return is to include an adjustment to recognize that ratebase has been correspondingly reduced by the amount of the flotation costs.

Similarly, the need to consider past flotation costs has been recognized in the financial literature, including sources that Intervenors relied on in their testimony. Specifically, Ibbotson Associates concluded that:

> Although the cost of capital estimation techniques set forth later in this book are applicable to rate setting, certain adjustments may be necessary. One such adjustment is for flotation costs (amounts that must be paid to underwriters by the issuer to attract and retain capital).[168]

Q 115 Does this conclude your rebuttal testimony?

A 115 Yes.

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168 Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation, Valuation Edition, 2006 Yearbook*, at 35.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

ATTACHMENT 1

SCHEDULES

EXPECTED EARNINGS APPROACH

WOOLRIDGE PROXY GROUP

	Company	(a) Expected Return on Common Equity	(b) Mid-Year Adjustment Factor	(c) Adjusted Return on Common Equity
1	ALLETE	9.5%	1.02568	9.7%
2	Alliant Energy	10.5%	1.02224	10.7%
3	Ameren Corp.	7.0%	1.00940	7.1%
4	American Elec Pwr	10.0%	1.02427	10.2%
5	Avista Corp.	9.0%	1.02270	9.2%
6	Black Hills Corp.	8.0%	1.01447	8.1%
7	Cleco Corp.	11.5%	1.02600	11.8%
8	CMS Energy Corp.	12.5%	1.03155	12.9%
9	Consolidated Edison	9.5%	1.01826	9.7%
10	Dominion Resources	14.5%	1.03524	15.0%
11	DTE Energy Co.	9.5%	1.02439	9.7%
12	Edison International	9.0%	1.02285	9.2%
13	Entergy Corp.	9.5%	1.00925	9.6%
14	Exelon Corp.	12.0%	1.05059	12.6%
15	FirstEnergy Corp.	10.5%	1.01787	10.7%
16	Great Plains Energy	7.5%	1.02095	7.7%
17	Hawaiian Elec.	10.0%	1.04778	10.5%
18	IDACORP, Inc.	8.5%	1.02807	8.7%
19	MGE Energy	10.5%	1.02716	10.8%
20	NextEra Energy, Inc.	12.5%	1.03443	12.9%
21	OGE Energy Corp.	11.5%	1.03761	11.9%
22	Pepco Holdings	8.0%	1.02366	8.2%
23	PG&E Corp.	10.5%	1.02667	10.8%
24	Pinnacle West Capital	9.0%	1.02394	9.2%
25	PNM Resources	9.0%	1.02022	9.2%
26	Portland General Elec.	8.5%	1.01999	8.7%
27	SCANA Corp.	9.5%	1.04865	10.0%
28	Southern Company	12.5%	1.03386	12.9%
29	TECO Energy	13.0%	1.02504	13.3%
30	UIL Holdings	9.5%	1.01632	9.7%
31	UNS Energy	14.0%	1.02192	14.3%
32	Westar Energy	8.5%	1.03203	8.8%
33	Wisconsin Energy	14.0%	1.01251	14.2%
34	Xcel Energy, Inc.	10.0%	1.02787	10.3%
	Average			**10.5%**

(a) The Value Line Investment Survey (May 25, June 22, & Aug. 3, 2012).
(b) Adjustment to convert year-end return to an average rate of return.
(c) (a) x (b).

GORMAN/LAWTON PROXY GROUP

	Company	(a) Expected Return on Common Equity	(b) Mid-Year Adjustment Factor	(c) Adjusted Return on Common Equity
1	Alliant Energy	10.5%	1.02224	10.7%
2	Dominion Resources	14.5%	1.03524	15.0%
3	DTE Energy Co.	9.5%	1.02439	9.7%
4	Integrys Energy Group	10.0%	1.01384	10.1%
5	PG&E Corp.	10.5%	1.02667	10.8%
6	PPL Corp.	11.0%	1.05133	11.6%
7	Pub Sv Enterprise Grp	11.0%	1.02525	11.3%
8	SCANA Corp.	9.5%	1.04865	10.0%
9	Sempra Energy	11.0%	1.02483	11.3%
10	TECO Energy	13.0%	1.02504	13.3%
11	UIL Holdings	9.5%	1.01632	9.7%
12	Vectren Corp.	12.0%	1.02328	12.3%
13	Wisconsin Energy	14.0%	1.01251	14.2%
14	Xcel Energy, Inc.	10.0%	1.02787	10.3%
	Average			**11.4%**

(a) The Value Line Investment Survey (May 25, June 22, & Aug. 3, 2012).
(b) Adjustment to convert year-end return to an average rate of return.
(c) (a) x (b).

HILL PROXY GROUP

	Company	(a) Expected Return on Common Equity	(b) Mid-Year Adjustment Factor	(c) Adjusted Return on Common Equity
1	ALLETE	9.5%	1.02568	9.7%
2	Alliant Energy	10.5%	1.02224	10.7%
3	American Elec Pwr	10.0%	1.02427	10.2%
4	Cleco Corp.	11.5%	1.02600	11.8%
5	Edison International	9.0%	1.02285	9.2%
6	Entergy Corp.	9.5%	1.00925	9.6%
7	IDACORP, Inc.	8.5%	1.02807	8.7%
8	MGE Energy	10.5%	1.02716	10.8%
9	NorthWestern Corp.	10.0%	1.02783	10.3%
10	PG&E Corp.	10.5%	1.02667	10.8%
11	Pinnacle West Capital	9.0%	1.02394	9.2%
12	Portland General Elec.	8.5%	1.01999	8.7%
13	Southern Company	12.5%	1.03386	12.9%
14	Westar Energy	8.5%	1.03203	8.8%
15	Wisconsin Energy	14.0%	1.01251	14.2%
16	Xcel Energy, Inc.	10.0%	1.02787	10.3%
	Average			**10.4%**

(a) The Value Line Investment Survey (May 25, June 22, & Aug. 3, 2012).
(b) Adjustment to convert year-end return to an average rate of return.
(c) (a) x (b).

WOOLRIDGE PROXY GROUP (a)

	Company	Allowed Return on Common Equity
1	ALLETE	10.38%
2	Alliant Energy	10.34%
3	Ameren Corp.	9.54%
4	American Elec Pwr	10.65%
5	Avista Corp.	10.33%
6	Black Hills Corp.	10.72%
7	Cleco Corp.	10.70%
8	CMS Energy Corp.	10.30%
9	Consolidated Edison	9.93%
10	Dominion Resources	10.52%
11	DTE Energy Co.	10.75%
12	Edison International	(a)
13	Entergy Corp.	10.66%
14	Exelon Corp.	10.50%
15	FirstEnergy Corp.	10.52%
16	Great Plains Energy	10.25%
17	Hawaiian Elec.	10.00%
18	IDACORP, Inc.	10.18%
19	MGE Energy	10.30%
20	OGE Energy Corp.	9.98%
21	NextEra Energy, Inc. (b)	10.00%
22	Pepco Holdings	9.95%
23	PG&E Corp.	(a)
24	Pinnacle West Capital	11.00%
25	PNM Resources	10.22%
26	Portland General Elec.	10.00%
27	SCANA Corp.	10.72%
28	Southern Company	11.46%
29	TECO Energy (b)	11.25%
30	UIL Holdings	8.75%
31	UNS Energy	9.92%
32	Westar Energy	10.20%
33	Wisconsin Energy	10.38%
34	Xcel Energy, Inc.	10.70%
	Average	**10.35%**

Source: *AUS Monthly Report* (July 2012).

(a) Excludes California utilities.

(b) Corrected to reflect current FPSC authorized return.

GORMAN/LAWTON PROXY GROUP (a)

	Company	Allowed Return on Common Equity
1	Alliant Energy	10.34%
2	Dominion Resources	10.52%
3	DTE Energy Co.	10.75%
4	Integrys Energy Group	10.11%
5	PG&E Corp.	(a)
5	PPL Corp.	10.30%
6	Pub Sv Enterprise Grp	10.30%
7	SCANA Corp.	10.72%
8	Sempra Energy	(a)
9	TECO Energy (b)	11.25%
10	UIL Holdings	8.75%
11	Vectren Corp.	10.43%
12	Wisconsin Energy	10.38%
13	Xcel Energy, Inc.	10.70%
	Average	**10.38%**

Source: *AUS Monthly Report* (July 2012).

(a) Excludes California utilities.

HILL PROXY GROUP (a)

	Company	Allowed Return on Common Equity
1	ALLETE	10.38%
2	Alliant Energy	10.34%
3	American Elec Pwr	10.65%
4	Cleco Corp.	10.70%
5	Edison International	(a)
6	Entergy Corp.	10.66%
7	IDACORP, Inc.	10.18%
8	MGE Energy	10.30%
9	NorthWestern Corp.	10.90%
10	PG&E Corp.	(a)
11	Pinnacle West Capital	11.00%
12	Portland General Elec.	10.00%
13	Southern Company	11.46%
14	Westar Energy	10.20%
15	Wisconsin Energy	10.38%
16	Xcel Energy, Inc.	10.70%
	Average	**10.56%**

Source: *AUS Monthly Report* (July 2012).

(a) Excludes California utilities.

WOOLRIDGE - HISTORICAL GROWTH

		(a)	(b)	(b)	(b)	(b)	(c)	(c)	(c)	(c)
			Historical Growth Rates				Cost of Equity Estimates			
			Past 10 Years		Past 5 Years		Past 10 Years		Past 5 Years	
	Company	Dividend Yield	EPS	BVPS	EPS	BVPS	EPS	BVPS	EPS	BVPS
1	ALLETE	4.5%	--	--	0.5%	5.5%	--	--	5.0%	10.1%
2	Alliant Energy	4.1%	2.0%	0.5%	5.0%	3.5%	6.1%	4.6%	9.2%	7.7%
3	Ameren Corp.	5.0%	-1.5%	3.5%	-1.5%	1.0%	3.5%	8.6%	3.5%	6.0%
4	American Elec Pwr	4.8%	2.0%	1.0%	1.5%	5.0%	6.8%	5.8%	6.3%	9.9%
5	Avista Corp.	4.5%	5.0%	3.5%	9.5%	4.0%	9.6%	8.1%	14.2%	8.6%
6	Black Hills Corp.	4.5%	-4.0%	7.5%	-4.0%	4.0%	0.4%	12.2%	0.4%	8.6%
7	Cleco Corp.	3.2%	5.0%	8.0%	10.0%	10.0%	8.3%	11.3%	13.4%	13.4%
8	CMS Energy Corp.	4.2%	-5.5%	-4.5%	8.5%	2.0%	-1.4%	-0.4%	12.9%	6.3%
9	Consolidated Edison	4.1%	1.0%	4.0%	4.5%	4.5%	5.1%	8.2%	8.7%	8.7%
10	Dominion Resources	4.0%	7.0%	3.5%	6.5%	3.5%	11.2%	7.6%	10.6%	7.6%
11	DTE Energy Co.	4.3%	2.0%	3.5%	5.0%	4.0%	6.3%	7.9%	9.4%	8.4%
12	Edison International	3.1%	--	11.0%	6.0%	8.5%	--	14.2%	9.1%	11.7%
13	Entergy Corp.	5.0%	9.5%	4.5%	8.5%	4.5%	14.7%	9.6%	13.7%	9.6%
14	Exelon Corp.	5.0%	8.0%	5.5%	4.5%	7.5%	13.2%	10.6%	9.6%	12.7%
15	FirstEnergy Corp.	4.9%	0.5%	3.0%	-2.0%	1.5%	5.4%	7.9%	2.8%	6.4%
16	Great Plains Energy	4.2%	-2.5%	4.5%	-9.5%	5.5%	1.6%	8.8%	-5.5%	9.8%
17	Hawaiian Elec.	4.8%	-2.0%	2.0%	-3.0%	1.5%	2.7%	6.8%	1.7%	6.3%
18	IDACORP, Inc.	3.2%	-0.5%	3.5%	8.5%	5.0%	2.7%	6.8%	11.9%	8.3%
19	MGE Energy	3.4%	4.5%	6.5%	6.5%	6.0%	8.0%	10.0%	10.0%	9.5%
20	NextEra Energy, Inc.	3.8%	7.5%	8.0%	11.0%	9.0%	11.4%	11.9%	15.0%	12.9%
21	OGE Energy Corp.	3.0%	6.0%	6.0%	8.5%	8.5%	9.1%	9.1%	11.6%	11.6%
22	Pepco Holdings	5.6%	-0.5%	0.5%	-0.5%	1.0%	5.1%	6.1%	5.1%	6.6%
23	PG&E Corp.	4.3%	--	8.0%	3.5%	6.5%	--	12.4%	7.8%	10.9%
24	Pinnacle West Capital	4.4%	-2.0%	2.0%	1.0%	0.5%	2.3%	6.4%	5.4%	4.9%
25	PNM Resources	3.0%	-7.5%	1.5%	-12.0%	-1.0%	-4.6%	4.5%	-9.2%	2.0%
26	Portland General Elec.	4.3%	--	--	8.5%	2.0%	--	--	12.9%	6.3%
27	SCANA Corp.	4.3%	4.5%	3.5%	2.0%	4.5%	8.9%	7.9%	6.4%	8.9%
28	Southern Company	4.3%	3.0%	3.5%	3.0%	6.0%	7.3%	7.8%	7.3%	10.4%
29	TECO Energy	4.9%	-5.0%	-2.0%	3.5%	6.5%	-0.2%	2.9%	8.5%	11.6%
30	UIL Holdings	5.1%	-2.0%	--	4.5%	-0.5%	3.0%	--	9.7%	4.5%
31	UNS Energy	4.6%	7.0%	7.0%	13.0%	5.0%	11.8%	11.8%	17.9%	9.7%
32	Westar Energy	4.7%	--	-3.0%	1.0%	6.0%	--	1.6%	5.7%	10.8%
33	Wisconsin Energy	3.3%	9.0%	6.5%	10.0%	7.0%	12.4%	9.9%	13.5%	10.4%
34	Xcel Energy, Inc.	3.9%	-1.0%	--	4.5%	4.5%	2.9%	--	8.5%	8.5%
	Average (d)						**10.5%**	**9.8%**	**10.8%**	**10.0%**
	Average - All Growth Rates							**10.3%**		

(a) Exhibit JRW-10, p. 2.
(b) Exhibit JRW-10, p. 4.
(c) Sum of dividend yield (adjusted for one-half year's growth) and respective growth rate.
(d) Excludes highlighted figures.

HILL - HISTORICAL GROWTH

		(a)	(b)	(b)	(b)	(b)	(c)	(c)	(c)	(c)
			Historical Growth Rates				Cost of Equity Estimates			
		Dividend	Value Line		5-Yr Compound		Past 10 Years		Past 5 Years	
	Company	Yield	EPS	BVPS	EPS	BVPS	EPS	BVPS	EPS	BVPS
1	SO	4.29%	3.00%	6.00%	2.26%	5.44%	7.29%	10.29%	6.55%	9.72%
2	ALE	4.69%	0.50%	5.50%	-4.47%	4.33%	5.19%	10.19%	0.21%	9.01%
3	LNT	4.18%	5.00%	3.50%	0.80%	3.92%	9.18%	7.68%	4.98%	8.10%
4	AEP	5.19%	1.50%	5.00%	1.95%	4.69%	6.69%	10.19%	7.14%	9.88%
5	CNL	3.27%	10.00%	10.00%	13.62%	7.82%	13.27%	13.27%	16.89%	11.09%
6	ETR	5.12%	8.50%	4.50%	-3.04%	4.57%	13.62%	9.62%	2.09%	9.69%
7	MGEE	3.38%	6.50%	6.00%	6.00%	5.11%	9.88%	9.38%	9.38%	8.49%
8	WR	4.65%	1.00%	6.00%	0.43%	4.15%	5.65%	10.65%	5.08%	8.79%
9	WEC	3.40%	10.00%	7.00%	9.64%	6.26%	13.40%	10.40%	13.04%	9.66%
10	EIX	2.92%	6.00%	8.50%	-2.34%	4.60%	8.92%	11.42%	0.58%	7.51%
11	IDA	3.34%	8.50%	5.00%	10.76%	4.48%	11.84%	8.34%	14.10%	7.82%
12	NWE	4.22%	0.00%	2.00%	10.29%	3.01%	4.22%	6.22%	14.51%	7.23%
13	PCG	4.33%	3.50%	6.50%	-4.57%	4.51%	7.83%	10.83%	-0.24%	8.84%
14	PNW	4.28%	1.00%	0.00%	2.20%	0.56%	5.28%	4.28%	6.48%	4.85%
15	POR	4.27%	8.50%	2.00%	-3.50%	1.70%	12.77%	6.27%	0.77%	5.97%
16	XEL	3.87%	4.50%	4.50%	5.33%	4.31%	8.37%	8.37%	9.20%	8.18%
	Average (c)						**10.58%**	**10.05%**	**11.23%**	**8.86%**
	Average - All Growth Rates							**10.18%**		

(a) Hill Direct at Schedule 2, p.1.

(b) Hill Direct at Schedule 4, p. 2.

(c) Excludes highlighted figures.

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GORMAN ANNUAL GROWTH OUTLOOK

REVISED

Year	Beginning of Year Plant-in-Service	Capital Improvement (1)	Deprec. Expense (2)	End of Year Plant-in-Service	Avg Year Plant	ROE	Earnings	Annual Earnings Growth Rate
0	$1,000,000	$100,000	$30,000	$1,070,000	$1,035,000	10.0%	$103,500	
1	$1,070,000	$102,000	$32,100	$1,139,900	$1,104,950	10.0%	$110,495	6.8%
2	$1,139,900	$104,040	$34,197	$1,209,743	$1,174,822	10.0%	$117,482	6.3%
3	$1,209,743	$106,121	$36,292	$1,279,572	$1,244,657	10.0%	$124,466	5.9%
4	$1,279,572	$108,243	$38,387	$1,349,428	$1,314,500	10.0%	$131,450	5.6%
5	$1,349,428	$134,943	$40,483	$1,443,888	$1,396,658	10.0%	$139,666	6.3%
6	$1,443,888	$137,642	$43,317	$1,538,212	$1,491,050	10.0%	$149,105	6.8%
7	$1,538,212	$140,394	$46,146	$1,632,461	$1,585,337	10.0%	$158,534	6.3%
8	$1,632,461	$143,202	$48,974	$1,726,689	$1,679,575	10.0%	$167,957	5.9%
9	$1,726,689	$146,066	$51,801	$1,820,955	$1,773,822	10.0%	$177,382	5.6%
10	$1,820,955	$182,095	$54,629	$1,948,422	$1,884,688	10.0%	$188,469	6.3%

(1) Escalation rate 10.0% in years 0, 5, and 10, and 2.0% in all intervening years.

(2) Depreciation rate 3.0%.

REVISED CAPM Schedule WEA-16

WOOLRIDGE PROXY GROUP

	Company	Dividend Yield (a)	Growth (b)	Market Return	Risk Free Return (c)	Market Risk Prem.	Beta (d)	Company Risk Prem.	Derived CAPM	Market Cap ($ mil) (e)	Size Premium (f)	Ke
1	ALLETE	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$1,546	1.75%	12.16%
2	Alliant Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$5,110	0.94%	11.84%
3	Ameren Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$8,205	0.78%	12.16%
4	American Elec Pwr	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$20,976	-0.38%	10.03%
5	Avista Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$1,545	1.75%	12.16%
6	Black Hills Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.85	8.18%	11.86%	$1,394	1.75%	13.61%
7	Cleco Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$2,564	1.17%	11.10%
8	CMS Energy Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$6,178	0.94%	11.84%
9	Consolidated Edison	2.5%	10.8%	13.3%	3.68%	9.62%	0.60	5.77%	9.45%	$18,100	-0.38%	9.07%
10	Dominion Resources	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$30,932	-0.38%	10.03%
11	DTE Energy Co.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$10,372	0.78%	11.68%
12	Edison International	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$14,684	0.78%	12.16%
13	Entergy Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$12,335	0.78%	11.19%
14	Exelon Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$31,948	-0.38%	11.00%
15	FirstEnergy Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$19,230	-0.38%	11.00%
16	Great Plains Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$2,975	1.17%	12.07%
17	Hawaiian Elec.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$2,666	1.17%	11.58%
18	IDACORP, Inc.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$2,137	1.74%	12.15%
19	MGE Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.60	5.77%	9.45%	$1,164	1.75%	11.20%
20	NextEra Energy, Inc.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$29,415	-0.38%	10.52%
21	OGE Energy Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$5,384	0.94%	12.32%
22	Pepco Holdings	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$4,430	0.94%	11.84%
23	PG&E Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.55	5.29%	8.97%	$18,739	-0.38%	8.59%
24	Pinnacle West Capital	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$5,843	0.94%	11.35%
25	PNM Resources	2.5%	10.8%	13.3%	3.68%	9.62%	0.95	9.14%	12.82%	$1,654	1.74%	14.56%
26	Portland General Elec.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$2,066	1.74%	12.64%
27	SCANA Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$6,367	0.94%	11.35%
28	Southern Company	2.5%	10.8%	13.3%	3.68%	9.62%	0.55	5.29%	8.97%	$40,302	-0.38%	8.59%
29	TECO Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.85	8.18%	11.86%	$3,862	0.94%	12.80%
30	UIL Holdings	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$1,831	1.74%	12.15%
31	UNS Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$1,658	1.74%	12.64%
32	Westar Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$3,735	0.94%	11.84%
33	Wisconsin Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$8,881	0.78%	10.71%
34	Xcel Energy, Inc.	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$13,922	0.78%	10.71%
					Average				**10.65%**			**11.49%**

(a) Weighted average dividend yield for the dividend paying firms in the S&P 500 from www.valueline.com (retrieved Apr. 17, 2012).
(b) Weighted average of IBES earnings growth rates for the dividend paying firms in the S&P 500 (retrieved May 8, 2012).
(c) Average projected 30-year Treasury bond yield for 2013 based on data from IHS Global Insight, U.S. Economic Outlook at 19 (May 2012).
(d) Exhibit JRW-11, p. 3.
(e) www.valueline.com (retrieved Aug. 23, 2012)
(f) Morningstar, "2012 Ibbotson SBBI Valuation Yearbook," at Appendix C, Table C-1 (2012).

REVISED CAPM

GORMAN/LAWTON PROXY GROUP

	Company	Dividend Yield (a)	Growth (b)	Market Return	Risk Free Return (c)	Market Risk Prem.	Beta (d)	Company Risk Prem.	Derived CAPM	Market Cap ($ mil) (e)	Size Premium (f)	Ke
1	Alliant Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$5,110	0.94%	11.84%
2	Dominion Resources	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$30,932	-0.38%	10.03%
3	DTE Energy Co.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$10,372	0.78%	11.68%
4	Integrys Energy Group	2.5%	10.8%	13.3%	3.68%	9.62%	0.90	8.66%	12.34%	$4,442	0.94%	13.28%
5	PG&E Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.55	5.29%	8.97%	$18,739	-0.38%	8.59%
6	PPL Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$17,116	-0.38%	9.55%
7	Pub Sv Enterprise Grp	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$16,422	-0.38%	11.00%
8	SCANA Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$6,367	0.94%	11.35%
9	Sempra Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$16,619	-0.38%	11.00%
10	TECO Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.85	8.18%	11.86%	$3,862	0.94%	12.80%
11	UIL Holdings	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$1,831	1.74%	12.15%
12	Vectren Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$2,385	1.17%	12.07%
13	Wisconsin Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$8,881	0.78%	10.71%
14	Xcel Energy, Inc.	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$13,922	0.78%	10.71%
					Average				**10.69%**			**11.20%**

(a) Weighted average dividend yield for the dividend paying firms in the S&P 500 from www.valueline.com (retrieved Apr. 17, 2012).
(b) Weighted average of IBES earnings growth rates for the dividend paying firms in the S&P 500 (retrieved May 8, 2012).
(c) Average projected 30-year Treasury bond yield for 2013 based on data from IHS Global Insight, U.S. Economic Outlook at 19 (May 2012).
(d) Exhibit MPG-15.
(e) www.valueline.com (retrieved Aug. 23, 2012)
(f) Morningstar, "2012 Ibbotson SBBI Valuation Yearbook," at Appendix C, Table C-1 (2012).

HILL PROXY GROUP

	Company	(a) Dividend Yield	(b) Growth	Market Return	(c) Risk Free Return	Market Risk Prem.	(d) Beta	Company Risk Prem.	Derived CAPM	(e) Market Cap ($ mil)	(f) Size Premium	Ke
1	ALLETE	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$1,546	1.75%	12.16%
2	Alliant Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$5,110	0.94%	11.84%
3	American Elec Pwr	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$20,976	-0.38%	10.03%
4	Cleco Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$2,564	1.17%	11.10%
5	Edison International	2.5%	10.8%	13.3%	3.68%	9.62%	0.80	7.70%	11.38%	$14,684	0.78%	12.16%
6	Entergy Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$12,335	0.78%	11.19%
7	IDACORP, Inc.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$2,137	1.74%	12.15%
8	MGE Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.60	5.77%	9.45%	$1,164	1.75%	11.20%
9	NorthWestern Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$1,340	1.75%	12.16%
10	PG&E Corp.	2.5%	10.8%	13.3%	3.68%	9.62%	0.55	5.29%	8.97%	$18,739	-0.38%	8.59%
11	Pinnacle West Capital	2.5%	10.8%	13.3%	3.68%	9.62%	0.70	6.73%	10.41%	$5,843	0.94%	11.35%
12	Portland General Elec.	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$2,066	1.74%	12.64%
13	Southern Company	2.5%	10.8%	13.3%	3.68%	9.62%	0.55	5.29%	8.97%	$40,302	-0.38%	8.59%
14	Westar Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.75	7.22%	10.90%	$3,735	0.94%	11.84%
15	Wisconsin Energy	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$8,881	0.78%	10.71%
16	Xcel Energy, Inc.	2.5%	10.8%	13.3%	3.68%	9.62%	0.65	6.25%	9.93%	$13,922	0.78%	10.71%
					Average				**10.23%**			**11.15%**

(a) Weighted average dividend yield for the dividend paying firms in the S&P 500 from www.valueline.com (retrieved Apr. 17, 2012).
(b) Weighted average of IBES earnings growth rates for the dividend paying firms in the S&P 500 (retrieved May 8, 2012).
(c) Average projected 30-year Treasury bond yield for 2013 based on data from IHS Global Insight, U.S. Economic Outlook at 19 (May 2012).
(d) Hill workpapers, ROE-Schedules.xlxs.
(e) www.valueline.com (retrieved Aug. 23, 2012)
(f) Morningstar, "2012 Ibbotson SBBI Valuation Yearbook," at Appendix C, Table C-1 (2012).

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

REBUTTAL TESTIMONY OF BRUCE T. SMITH

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A. Introduction and Summary

Q 1 Please state your name and the purpose of your testimony.

A 1 My name is Bruce T. Smith. This testimony responds to the direct testimony of The Utility Reform Network (TURN) witnesses Marcus (TURN//Marcus) and Lawton (TURN/Lawton), Federal Executive Agencies (FEA) witness Hill, and Division of Ratepayer Advocates (DRA) witness Oh (DRA/Oh) regarding regulatory and business risk.

Q 2 Please summarize DRA's and intervenors' claims about regulatory risk and why Pacific Gas and Electric Company (PG&E) disagrees with those claims.

A 2 These parties claim that due to regulatory policies in California, for example the use of future test year ratemaking, revenue decoupling, balancing accounts, and attrition adjustments, California utilities have less regulatory risk than utilities in other states.[1] While PG&E agrees that these policies work in the aggregate to decrease risk, intervenor claims are moot since the regulatory mechanisms that reduce risk for California utilities are largely employed by the states represented in the risk proxy groups. Further, these are not new mechanisms, but rather have been in place in California for more than 30 years. In short, the Return on Equity (ROE) model results already reflect risk impacts of California's current ratemaking policies.

Q 3 Please summarize TURN//Marcus' claim regarding business risk and why PG&E disagrees.

A 3 TURN//Marcus implies that business risks, such as energy procurement and policy, operational risk, and market price risk, are also lower in California

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1 See August 6, 2012 testimonies of: DRA witness Oh (p. 1), TURN witnesses Marcus (pp. 14-24) and Lawton (pp. 16-19), and FEA witness Hill (pp. 68-71). TURN/Marcus appears to agree with PG&E that the regulatory risk of the California utilities is similar to utilities in the proxy group (TURN/Marcus p. 5), but in a data response to PG&E stated that "California's regulation reduces its IOUs' overall risks relative to other jurisdictions across the country." (Data request PG&E-TURN_003, p. 3) FEA (p. 24) claims that California regulatory risk is lower relative to other states. Because Turn/Marcus has a more extensive discussion of regulatory risk than the other witnesses, this rebuttal testimony primarily addresses the testimony of TURN/Marcus, which adequately addresses the regulatory risk discussions by others.

than in other states.[2] Most of TURN//Marcus' testimony here only looks at half of the picture, since it doesn't actually make comparisons to other states. TURN/Marcus' primary argument is not that PG&E has lower business risk than other states, but that risk is largely transferred to ratepayers and hence is not a shareholder risk.[3] As with regulatory risk described above, most of the business risks faced by California utilities are also faced by other utilities, and are already captured in the risk proxy groups.

B. Regulatory Risk

Q 4 Does it matter that ratemaking mechanisms in California may reduce risk for PG&E?

A 4 No, what matters is the risk of PG&E relative to the utilities in the comparable risk groups used to estimate ROE. DRA's and intervenors' claims that California's use of future test year ratemaking, balancing accounts, revenue decoupling, attrition adjustments and other mechanisms reduce risk for PG&E are moot, since most of the companies in the risk proxy groups already employ these or similar mechanisms. These mechanisms do not make PG&E less risky than the utilities in the comparable group. PG&E has compiled data from various sources that allow comparison of the major ratemaking mechanisms used in every state. This data is shown in Attachment 1, and it is easy to see that California is not unique in the use of future test year ratemaking, the use of fuel adjustment clauses, revenue decoupling, incentives, and balancing accounts (often called "riders" or "trackers" in other states) for all sorts of costs such as work required by others, pensions, environmental related costs, etc. In short, all states use a myriad of regulatory mechanisms to establish revenue requirements and set customers' rates. Credit rating agencies and investors weigh all these factors when rating risk, and hence credit ratings and risk factors, such as Value Line's Safety Rank metric, capture these risks. By both Standard and Poor's Inc. (S&P) credit ratings

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[2] TURN/Marcus p. 25 TURN uses the same risk proxy group for PG&E as does PG&E.

[3] *Ibid.* pp. 24-51. For example, see p. 37 ". . . energy policies . . . are ultimately risks to consumers, not California utilities."

and Value Line's Safety Rank, PG&E is slightly more risky relative to the proxy group used by TURN and PG&E.[4] Based on S&P credit ratings, PG&E is also slightly riskier than the average of the comparable groups used by DRA and FEA. In sum, the results of the ROE models appropriately capture the differences in risk associated with different ratemaking paradigms.

Q 5 How do credit rating agencies, like S&P, take into account the regulatory risk faced by a utility?

A 5 Fundamentally the regulatory risk for any utility is whether it can provide adequate service and manage its costs within its revenues so that it has an opportunity to earn a reasonable return. S&P put it best when it said "…we evaluate regulatory risk on a company – specific basis. A utility management's skill in managing regulatory risk can in many cases overcome a difficult regulatory environment. Conversely, other companies can experience greater regulatory risk even with supportive regulatory regimes if management fails to devote the necessary time and resources to the important task of managing regulatory risk."[5]

S&P's point is that one element of ratemaking, such as the use of future test years, is not determinative of regulatory risk, but it is the aggregate of all mechanisms at a utility's disposal and its ability to manage regulatory risks in its environment that ultimately determines regulatory risk. For example, of the seven states ranked by S&P as more supportive of credit, four are states that use historic test years.[6] A review of state rankings by Regulatory Research Associates (RRA), a firm that analyzes the regulatory climate in

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4 TURN uses the same risk proxy group for PG&E as does PG&E.

5 S&P Global Credit Report: Assessing U.S. Utility Regulatory Environments; November 7, 2007, p. 1.

6 S&P Global Credit Report: Standard & Poor's Updates Its U.S. Utility Regulatory Assessments; March 12, 2010. S&P rates states in five categories of credit support, ranging from "Most credit supportive" to "Least credit supportive." No states are in the highest ranking category "most supportive", and seven states are in the next highest category "More credit supportive". The category of "Least credit supportive" includes four states, of which two use a historical test year and the other two use a hybrid test year (a partially forecast test year).

each state, also shows little correlation between the quality of state regulation and the type of test year.[7]

Q 6 But what about TURN/Marcus' claim that future test year ratemaking dramatically reduces risk and that "California is virtually alone in North America in having a future test year three years after a base year."?[8]

A 6 PG&E does not know if it is alone in having to forecast exactly three years out, but, if that is true, then California is more risky than other states using future test years since forecasting out three years is clearly more risky than two years.[9] But, contrary to TURN/Marcus' claim that California's use of future test year ratemaking is unusual, the data in Attachment 1 show that almost half the states use a future test year.[10] There is nothing new about the three-year lag between the recorded base year and the forecast test year—this has been in effect since the California Public Utilities Commission (CPUC or Commission) first adopted a regulatory lag plan in 1977. Further, during the litigation of a General Rate Case (GRC), parties and the Commission are provided an additional year of recorded data which they can reflect in their test year forecasts.

The use of future test year and other ratemaking mechanisms is already reflected in the proxy group. The utilities in PG&E's and TURN's proxy groups operate in 18 states, and as shown by the data in Attachment 1, eight of those states allow the use of future test years and seven require use of a historic test year, although Colorado is moving to a future test year. The remaining four states use a hybrid test year. Attachment 1 also shows that eight of the proxy states have revenue decoupling, and that most states have various types of balancing accounts and incentives, just as California.

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7 Both the S&P and RRA summary data are shown in Attachment 2. S&P ranks each state on the ability of its regulatory framework to support credit quality. RRA ranks each state's regulatory climate, or regulatory risk, from an investor perspective.

8 TURN/Marcus p. 14.

9 For example, using a base year of 2011 and a forecast test year of 2014, there are three years from 2011 to 2014. There could be a longer forecast period between the base year and the forecast year, but less than two years would not make sense, since the concept of a future test year is that the test year follows, by one or more years, the year in which an application is made.

10 TURN/Marcus cites a study done in 2009 by the National Association of Regulatory Utility Commissioners, showing that 60 percent of the 20 out of 50 utilities that responded to the survey used historical test years, and the other 40 percent used future or hybrid test years. The response rate to that survey was simply too low to provide meaningful conclusions.

Q 7 But do mechanisms like decoupling make California less risky?

A 7 No. By itself decoupling, which simply holds base revenue constant, is not necessarily beneficial since costs do not remain constant. With a 3-year GRC cycle and increasing costs, revenue decoupling would require PG&E in non-GRC years to continually reduce service, or significantly fail to earn a reasonable return. States that have decoupling typically have other mechanisms that can address cost increases, such as the use of attrition adjustments in California. As seen in Attachment 1, states that use decoupling also have various mechanisms to deal with changes in costs, such as capital expenditure trackers. TURN/Marcus' claims that the ratemaking paradigm in California lowers risk may be correct, but that doesn't mean that it lowers risk relative to utilities in other jurisdictions. TURN/Marcus fails to consider that regulatory risk in many states is similar to California in light of a different mix of ratemaking mechanisms as reflected in Attachment 1.

Q 8 TURN seems to imply that revenue decoupling is also fairly unique to California.[11] Is that true?

A 8 No. Again, TURN/Marcus offers no evidence to support its assertion. Many states have adopted, or are in the process of adopting, revenue decoupling mechanisms more like California in order to promote customer energy efficiency (CEE) programs. Attachment 1 shows which states are using, or have pending, full or partial revenue decoupling.[12] PG&E evaluated each of the companies in its proxy group, and of the 13 utilities besides PG&E, nine operate in states that have authorized revenue decoupling for gas operations, and nine operate in states where revenue decoupling for electric operations has been authorized or is pending. As a result, any impact of revenue decoupling on the estimated ROE is reflected in the proxy groups.

Q 9 Even if revenue decoupling is fully reflected in the proxy groups, do you agree with TURN/Marcus that the risk that there will not be enough revenue is removed due to revenue decoupling?[13]

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11 TURN/Marcus pp. 14-18.

12 As shown in Attachment 1, 18 states have, or have pending full decoupling, and another 11 have, or have pending, partial decoupling.

13 TURN/Marcus p. 18.

A 9 No. TURN/Marcus is correct that revenue decoupling assures that the adopted base revenue requirement will be collected. However, it is not true that revenue decoupling guarantees that the adopted revenue requirement will be enough to cover costs. For example, if the economy performs better than expected (customer and load growth are higher than expected) and PG&E is required to install more services, increase capacity, etc., it must do so without the additional revenue that it would have obtained from higher sales without decoupling. In short, revenue decoupling increases the variability of equity cash flows, because it holds revenue constant without also holding costs constant.[14]

TURN/Marcus' opinion on decoupling is based on an incomplete analysis, and as a result reaches an incorrect conclusion. PG&E agrees that when business risk, i.e., expected volatility of investor cash flows, is reduced the cost of capital decreases. But we must also ask, reduced from what? One of the primary reasons for the CPUC adoption of revenue decoupling for the California utilities was to remove the disincentive of sales volume risk stemming from CEE programs and "experimental" rate design such as inverted block rates.[15] In the absence of revenue decoupling, CEE programs increase expected volatility of sales and investor cash flows. For example, as a result of CEE reducing sales volumes, PG&E's revenue, earnings, and equity cash flows from base rates could be significantly reduced. This is a material risk, and it is offset by the adoption of revenue decoupling. The correct conclusion about the impact of revenue decoupling is that it offsets the increased risk of CEE programs.

An important impact of revenue decoupling, neglected by TURN/Marcus, is that it may also *increase* risk due to load growth. This occurs because PG&E is only allowed to recover its authorized base revenue requirement. If actual customer growth is greater than growth

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14 TURN/Marcus correctly notes that credit rating agencies view decoupling as positive for credit quality. It is important to note that credit rating agencies are looking at credit quality, not equity risk, and what might be good for bondholders may not be good for equity holders.

15 When California first implemented inverted block tiered rates for residential customers, sales volatility increased due to price elasticity impacts, thereby increasing revenue volatility. Decoupling mitigates that risk. Decoupling mitigates that risk as California continues to experiment with rate structures such as dynamic pricing.

assumed in the authorized revenues, then PG&E's fixed costs may increase as a result of the higher level of capital expenditures needed to fund the infrastructure for greater customer growth. Without revenue decoupling, PG&E would keep the revenue from the added customers (and increased sales), which would significantly offset the fixed costs associated with serving the new customers. But with revenue decoupling, PG&E returns to customers the incremental revenue earned from the new customer load. The net result on cash flows for this type of risk is for revenue decoupling to magnify the volatility of investor cash flows, thus increasing shareholder risk.

Revenue decoupling serves as a substitute for other revenue stability features that are available through rate design in other jurisdictions. These rate design features include widely applicable customer charges and minimum bills, declining block rates, and demand charges with ratchets.

In sum, PG&E believes that revenue decoupling neither increases nor decreases PG&E's overall risk relative to states with no decoupling.

Q 10 TURN/Marcus appears to believe that California utilities have an advantage over utilities in other states because its GRC test year is typically three years after its base year. Is that true?

A 10 No. Ever since the regulatory lag plan was adopted in 1977, the CPUC's GRC processing schedule has required that the base year – the last recorded year – be the third year prior to the test year (Base year: test year - 3; Tender NOI and file application: test year - 2; Hearings, briefs and decision: test year - 1). Originally the major energy utilities filed GRCs every other year. That schedule was stretched to every three years in the late 1980s and codified in the rate case plan decision issued in early 1989 (D.89-01-040). However, many other states allow annual cases, and the Federal Energy Regulatory Commission (FERC) allows a utility to file anytime, with several cases in process simultaneously.[16] As measured by

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16 Some states that allow annual rate filings also have statutory requirements to complete those cases in a set period of time, e.g., Iowa has a ten-month statutory deadline from the date of the initial filing to render a final decision. Utilities in California have experienced not just the uncertainty of forecasting three years out, but then have not received a final decision until well into the test year. In PG&E's last three GRCs, a final decision wasn't obtained until late April or May. SCE and the SEMPRA utilities are still waiting proposed decisions in their most recent GRCs with a 2012 test year. They may not know their adopted revenue until nearly the end of the test year, which creates a substantial uncertainty about their equity cash flows.

regulatory lag, the time from an initial rate application to a final decision, the national average for 2011 was 9.6 months,[17] whereas PG&E's experience for its last three GRCs is about 22 months.[18] TURN/Marcus makes it sound like a cakewalk to forecast costs three years ahead to a test year, and then have a fixed revenue requirement for another two years without the benefit of keeping any additional revenue that goes with additional sales while costs are going up. Absent some mechanism to account for rising costs, the California ratemaking paradigm is likely far riskier than paradigms used in other states.[19]

Q 11 But does California's use of attrition adjustments in between GRCs reduce that risk?

A 11 Yes, it does. Attrition adjustments should mitigate the higher risk of the three-year GRC cycle. But its implementation has been spotty at best. Over the last 16 years, PG&E's actual attrition adjustments have ranged from zero to a Consumer Price Index (CPI) based adjustment to fixed dollar amounts, none of which have adequately accounted for cost increases in between GRCs.[20] Attrition adjustments reduce the risk in between GRCs compared to other regulatory paradigms only if they actually work. Given PG&E's high level of growth in rate base, as shown in Attachment 3, PG&E's capital-related revenue requirement is growing at a rate that far outpaces the CPI.[21] This simply illustrates S&P's view of regulatory risk,[22]

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17 TURN/Lawton p. 21.

18 Utilities in California have experienced not just the uncertainty of forecasting three years out, but then have not received a final decision until well into the test year. In PG&E's last 3 GRCs, a final decision wasn't obtained until late April or May. SCE and the SEMPRA utilities are still waiting proposed decisions in their most recent GRCs with a 2012 test year. They may not know their adopted revenue until nearly the end of the test year, which creates a substantial uncertainty about their equity cash flows.

19 A number of states use balancing accounts for new capital in between rate cases, a form of attrition.

20 PG&E received no attrition increases in 1997, 1998, 2000 and 2002, and a very small increase in 2001; PG&E received CPI-based increases in 2004, 2005 and 2006, and received fixed dollar increases in 2008, 2009, 2010, 2012 and 2013. Unexpected bonus depreciation, starting in 2009, substantially made up for what otherwise would have been revenue shortfalls due to growth in costs.

21 Attachment 3 is reproduced from PG&E's 2014 GRC NOI filed on July 2, 2012, Exhibit 11, Ch. 1.

22 S&P November 2007 op. cit.

that it is not one specific mechanism that determines regulatory risk but rather the full palette of options and how they are used.

Q 12 TURN/Marcus describes many of the balancing accounts used in California ratemaking, and implies that these reduce risk for California utilities relative to other states.[23] Do you agree?

A 12 No. PG&E agrees balancing accounts reduce risk, but not relative to the utilities in the proxy groups. PG&E does have many balancing and memorandum accounts and some of them, such as fuel/purchased power accounts are the same as other states. Others are unique to California, primarily because California has so many unique programs that are proposed, reviewed and authorized in proceedings outside of the general rate case. The balancing accounts mentioned by TURN/Marcus for dynamic pricing programs, SmartMeter™, smart grid, renewable generation are specifically to meet goals and requirements established by California that are far more aggressive than energy policies in other states.[24] What TURN/Marcus fails to mention is that most other states do not have the quantity and complexity of programs as California, and hence do not need all these balancing accounts. TURN/Marcus also fails to mention that other states have many balancing and memorandum accounts (often called "trackers" or "riders") that PG&E does not have. For example, Iowa has balancing accounts for work required by others and for taxes other than income, as well as an environment balancing account to track the cost of modifications to the state's coal plants as a result of new Environmental Protection Act regulations. TURN/Marcus also states that California is the only state that has a balancing account for pensions and post-retirement benefits other than pensions.[25] However, PG&E has identified at least

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23 TURN/Marcus p. 22.

24 TURN/Marcus also fails to mention that most of these programs use one-way balancing accounts that typically have a cost cap above which shareholders bear some or all of the risk of spending above the cost cap. One-way balancing accounts do not reduce risk as do two-way balancing accounts.

25 TURN/Marcus p. 21.

three states that have allowed one or both of such balancing accounts.[26] Note that the impetus for the tracking of amounts related to Post-Retirement Benefits Other Than Pensions (PBOP), Long-Term Disability (LTD) and pensions was to assure customers that the amount recovered by PG&E was actually contributed to the trusts.[27]

Q 13 Do California's various incentive mechanisms reduce risk as TURN/Marcus asserts?

A 13 No. TURN/Marcus asserts that the existence of several incentive mechanisms reduce risk, citing such incentive mechanisms as energy efficiency, gas procurement, non-tariffed produces and services, gas transmission and storage sharing of non-core revenue, gain on sale of land, etc.[28] TURN/Marcus' testimony on this issue misses the point. Attachment 1 shows that 29 states have, or have pending, incentive mechanisms. Hence, to the extent that incentives affect risk, that impact is already reflected in the comparable group of utilities used by TURN and PG&E. However, PG&E believes that none of these mechanisms reduce risk, because none of them reduce the volatility of equity cash flows, and in some cases, energy efficiency incentives in particular, increase expected volatility of equity cash flows.[29] Energy efficiency incentives have been highly contentious, and from an investor perspective, and given that the

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26 See Attachment 1. The states of Idaho, Hawaii, Massachusetts, and New York all currently allow some form of tracker or deferred accounting for pension and PBOPs for some or all of the utilities operating in those states. Kansas, Missouri, Oklahoma allow the Empire District Electric Company to also use deferred accounting for pension and PBOP costs. (See 2011 annual report at: https://www.empiredistrict.com/Investors/AnnualReport.

27 See Decisions 91-07-006 and 92-12-015 re PBOPS, D.95-12-055 re PBOPs and LTD, and D.06-06-014 re pensions. There is no tariffed balancing/memo account for PBOPs or LTD. The PBOPs/LTD reconciliation is not truly "one way" – even when there was a credit to customers, there was usually at least one year, where one of the plans was under-collected compared to the "lower of" standard. For PBOPs, PG&E's recovery of the contributions to the trusts is limited to the lower of the FAS (Financial Accounting Standards) expense or the tax deductible amount; for LTD, recovery of the contribution to the trust is limited to the tax deductible amount; and for pension, recovery is limited to the tax deductible amount. If the adopted amounts are higher than these limits, the over-collections are returned to customers. If there is a "federally mandated increase" in the pension contribution, PG&E may seek additional recovery. More recently PG&E has been allowed to shift the adopted amounts from one plan to another without a credit to customers.

28 TURN/Marcus p. 22.

29 Rating agencies generally view incentives as positive for credit quality. But unless cash flows from incentives are negatively correlated with a utility's ordinary cash flows, there will be no reduction in risk to equity holders.

energy efficiency incentive mechanism has provisions for penalties if goals are not met, the prospective cash flows from CEE incentives are far more volatile than cash flows from core utility operations.[30]

Q 14 TURN/Marcus asserts that PG&E is requesting a higher ROE given the prospect of changing laws and regulation.[31] Do you agree with that?

A 14 No. PG&E has made no adjustment to its modeling results or recommended ROE for such changes. To the extent that investors expect government laws and regulations to affect equity cash flows, that expectation is already reflected in the cost of capital modeling results since laws are continually changing at the state and federal level.

Q 15 TURN/Marcus cites several rating agency publications in an attempt to demonstrate that California utilities have lower risk than the utilities used in the cost of capital models.[32] Do these citations indicate that PG&E has lower risk than the utilities in the risk proxy group?

A 15 No. These citations, from S&P and Fitch, do not compare the risk of California utilities to utilities in other states. To the extent that the rating agencies differentiate the risk among utilities, those differences are found in the credit ratings those agencies assign. PG&E is currently rated BBB by S&P. The average S&P credit rating of PG&E's and TURN's proxy group is BBB+, meaning that PG&E has slightly higher credit risk relative to the average for that group. PG&E has also compared its S&P credit rating to the average credit ratings of the proxy groups used by DRA and FEA and found that PG&E's credit rating is somewhat lower than the average of those proxy groups.

Q 16 Please summarize your rebuttal testimony on regulatory risk.

A 16 PG&E has shown that there are myriad ratemaking methods used in different jurisdictions, and there is no one single mechanism that drives regulatory risk one way or another. Many states have future test years, decoupling, various balancing accounts or trackers, and some form of

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30 To be clear, the discussion here is about the prospective incentive revenue PG&E may earn or lose as a result of achieving, or failing to achieve, program targets, not the costs of the CEE program, e.g., administration and rebates.

31 TURN/Marcus p. 23.

32 TURN/Marcus p. 24.

attrition mechanism. The effectiveness of each of these paradigms is a function of the conditions under which those mechanisms are employed, and the ability of both regulators and utility management to effectively deploy them.

C. Business Risk

Q 17 TURN/Marcus claims that "both the utilities and their ratings agencies consider the California IOUs to have low business and regulatory risk profiles."[33] Are most of these risks already reflected in the ROE estimation models?

A 17 Yes. Again, what matters is the relative risk of PG&E to the utilities in the risk proxy group. Most of the risks discussed by TURN/Marcus are reflected in the credit ratings assigned by the rating agencies, and credit ratings are one of the factors used by TURN's and PG&E's ROE witnesses as a selection criterion for their proxy companies. As a result, most of these risks are reflected in the proxy groups, including such risks as capital investments, power procurement, utility-owned generation, operational risks, aging infrastructure, energy policy, environmental, etc.[34] The ROEs estimated with the proxy groups generally capture these risks.

Q 18 Does TURN/Marcus compare PG&E's business risks to those of the proxy utilities?

A 18 No. Absent from TURN/Marcus's discussion is any comparison to the proxy utilities to evaluate the extent to which PG&E is more or less risky than the average risk reflective of the proxy group. PG&E acknowledges that there are many differences among the utilities in the proxy group, as well as between California utilities and the proxy group. But the vast majority of these differences are captured by selecting proxy utilities that have about the same levels of risk as PG&E.

Q 19 Is there anything about California that would suggest how it compares to the average risk of the proxy group?

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33 TURN/Marcus, p. 25.

34 PG&E notes that although its level of capital spending is unprecedented relative to PG&E's historical level, it is about average when compared to utilities around the country in relation to cash from operations. See SCE direct testimony, p. 15, Figure 1-2. "PCG" is the bar for PG&E.

A 19 Yes. What the proxy companies do not adequately capture is the fact that California, more so than any other state, is willing to take much bigger risks when it comes to energy policy, as described in PG&E's direct testimony.[35] As Mr. Bijur testified, investors perceive business risks in California that are not seen in other states, thus requiring an ROE above the mid-point of Dr. Avera's range.[36] Although TURN/Marcus tries to dismiss this risk by asserting that ratepayers will pay the full tab if anything goes wrong with any of California's energy policies,[37] history does not support that assertion. While the expectation might be that under cost-of-service ratemaking ratepayers pay for all prudently incurred costs, when things go wrong the finger-pointing starts and organizations, such as TURN, will point at PG&E. The poster child for this is the California energy crisis in 2000. Investors still remember the 2000 California energy crisis, and understand that such innovative policies can come with great risk.[38]

More recently, we have seen shareholders bear risk when a major pillar of California's energy policy, advanced metering technology, (Advanced Metering Infrastructure (AMI) or SmartMeter™) was deployed. That deployment led to disallowances by the CPUC of the full cost of the legacy meters that were replaced by the new meters. In those proceedings TURN did not argue that ratepayers should bear the full cost of AMI deployment. Investors are right to remember that experience, and to expect that if any of California's energy policies go awry, there will be calls for shareholders to bear some of those costs.

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35 A current example of this risk is California's first-in-the-nation implementation of a cap and trade regime to reduce carbon emissions. A recent letter from FERC Commissioner Moeller to California Governor Brown expressed concern "about the potential disruption to California's electricity market that may arise from the California Air Resources Board's (ARB) implementation of California's greenhouse gas trading plan. Such market disruption would not only seriously impact California's economy, but as the 2000-2001 energy crisis showed, such a disruption would also have major negative impact on the economy of the West." (See Attachment 4, Letter dated August 6, 2012 from the FERC to Governor Brown.)

36 PG&E testimony filed April 20, 2012, Chapter 1, pp. 1-3 to 1-4.

37 TURN/Marcus p. 37.

38 See S&P Credit Report dated May 4, 2010 that stated: "At this stage, we have no indication that the credit-supportive climate that California has carefully created since the Western energy crisis will weaken, but undoubtedly the composition will change. At the same time, we note that state energy policy is highly political." (P. 6.)

D. Other Spurious Issues Raised by TURN/Marcus

Q 20 TURN/Marcus implies that PG&E seeks an ROE higher than necessary to support its credit ratings.[39] Is that true?

A 20 No. PG&E bases its ROE recommendation on the principle that it should be set at the same level of return that investors expect to earn on investments of comparable risk. To assure attraction of capital and adequate credit ratings, capital structure, as explained in PG&E's direct testimony, is equally important as ROE, and the two work in concert to maintain financial health and the ability to attract capital.

Q 21 TURN/Marcus asserts that despite PG&E's descriptions of risks in its testimony, PG&E does not mention these risks to its investors. Is that true?

A 21 No. PG&E routinely discloses all its risks in its filings with the Securities and Exchange Commission, as well as in investor presentations. Twelve pages (fully 10 percent of the report) of risk disclosures are contained in PG&E's most recent Annual Report to Shareholders.[40] And two pages of risk disclosures are included in the most recent earnings PowerPoint presentation to investors.[41]

Q 22 TURN/Marcus asserts that because over the previous five years PG&E has generally earned near or above its authorized return that business risk is low.[42] Is this a good representation of PG&E's earnings?

A 22 No, nor does it say anything about PG&E's risk relative to other utilities, such as those in the proxy group. Attachment 4 shows PG&E's earned ROE for the period 1961-2011 relative to its authorized ROE. As the table shows, PG&E's earnings cannot be characterized as "generally near or above" the authorized return. Interestingly, the table shows that over time PG&E's earnings became more volatile after the implementation of ratemaking mechanisms such as revenue decoupling, attrition year

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39 TURN/Marcus pp. 6-10.

40 PG&E's annual report to shareholders can be found on the PG&E web site at: http://www.pgecorp.com/investors/financial_reports/.

41 PG&E's most recent PowerPoint presentation to investors can be found at: http://www.pgecorp.com/investors/investor_info/presentations/index.shtml.

42 TURN/Marcus p. 4.

adjustments, etc. If TURN/Marcus's claim that all risks are borne by customers were true, then we would not see such volatility in earnings.

Q 23 TURN/Marcus claims that PG&E is relying on "cost pressure," that is, high electricity rates, to justify a higher ROE, and that there is no basis for cost pressure to be a risk, since PG&E can always cut back its capital spending to keep rates from inflating as fast.[43] Does this make any sense?

A 23 No. PG&E has not increased its ROE to reflect the risk of high rates. Rising electricity prices in California, in part a result of state energy policies to reduce carbon emissions and to implement an aggressive Renewable Portfolio Standard (RPS), are a concern to investors.[44] This risk is reflected in the proxy groups, since many other states are facing higher electricity prices as they too move to reduce carbon emissions, although California's policies are more aggressive and riskier with a 33 percent RPS and the only cap and trade program in the nation. But it is not true that PG&E can arbitrarily cut its capital expenditures. PG&E has little discretion when it comes to investing in digital meters, smart grid, and many other investments to implement state energy policy, not to mention replacing aging infrastructure and maintaining and improving safety and reliability. Investors have a legitimate concern that when utility rates reach the consumer breaking point, they may be asked to bear some of this risk.[45]

Q 24 TURN/Marcus further claims that cost pressure is mitigated because the California commission "pre-approves" capital expenditures.[46] Is that true?

A 24 No. There is no general, blanket pre-approval of capital expenditures that absolves PG&E from any future review of plant additions or the usefulness of those additions. Adoption of a revenue requirement, such as in a GRC, does not give specific approval to capital projects, but merely adopts a revenue requirement based on expenses and capital-related costs that are representative of those expected to be incurred in the test year. The CPUC

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43 TURN/Marcus pp. 10-11.

44 See PG&E's direct testimony filed April 20, 2012 at p. 1-8, lines 6-14.

45 See CPUC Decision 01-01-018: "We are very troubled by the utilities' assumption that ratepayers must bear the burden of significant rate increases without the shareholders sharing in the pain." Mimeo at p. 15.

46 TURN/Marcus p. 10-11.

and the FERC routinely audit PG&E's books and generally can recommend disallowances of unreasonable costs related to plant at any time, and can find that plant is not used and useful. The most recent example is that of the legacy meters, where any pre-approval of legacy meters (in every GRC) did not result in full cost recovery. Pre-approval of large capital projects, such as power plants, also does not come with a blank check, but rather with cost caps and other mechanisms that involve risk to shareholders.

Q 25 But is it right that California is the only state, as TURN/Marcus implies, that pre-approves capital expenditures?[47]

A 25 No. Future test year ratemaking requires a forecast of the capital additions beyond the base year in order to forecast the future test year rate base. States that use future test year ratemaking have effectively "pre-approved" capital projects when a test year revenue requirement is adopted, no different than California. Other states also approve large projects before construction, and also use cost caps with subsequent reviews if the cost caps are exceeded. California is not as different as intervenors claim.

Q 26 TURN/Marcus asserts that PG&E has made investments that are not economically efficient, thereby constituting evidence of excessive authorized ROEs.[48] How do you respond to that?

A 26 Other than vague allusions to how PG&E acquires office space and the need for fewer power plants due to energy efficiency programs,[49],[50] TURN/Marcus presents no specific examples demonstrating where PG&E

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47 TURN/Marcus p. 26.

48 TURN/Marcus p. 12, 26.

49 TURN/Marcus alleges that because PG&E owns most of it office buildings rather than rents it must follow that PG&E's authorized ROE is above its actual ROE. (TURN/Marcus p. 13.) In fact, Fortune 500 firms typically own their headquarters buildings, and will own a very high percentage of their real estate, ranging from 60 percent to 95 percent. PG&E notes that it has occupied its current location for over 80 years, and given that the typical lease requires renegotiating the rental rates every five years and limits the extensions, PG&E has saved countless dollars from not having to pay inflated rents or incurring costs to relocate its headquarters when the lease couldn't be renewed. Further, the December 31, 2011 plant balance data submitted to the CPUC on May 1, 2012, shows that the net plant all of PG&E's buildings ($770 million) is only 2 percent of the total utility net plant of $37 billion.

50 TURN/Marcus's other evidence is a paper written a half century ago by Averch and Johnson (A-J) who theorized utilities had incentives to overinvest in capital. TURN/Marcus fails to mention the controversies surrounding this theory, and as recently as 2005 one researcher stated that empirical tests of the A-J hypotheses have not been particularly successful. (See "A Frontier Approach to Testing the Averch-Johnson Hypothesis", by Donald Vitaliano and Gregory Stella, Rensselaer Working Papers in Economics, June 2006.)

has spent capital inefficiently. PG&E asked TURN in a data request for specific examples of inefficient investments, and TURN was unable to cite any specific cost-inefficient investment,[51] other than claim that PG&E's Cornerstone program to improve reliability was cost-ineffective. However, here TURN confuses the concept of cost efficiency with that of customer satisfaction. Investments to improve customer satisfaction are not always cost-effective in the strict sense of the term. In the case of Cornerstone, the goal was an improved level of reliability, not cost savings per se. In fact, utilities have a strong incentive to not over invest or gold plate their facilities since they run the risk of disallowances of capital that is not used and useful. The CPUC and intervenors have ample opportunity to review and dispute PG&E's forecast capital spending through the rigorous process of rate cases to determine whether the utility has adequately justified its capital projects. PG&E is unaware of any plant cost that has been disallowed because it was "inefficient." Moreover, PG&E's decision to spend capital is not governed by the authorized ROE. The level of utility capital spending is determined by the need to provide safe and reliable utility service. The authorized ROE is not a consideration when deciding the level or type of capital spending. In fact, the planning process for many large capital projects begins years before the authorized ROE is even known.

Q 27 Does this complete your testimony?

A 27 Yes.

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51 Data request PGE-TURN_002.

PACIFIC GAS AND ELEC TRIC COMPANY

CHAPTER 2

ATTACHMENT 1

REGULATORY MECHANISM S ACROSS U.S. STATES

Attachment 1

Regulatory Mechanisms Across U.S. States

State	Forward Test Years	Decoupling		Fuel/Purchase Power Balancing Account	Other Balancing Accounts	Capex Cost Tracker	CWIP in Rate Base	DSM Performance Incentives
		Full	Partial					
[1]*	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Alabama	Yes			Yes	Yes			
Alaska				Yes				
Arizona			E		Yes			Yes
Arkansas	Hybrid		E	Yes	Yes	G&E		Yes
California**	Yes	G&E		Yes	Yes	G&E		Yes
Colorado**	Pending	G	E	Yes	Yes	E	Yes	Yes
Connecticut**	Yes	E	G		Yes			Yes
Delaware	Hybrid				Yes			
D.C.	Hybrid	E			Yes			
Florida**	Yes		G	Yes	Yes	E	Yes	Pending
Georgia	Yes		G	Yes	Yes	G&E	Yes	Yes
Hawaii	Yes	E		Yes	Yes	E		Yes
Idaho		E		Yes	Yes			Pending
Illinois**	Yes	G	G		Yes	G		
Indiana**		G	E	Yes	Yes	G&E	Yes	Yes
Iowa**				Yes	Yes	E		
Kansas			E	Yes	Yes	G&E	Pending	Pending
Kentucky**	Yes		G&E	Yes	Yes	G&E		Yes
Louisiana				Yes	Yes	E	Yes	
Maine	Yes				Yes	E		
Maryland		G&E			Yes		Yes	
Massachusetts**		G&E	G&E		Yes	G&E		Yes
Michigan**	Yes	G&E			Yes		Pending	Yes
Minnesota**	Yes	G, E-Pending		Yes	Yes	E	Yes	Yes
Mississippi	Yes		E	Yes	Yes	E	Yes	
Missouri			G, E-Pending	Yes	Yes	G		Pending
Montana			G					Pending
Nebraska				Yes	Yes		Yes	
Nevada		G	E		Yes			
New Hampshire		G, E-Pending			Yes			Yes
New Jersey**	Hybrid	G			Yes	G&E		
New Mexico	Pending	E-Pending		Yes	Yes		Pending	Yes
New York	Yes	G&E			Yes	G&E		Yes
North Carolina**		G	E	Yes	Yes		Yes	Yes
North Dakota	Yes		G	Yes	Yes		Pending	
Ohio**	Hybrid	E-Pending	E		Yes	G&E		Yes
Oklahoma			G&E	Yes	Yes	E	Pending	Yes
Oregon	Yes	G&E	G		Yes	G&E		
Pennsylvania**	Hybrid				Yes	E		
Rhode Island	Yes	G&E			Yes			Yes
South Carolina**			E	Yes	Yes		Yes	Yes
South Dakota			E	Yes	Yes		Pending	
Tennessee	Yes	G		Yes	Yes			
Texas						E	Yes	Yes
Utah	Yes	G, E-Pending	E-Pending	Yes	Yes	G		Pending
Vermont		G&E			Yes	E		Yes
Virginia**		G	E-Pending		Yes	E	Yes	
Washington		G		Yes	Yes			
West Virginia				Yes	Yes		Yes	
Wisconsin**	Yes	G&E		Yes	Yes		Yes	Yes
Wyoming	E Only	G	E	Yes	Yes			

* See next page for sources, notes, and definitions

** States where PG&E's and TURN's PG&E comparator utilities operate

Sources:

[2] – [4], [7] -[8]: From "Innovative Regulation: A Survey of Remedies of Regulatory Lag", Edison Electric Institute, April 2011, Table 1 and Table 9.
http://www.eei.org/whatwedo/PublicPolicyAdvocacy/StateRegulation/Documents/innovative_regulation_survey.pdf

[5], [9]: From "IEE State Electric Efficiency Regulatory Frameworks Report," July 2012.
http://www1.eere.energy.gov/buildings/betterbuildings/neighborhoods/pdfs/iee_state_reg_frame.pdf

[6]: Adjustment Clauses and Rate Riders ~ A State-By-State Overview ~, Regulatory Research Associates, March 21, 2012.

Notes:

[5], [8], [9]: Data is for electric utilities only.

[6]: Information on other balancing accounts is listed in the following state-by-state table.

Definitions:

[2]: A forward test year is a twelve month period that begins after the rate case is filed.

[3] - [4]: Full decoupling or partial decoupling (lost revenue adjustment mechanisms and/or fixed customer charge) assists the utility in recovering authorized revenue requirements associated with fixed operating costs, despite increases or decreases in sales.

[5]: Fuel/Purchase Power Balancing Accounts include 1) fuel riders that allows fuel costs to adjust intra-year if recoveries or deferrals differ from budget by more than specified amount and 2) Energy Cost Recovery (ECR) mechanisms established on the basis of estimates of electric sales, fuel-related costs, and purchased power costs, and reflects accumulated over- or under-recovered amounts

[7]: Trackers for the annual cost of plant additions are sometimes called capital expenditure ("capex") trackers.

[8]: Many commissions address the delay in receiving a return on investment by including costs of construction work in progress ("CWIP") in the rate base, so that a return on investment can start sooner.

[9]: Performance Incentives are mechanisms that reward utilities for reaching certain energy efficiency program goals, and, in some cases, impose a penalty for performance below the agreed-upon goals.

Attachment 1

Other Balancing Accounts by States

Alabama

The Certificated New Plant (Rate CNP) adjustment clause for Alabama Power provides for: the recovery of costs related to the commercial operation of certified generating facilities; the recovery of the costs (excluding fuel) associated with certified purch ased power agreements; and, recovery of costs associated with environmental mandates. The tariffs of the major energy utilities include adjustment provisions to allow for recovery of changes in income taxes, and certain general and local taxes.

Alaska

Power cost adjustment mechanisms only.

Arizona

Adjustment mechanisms used by APS are: a system benefits charge for recovery of prudent costs incurred by the utility to comply with the ACC's electric competition rules or costs associated with certain public purpose programs (conservation, wind power development, etc.) authorized by the ACC; a transmission cost adjustor to flow through changes in Federal Energy Regulatory Commission-approved transmission rates; a renewable energy surcharge (RES); a demand-side management adjustment charge; and, an environmental improvement surcharge.

Arkansas

The electric and gas utilities have in place rate riders that provide for the recovery of the costs associated with PSC -approved energy efficiency (EE) programs . Entergy Arkansas utilizes a production cost allocation (PCA) rider, which provides for timely recovery of the costs associated with "rough equalization" of electric generation production costs among the Entergy operating companies, as required by the Fe deral Energy Regulatory Commission. EA also utilizes a storm recovery charge rider to collect from ratepayers the amounts required to service its related securitization bonds. Oklahoma Gas & Electric (OG&E) uses a storm damage rider to recover incremental storm restoration costs incurred in 2008. OG&E also uses a transmission cost recovery rider and a "Smart Grid" rider.

Attachment 1

Other Balancing Accounts by States

California

The CPUC conducts a Biennial or Triennial Cost Allocation Proceeding to allocate non-fuel gas costs between core and non-core customer classes. The BCAP/TCAP provide for the amortization of balances in specified balancing and tracking accounts. The costs tracked through the balancing account mechanisms are subject to annual reasonableness reviews, and a true-up is implemented in the years between the proceedings. In 2010, the CPUC adopted an electric distribution reliability improvement program for PG&E, the costs of which are to be recovered through a dedicated account outside of general rate cases. Rates are to be based on adopted cost forecasts with a balancing account to accumulate any difference in revenue requirement based on recorded costs compared to the adopted forecast.

Colorado

Legislation enacted in 2010, allows a utility that is earning below its authorized equity return and operating under an emissions reduction plan designed to achieve a conversion or closure of coal-based generating capacity by Jan. 1, 2015, to, under certain circumstances, be accorded a special ratemaking mechanism designed to recover the costs of the approved plan. Effective Jan. 1, 2011, the Colorado PUC authorized PSCO to recover, subject to certain adjustments, operations and maintenance and capital costs associated with the company's investment in the gas-fired 652-MW Rocky Mountain Energy Center and the 310-MW Blue Spruce Energy Center via the purchased capacity cost adjustment clause until PSCO's next electric rate case. PSCO is permitted to recover, through a transmission cost adjustment (TCA) clause implemented in 2008, prudent costs incurred in planning, developing, and completing construction or expansion of transmission facilities.

Connecticut

Tracking mechanisms are in place for CL&P and UI that provide for semi-annual adjustments to reflect Federal Energy Regulatory Commission-approved transmission costs. As part of a 2009 rate decision for UI, the Connecticut Public Utilities Regulatory Authority adopted pension and cost-of-debt tracking mechanisms, both of which were discontinued in 2011.

Delaware

DP&L is permitted to submit annual filings to update prices to reflect changes in Federal Energy Regulatory Commission-approved transmission charges.

Attachment 1

Other Balancing Accounts by States

Florida

Electric utilities may recover all prudently incurred site selection and preconstruction costs, including carrying charges, for nuclear and integrated gasification combined-cycle (IGCC) power plants through the capacity cost recovery clause (CCRC). Certain fees and taxes, such as franchise fees and gross receipts taxes, are recovered through a line item on customer bills, with the charge adjusted based on customer usage.

Georgia

Atlanta Gas Light (ATGL) has been authorized to recover clean-up costs related to former manufactured gas plant sites through an environmental response cost recovery rider (ERCRR). Costs that are recoverable under the ERCRR include investigation, testing, remediation, and/or litigation costs or other liabilities. In 2009, the PSC approved for ATGL the STRIDE program that authorizes the company to invest about $400 million in infrastructure improvements over the next ten years. Every three years, ATGL is required to file its proposed program for the next three years for PSC review and approval.

Hawaii

HECO, HELCO, and MECO utilize tracking mechanisms for pension and other-than-pension employee benefit (OPEB) costs. As part of an alternative regulation framework (ARF) approved in February 2011, Hawaiian Electric Company (HECO) implemented a cost-of-service recovery mechanism, which recognizes rate base additions and increases in operation and maintenance expenses, and certain depreciation and amortization expenses between rate cases and includes a decoupling mechanism. On Feb. 8, 2012, the PUC issued a preliminary order in HELCO's 2010-test year rate case indicating that the company will be permitted to operate under an ARF similar to HECO's. The PUC has approved recovery of certain demand-side management program costs (to the extent that they are not recovered through base rates) through an annual integrated resource planning (IRP) cost-recovery surcharge, subject to review. In 2009, the PUC authorized HECO, HELCO, and MECO to implement a surcharge mechanism to facilitate the recovery of renewable energy infrastructure investments.

Idaho

The PUC has allowed Idaho Power to increase rates outside a base rate case to recover the cash contribution to its defined benefit pension plan. In February 2011, the Commission adopted Idaho Power's regulatory account and cost recovery plan associated with the early-shut down of the Boardman coal-fired plant that, as a result of changing environmental regulations, is to cease operations 20 years earlier than expected. The PUC approved the establishment of a balancing account, whereby the incremental revenue requirement associated with the early-shut down of the plant is to be tracked for recovery.

Attachment 1

Other Balancing Accounts by States

Illinois

Illinois Commerce Commission (ICC) approved a settlement that permits Ameren Illinois to utilize a hazardous materials adjustment clause rider, largely to address asbestos-related litigation and remediation costs. As permitted by state statutes, Ameren Illinois, ComEd, Northern Illinois Gas, Peoples Gas Light & Coke and North Shore Gas utilize riders to facilitate recovery of variations in bad-debt costs. Ameren Illinois utilizes a transmission service rider.

Indiana

The Indiana URC has approved requests to recover from ratepayers the net costs associated with the prospective sale/purchase of emissions allowances. Gas utilities track incremental changes in unaccounted-for gas costs and the gas-cost component of bad debts through gas cost adjustment filings. Legislation permits the electric utilities to recover, through a rate adjustment mechanism, 80% of the costs associated with certain federally-mandated emissions-control projects. The remaining 20% of such costs are to be deferred for future recovery. In 2007, the URC authorized the company to earn a cash return on construction work in progress associated with the Edwardsport plant and to recover the facility's operating costs once complete, through an adjustment mechanism

Iowa

In a 2010 rate decision for IP&L, the Iowa Utilities Board permitted the company to implement a transmission cost recovery mechanism for a three-year term. Revenues and costs associated with IP&L's sales or purchases of emission allowances may be reflected in the energy adjustment clause. MidAmerican Energy uses a rider to recover certain feasibility study costs related to its analysis of the merits of building a new nuclear plant.

Kansas

State statutes permit the local gas distribution companies to request KCC approval of a gas system reliability surcharge (GSRS) mechanism to recover the costs associated with gas distribution system replacement projects between base rate proceedings, subject to annual true-up. Westar and KG&E utilize Transmission Delivery Charge riders that provide for the unbundling and recovery of Federal Energy Regulatory Commission-regulated transmission charges.

Kentucky

Electric utilities utilize mechanisms to recover environmental compliance costs (including a cash return on environmental CWIP) between rate proceedings, and several gas utilities use mechanisms that provide for recovery, between rate cases, of costs associated with their main replacement programs. PSC has allowed certain companies to increase their fixed monthly customer charges to recover a greater proportion of their fixed costs through this charge.

Attachment 1

Other Balancing Accounts by States

Louisiana

In 2009, the Louisiana Public Service Commission authorized the state's electric utilities to use an environmental adjustment clause (EAC) to recover from ratepayers the costs associated with the acquisition of emissions credits to comply with federal, state, and local environmental standards. In addition, the utilities are to credit ratepayers through the EAC any revenues associated with the sale or transfer of emission allowances.

Maine

Northern Utilities recovers manufactured gas site remediation expenses through an environmental remediation rate adjustment that is set on a semi-annual basis.

Maryland

Baltimore Gas & Electric has electric and gas riders in place, with surcharge rate changes implemented on an annual basis, to reflect recovery of electric and gas energy efficiency and demand-side program costs that are not included in base rates.

Massachusetts

Pension and post-retirement benefits other than pensions (PBOP) are in place for ME, NE, WMECO, NSTAR Electric, NSTAR Gas, Fitchburg Gas and Electric Light, New England Gas, Boston Gas/Essex Gas, Colonial Gas, and Columbia Gas of Massachusetts. The utilities file annually for recovery of pension and PBOP costs not currently reflected in rates. Such costs are to be recovered through the LDAC reconciliation mechanism for gas utilities and a separate rate component for electric utilities. The electric utilities are permitted to utilize transmission cost recovery mechanisms. A solar cost adjustment charge was approved by the DPU in conjunction with the Department's 2009 approval of Western ME's proposal to install 6 MWs of solar energy generation. In 2010, the DPU approved a solar cost adjustment charge for ME and Nantucket Electric (NE) for the utilities' installation of 5 MWs of solar generation

Michigan

CE, Detroit Edison, and UPP recover transmission costs through the power supply cost-recovery mechanism. Uncollectible expense true-up mechanisms are in place for MCG and Michigan Gas Utilities.

Minnesota

The major electric utilities use rate riders that provide for annual recovery of transmission, conservation, renewable energy, and emission reduction costs.

Other Balancing Accounts by States

Mississippi

An energy efficiency (EE) rider is in place for Entergy Mississippi (EM) through which the company recovers costs associated with its EE program. EM and Mississippi Power (MP) may recover emissions allowance expenses through their adjustment clauses. Since 1992, MP has utilized an Environmental Compliance Overview plan that establishes procedures to facilitate the PSC's review of the company's environmental compliance strategy and provides for base -rate recovery of costs (including the cost of capital) associated with PSC -approved environmental projects, on an annual basis, outside of a base rate case. Since 2005, EM has been recovering the costs of its 480-MW, gas-fired Attala power plant through a temporary rate rider. The rider is to remain in place until the company files for a general rate case.

Missouri

PSC rules allow that a portion of the utility's environmental costs may be recovered through an Environmental Cost Recovery Mechanism and a portion may be recovered through base rates. Atmos Energy, Laclede Gas, Missouri Gas Energy, and Union Electric utilize an infrastructure system replacement surcharge to recover costs associated with certain gas distribution system replacement projects.

Montana

Supply cost recovery mechanism only.

Nebraska

2009 legislation allows gas utilities to apply for Nebraska Public Service Commission (PSC) approval to implement an infrastructure system replacement cost recovery (ISRCR) rider to provide for timely recovery of certain capital investmen ts outside of a general rate case.

Nevada

In 2009, the PUC adopted a natural gas -related bad -debt tracking mechanism for Southwest Gas designed to allow the company to recover from, or refund to, ratepayers the difference between actual bad debt expens es and the level reflected in base rates.

Other Balancing Accounts by States

New Hampshire

A transmission cost adjustment mechanism (TCAM) is in place for PSNH. The TCAM, which is designed to provide recovery of all transmission-related costs, is adjusted annually each July 1. Reliability enhancement and vegetation management programs are in effect for Granite State, PSNH, and Unitil Energy Systems. The programs provide for recovery of both the capital investment and increases to operation and maintenance expense necessary for ongoing system reliability and vegetation management efforts. Major storm reserve accounts are in effect for the state's electric utilities.

New Jersey

PUH is permitted to recover costs associated with manufactured gas site cleanup through a remediation adjustment mechanism. Such expenses are deferred and recovered over a seven-year period, including carrying costs on the balance. During 2009, 2010 and 2011, the New Jersey Board of Public Utilities approved economic stimulus programs proposed by the electric and gas utilities at the BPU's request. The programs called for the acceleration of various infrastructure development projects. The companies are permitted to recover the costs associated with these accelerated capital investment plans through surcharge mechanisms.

New Mexico

In 2009, the New Mexico Public Regulation Commission adopted a rate case settlement for Public Service Co. of New Mexico that contained an SO2 rider through which customers are credited with their share of revenues from allowance sales.

New York

Rate case plans have generally incorporated rate bases that increase over the term of the plan and deferral accounting for increases in such items as net plant, pension expense, and labor costs. Earnings in excess of an established return on equity (ROE) cap to be shared by stockholders and ratepayers.

North Carolina

The NCUC may pre-determine the prudence of a utility's decision to build a baseload generating plant and the facility's projected costs and in the following general rate case, the utility would be permitted to recover previously approved costs following completion of the project. The costs of certain materials used in reducing or treating emissions may be recovered through the fuel adjustment clause. Incremental operation and maintenance costs and annual research and development (R&D) expenses up to $1 million are also recoverable through the renewable energy portfolio standard rider.

Attachment 1

Other Balancing Accounts by States

North Dakota

Electric utilities are permitted to file with the Commission for pre-determination of the prudence of planned construction projects. In June 2010, the PSC approved a settlement permitting MDU to recover, through its fuel and purchased power adjustment clause, roughly $9.6 million of costs associated with the cancelled Big Stone II coal plant over three-years beginning Aug. 1, 2010.

Ohio

For CEI, OE, and TED, renewable energy resource requirements for the period June 1, 2011 through May 31, 2014, are to be met through the purchase of renewable energy credits (RECs) and costs are to be recovered through a reconcilable rider. The current electric security plans for CEI, OE, and TED include the implementation of a delivery capital recovery rider that reflects a return of and on distribution, sub-transmission, and general plant-in-service not included in the companies' 2009 rate decisions. In a 2008 rate decision for Columbia Gas of Ohio, the PUC adopted a stipulation that included riders for infrastructure replacement costs and demand-side management program expenses. In a 2009 base rate decision for Vectren Energy Delivery of Ohio (Vectren), the PUC adopted a settlement that included the establishment of distribution rate rider through which the company recovers the costs associated with an accelerated main and service line replacement program.

Oklahoma

In 2009, the OCC adopted a settlement that permits OG&E to recover the costs associated with the 101-MW "OU Spirit" wind facility and Crossroads Wind Farm through a cost recovery rider. The costs associated with the project are to be reflected in the company's base rates in its next rate case decision. OG&E is permitted to recover costs (both capital- and expense-related) associated with the company's "system hardening" and "vegetation management" programs, through a rider. In 2008, the OCC authorized OG&E to implement a storm cost recovery rider. The rider is adjusted annually to reflect any differences between the level of storm costs reflected in base rates and the level of such costs actually incurred in that year.

Oregon

The renewable adjustment clause allows for recovery of renewable resources and associated transmission that are expected to be placed into service in the current year without filing a general rate. In 2009, the PUC authorized NWNG to implement a new System Integrity Program (SIP) designed to recover costs related to base steel, pipeline integrity, and other pipeline safety programs. Costs are to be tracked annually, with recovery to be sought through the purchased gas adjustment after the first $3.3 million of capital costs are incurred by the company.

Attachment 1

Other Balancing Accounts by States

Pennsylvania

On Feb. 14, 2012, legislation was enacted to allo w the Pennsylvania Public Utility Commission to approve automatic adjustment clauses to recognize between general rate cases utility investments in certain infrastructure projects. PPL Electric Utilities, Duquesne Light, Metropolitan Edison, and Pennsylvania Electric have mechanisms in place to allow changes in Federal Energy Regulatory Commission -approved PJM Interconnection transmission charges to be automatically reflected in rates, subject to annual true -up. PPL -E also has a surcharge in place to recov er universal service program costs.

Rhode Island

An alternative regulation plan is in effect for the gas operations of Narragansett Electric that provides for graduated earnings sharing above the benchmark returns. NE is to flow through to ratepayers all non-firm gas margins earned in excess of $2.8 million. The company recovers any shortfall of non -firm margins below $2.8 million through a distribution adjustment clause

South Carolina

Gas utilities are subject to potential annual rate adjustments if their earned equity return is outside a band of +50 basis points around the last authorized return.

South Dakota

While operating under a rate plan, utilities are required to submit annual cost -of-service filings, and the Commission may adjust a ut ility's rates at any time up to one year following the conclusion of a rate plan. Plans are in place that provide for sharing of certain margins. State law permits electric utilities to seek a cash return on construction work in progress and cost recovery associated with environmental compliance and transmission investments through separate riders. The PUC is statutorily authorized to approve automatic adjustment mechanisms to facilitate the recovery of the capital and operating costs associated with inve stment in transmission facilities.

Tennessee

PNG recovers margin losses associated with customers who are served under negotiated contracts and are able to bypass the utility's distribution system via its purchased gas adjustment rider. In May 2010, t he TRA authorized CG to implement a full revenue decoupling mechanism for its residential and small commercial customers on a three -year pilot basis. Under the gas procurement incentive mechanism, Atmos is permitted to retain 50% of savings associated wit h gas costs that are less than 97.7% of a predetermined benchmark (lower band), and is required to absorb 50% of gas costs that are more than 102% of the benchmark (upper band).

Attachment 1

Other Balancing Accounts by States

Texas

There are no alternative regul ation mechanisms currently in place for the electric utilities in Texas.

Utah

A 2009 law permits utilities to seek recovery of costs associated with major plant additions via limited -issue rate proceedings. A pilot infrastructure replacement adjustment (IRA) mechanism was established by the PSC for Questar Gas in an April 2010 rate decision permitting the company to track and recover between rate cases, the costs associated with the replacement of high -pressure natural gas feeder lines. The mechanism is to be adjusted at least annually

Vermont

Under state law, the PSB is permitted to adopt alternative regulation plans (ARPs) for energy utilities. Green Mountain Power's ARP contains an earnings sharing mechanism (ESM) that provides for a 1 50-basis-point deadband around the authorized ROE. Incremental earnings above the upper end of the range are to be returned to customers, with GMP to recover 50% of any earnings shortfalls between 75 and 125 basis points below the authorized ROE, and all e arnings shortfalls in excess of 125 basis points below the authorized ROE.

Virginia

Earnings within a 100 -basis-point deadband around the established ROE will be considered reasonable and no rate adjustment will be required. If the SCC determines that the company's earnings for the test periods were more than 50 basis points below the fair ROE, the Commission would be required to approve a rate increase designed to accord the company an opportunity to earn the fair ROE. If the SCC were to determine that the company's earnings for the relevant test periods were more than 50 basis points above the authorized ROE, then 60% of the incremental earnings would be refunded to ratepayers over a subsequent six -to-12-month period. SCC rules also provide for "exped ited" rate proceedings, which are essentially make -whole proceedings, and are allowed to be filed by gas utilities and smaller electric utilities (e.g., PPL Corp. subsidiary Kentucky Utilities) once per year. The expedited procedure allows the utility to i mplement an interim rate change, subject to refund, after 30 days, and subject to applicable provisions of the law.

Washington

In November 2010, the WUTC issued a policy statement on decoupling. The WUTC indicated that it would consider adoption of a full decoupling mechanism ("designed to minimize the risk to both the utilities and to ratepayers of volatility in average use per customer by class regardless of cause, including the effects of weather"), for electric and gas utilities.

Other Balancing Accounts by States

West Virginia

State statutes allow the energy utilities to use adjustment mechanisms that reflect, on a timely basis, changes in electric fuel costs, purchased power expenses, gas costs, investments related to environmental complianc e costs, new transmission facilities, and new generation facilities that burn West Virginia coal.

Wisconsin

As permitted by statute, the PSC may authorize equity returns that are applicable only to specific generation projects. Before constructing a g enerating facility, a utility must obtain a determination of need from the PSC, which includes an estimate of the facility's costs. Cost overruns are considered on a case -by-case basis. A utility that proposes to purchase or construct an electric generatin g facility may apply to the PSC for an order specifying, in advance, the rate treatment, including the authorized return on equity, that will apply to the plant over its economic life

Wyoming

On Sept. 22, 2011, the PSC approved a settlement authorizing PacifiCorp to implement an adjustment mechanism designed to recover from or refund to ratepayers 100% of the difference between actual renewable energy and SO2 credit revenue levels and the levels reflected in base rates.

Source: ADJUSTMENT CLAUSES AND RATE RIDERS ~ A State-By-State Overview ~, Regulatory Research Associates (RRA), March 21, 2012.

Individual state descriptions from RRA state reports

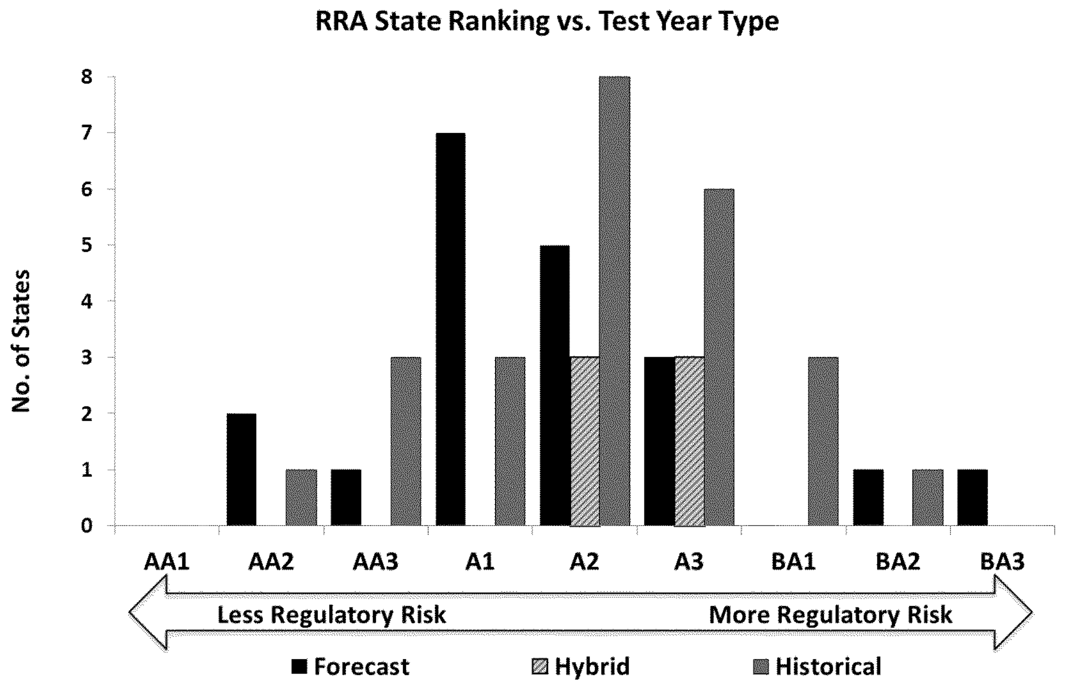
PACIFIC GAS AND ELEC TRIC COMPANY

CHAPTER 2

ATTACHMENT 2

S&P AND RRA SUMMARY DATA

Attachment 2

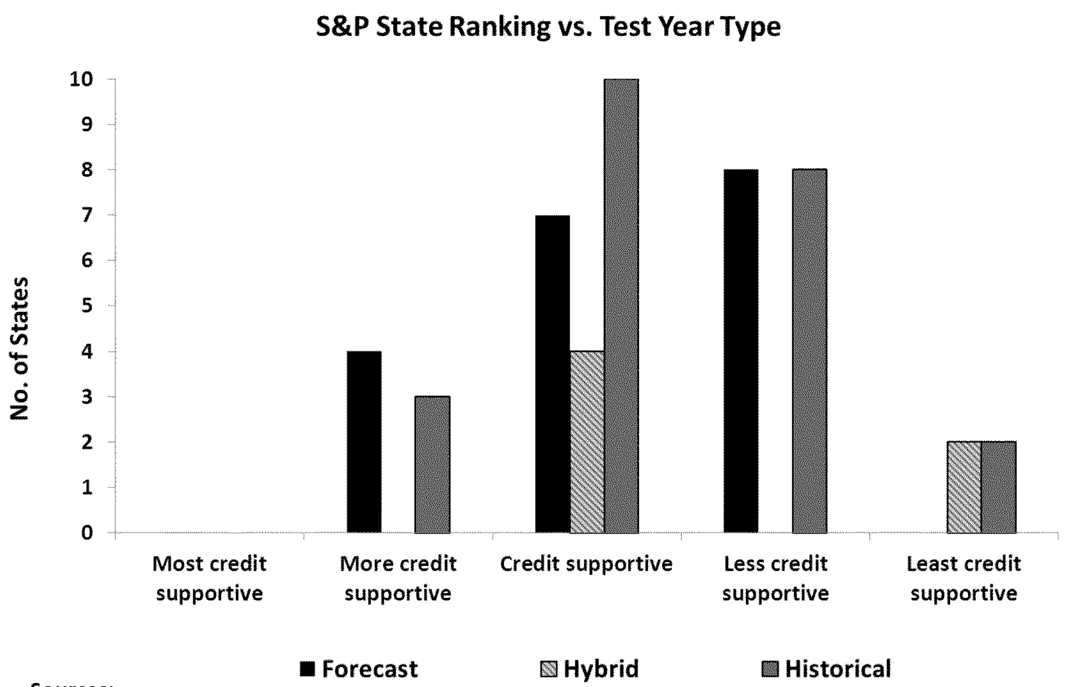


Note: AA= Above Average , A= Average, BA= Below Average; 1= Strong, 2= Middle, 3= Weak

Sources:

[1] "State Regulatory Environments," *RRA Regulatory Focus, SNL,* June 12, 2012.

[2] "Innovative Regulation: A Survey of Remedies of Regulatory Lag", Edison Electric Institute, April 2011.



Sources:

[1] "Standard & Poor's Updates its U.S. Utility Regulatory Assessments," *Standard & Poor's - Global Credit Portal - RatingsDirect,* March 12, 2010.

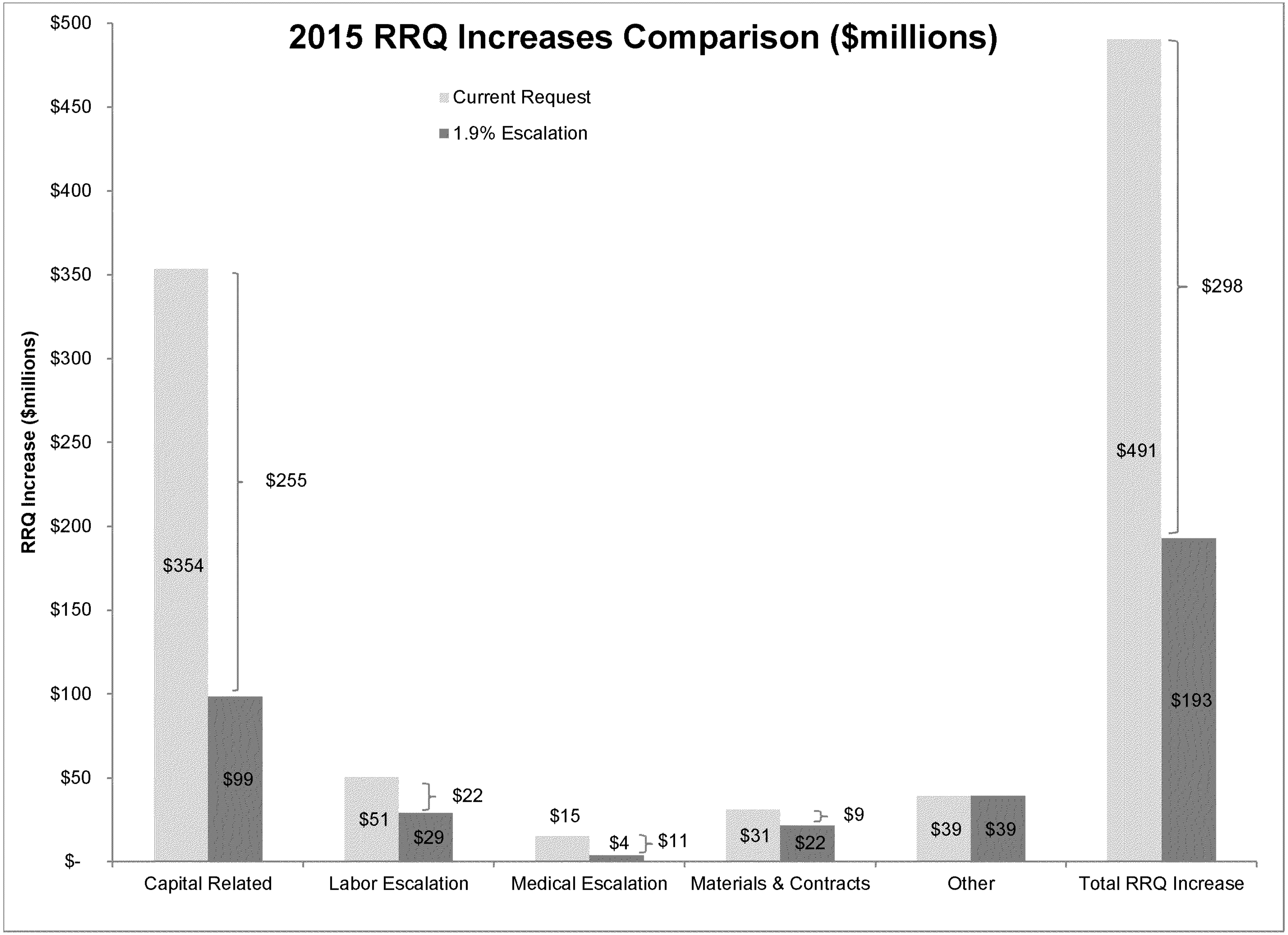
[2] "Innovative Regulation: A Survey of Remedies of Regulatory Lag", Edison Electric Institute, April 2011

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

ATTACHMENT 3

2015 REVENUE REQUIREMENT INCREASES COMPARISON



2015 RRQ Increases Comparison ($millions)
Current Request
1.9% Escalation
RRQ Increase ($millions)
$500
$450
$400
$350
$300
$250
$200
$150
$100
$50
$-
$354
$99
$255
$51
$29
$22
$15
$4
$11
$31
$22
$9
$39
$39
$491
$193
$298
Capital Related
Labor Escalation
Medical Escalation
Materials & Contracts
Other
Total RRQ Increase

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

ATTACHMENT 4

LETTER TO GOVERNOR BROWN

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

OFFICE OF THE COMMISSIONER

August 6, 2012

The Honorable Edmund G. Brown
Governor of California
Sacramento, California 95814

Dear Governor Brown:

As you know, the Federal Energy Regulatory Commission has repeatedly issued orders to assist the State of California in pursuing its environmental goals related to electricity production and consumption. These orders include approving the controversial (and successful) implementation of the California Market Redesign in September 2006, scores of orders modifying the California market, orders approving major transmission projects, and orders approving interconnection policies that allow for new sources of small-scale and large-scale electric generation to connect to the transmission grid.

I am now, however, extremely concerned about the potential disruption to California's electricity market that may arise from the California Air Resources Board's (ARB) implementation of California's greenhouse gas trading plan. Such market disruption would not only seriously impact California's economy, but as the 2000-2001 energy crisis showed, such a disruption would also have major negative impacts on the economy of the West.

Specifically, by failing to clearly define "resource shuffling" but nevertheless prohibiting it, and by requiring energy importers to affirm, under penalty of perjury, that they have not engaged in resource shuffling, the ARB is creating uncertainty and great concern among entities that sell into California. Your state continues to depend on importing nearly 25 percent of its consumed electricity and could not maintain reliable and affordable electricity if out-of-state resources chose to avoid regulatory uncertainty by electing not to participate in the California market.

Regardless of any laudable intentions the ARB has in developing its approach to these issues, the potential ramifications to the economies of California and the Western states require extreme caution to prevent market and supply disruptions. Well-functioning markets require certainty, and the uncertainty created by ARB's approach must be rectified.

Therefore, I respectfully request that you direct ARB to suspend enforcement of the prohibition of resource shuffling until such time that the ARB clarifies rules surrounding compliance with, and enforcement of, the provision. Suggested guidance documents are not sufficient, as these do not provide the certainty needed by market participants.

I appreciate in advance your attention to this issue. The reliability and affordability of electricity in California and the rest of the West is too important to put at risk.

Sincerely,

Philip D. Moeller

Philip D. Moeller
Commissioner

PDM/tb

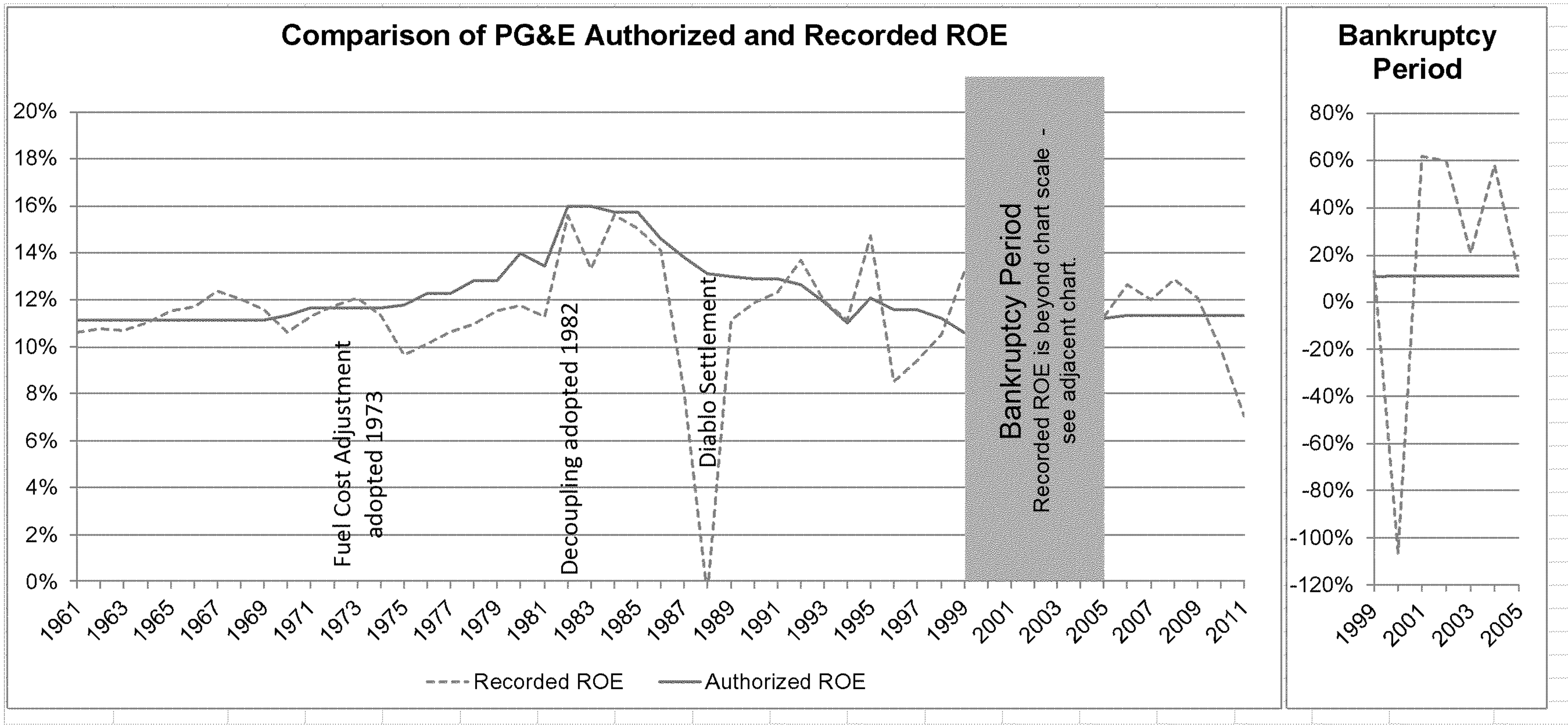
Cc: Mary Nichols, Chair, California Air Resources Board
Michael Peevey, President, California Public Utilities Commission
Robert Weisenmiller, Chair, California Energy Commission

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

ATTACHMENT 5

COMPARISON OF PG&E AUTHORIZED AND RECORDED ROE



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PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 3

REBUTTAL TESTIMONY OF NICHOLAS M. BIJUR

PACIFIC GAS AND ELECTRIC COMPANY
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REBUTTAL TESTIMONY OF NICHOLAS M. BIJUR

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A. Introduction

Q 1 Please state your name and the purpose of your testimony.

A 1 My name is Nicholas M. Bijur, and the purpose of my testimony is to respond to The Utility Reform Network (TURN) witness Marcus (TURN/Marcus) regarding an appropriate credit rating for Pacific Gas and Electric Company (PG&E), and to Division of Ratepayer Advocates (DRA) witness Woolridge regarding debt equivalence (DE).

B. TURN/Marcus' Claim That a BB Credit Rating Would Be Cost Effective for PG&E Is Wrong

Q 2 Please explain TURN/Marcus' position on an appropriate credit rating for PG&E, and why you disagree.

A 2 TURN/Marcus states that "it would not be cost effective to hold California's utilities [credit ratings] above BBB or even BB."[1] PG&E strongly disagrees with TURN/Marcus. TURN/Marcus fails to recognize that the ability to attract capital, not just its cost, is critical to PG&E's ability to fund the energy operations and infrastructure investments needed to support the people and economy of California. Moreover, TURN/Marcus underestimates the increased costs of being a BB-rated company.

Q 3 How would PG&E's ability to attract capital be affected if PG&E were a BB-rated company?

A 3 Once a company's credit rating drops below investment grade, access to the debt markets decreases, the cost of debt increases significantly, and debt covenants become substantially more restrictive. The sub-investment grade market is much more subject to access disruptions, as skittish investors are quick to abandon this market when there are signs of trouble, such as the Greek debt crisis.

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1 TURN/Marcus response to PG&E discovery request PGE-TURN_002, August 10, 2012.

Q 4 Is TURN/Marcus correct that it would be more cost effective to reduce PG&E's allowed return on equity (ROE) to 10.2 percent from 11.0 percent if that meant PG&E's credit rating would be reduced to BB?[2]

A 4 No. TURN/Marcus is correct that reducing PG&E's allowed ROE from 11.0 percent to 10.2 percent would reduce revenue requirements by about $200 million annually, and that this savings is greater than the annual incremental cost of $106 million that PG&E showed in its direct testimony.[3] But, TURN/Marcus fails to consider in its hypothetical analysis that the $106 million figure reflected higher debt costs for just the previous two years of PG&E's debt issuances. Over time, PG&E's existing debt would be refinanced with new BB-rated debt, and the incremental higher cost of BB-rated debt would far exceed the $200 million annual savings. For example, if all of PG&E's debt today were BB-rated, the incremental cost of that debt over BBB-rated debt would be approximately $270 million annually. A conservative estimate of higher short-term debt costs would be $35 million annually, bringing the total cost increase to just over $300 million annually. In this example, all stakeholders are better served with a higher ROE.

C. DRA's Arguments That Debt Equivalence Is Not a Factor in the Determination of an Appropriate Capital Structure Have No Merit

Q 5 Please summarize DRA's position on debt equivalence, and explain why PG&E disagrees.

A 5 DRA claims that DE need not be part of the determination of the appropriate capital structure for ratemaking purposes.[4,5] PG&E believes that DRA confuses the capital structure needed to calculate the return on rate base with the need to determine what the capital structure should be. PG&E does not claim that DE should be included in the capital structure *per se*, but rather that it is an important element of risk when deciding what the capital structure should be. One way to factor in the degree of risk presented by

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2 TURN/Marcus p. 8.

3 PG&E direct testimony, Ch. 1, p. 1-13.

4 See DRA-Woolridge August 6, 2012 direct testimony at p. 3-21, lines 7-8.

5 See PG&E's direct testimony at p. 1-13 to 1-14 for a fuller description of debt equivalence.

the debt-like obligations of Power Purchase Agreements (PPA), i.e., DE, is to estimate an amount of additional debt leverage that is equivalent to the risk of the PPA obligations.

Q 6 Please explain your specific disagreements with DRA's arguments.

A 6 DRA presents several arguments (DRA-Woolridge, pp. 3-20 to 3-24). They will be addressed in the same order as presented in DRA's testimony.

1. DRA's Argument That DE Is Not an Element of Generally Accepted Accounting Principles Misses the Point

DRA asserts that DE is "strictly a concept and methodology developed by rating agencies and is not an element of Generally Accepted Accounting Principles. Hence, the debt imputed by rating agencies is not recognized as debt on a company's financial statements."[6] Contrary to DRA's assertion, DE is not just an oddity of the credit rating agencies, and PG&E is well aware that investors, i.e., banks, institutional investors, equity analysts etc., also consider the risk of DE when evaluating the riskiness of the company. Investors are just as concerned about what is not on the balance sheet as they are about what is on it. For example, capital leases, that once were off the balance sheet, are now reflected on the balance sheet as liabilities, and there have been proposals under International Financial Reporting Standards to require all forms of long-term contracts, including PPAs, to be capitalized onto the balance sheet. The fundamental concept underlying the rating agencies' and all investors' treatment of DE is that the level of long-term fixed obligations affects the risk profile of a firm's securities, regardless of whether such obligations are on or off the balance sheet.

2. DRA's Assertion That the Risk Factor Used in Calculating DE Is Based on Unpublished, Subjective Factors Is Not True

Credit rating agencies do publish the criteria on which they base their risk factor.[7] Credit rating agencies examine market risks, operating risks, and regulatory risks and note how the risk factor is influenced by these risks.

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6 *DRA*, p. 3-21, lines 10-13.

7 See, for instance, the S&P article "Credit Comment, Credit Issues for Utility Purchasers" dated November 1991.

3. DRA's Apparent Assertion That Consideration of DE Ignores Any Benefits of PPAs Is Wrong

DRA appears to assert that because PPAs may have some advantages over utility ownership, such as transfer of risk to the power supplier, then the impacts of DE should be diminished.[8] Credit rating agencies are clearly aware of the benefits of PPAs and take those into account when assessing DE.[9]

4. The Utilities Do Not Claim, as DRA Asserts, That a Reason for Including DE in the Ratemaking Process Is Because the Credit Rating Process Is Simply a Matter of Applying Credit Metrics

Contrary to DRA's assertion, all of the utilities have noted the qualitative aspects of the credit rating process, and can be found in the utilities' testimony.[10]

5. DRA's Assertion That There Is No Regulatory Consensus on How to Deal With DE in Setting Public Utility Cost of Capital Is Irrelevant

DRA's assertion is plain sophistry. A lack of consensus *per se* should not, and has not, precluded the Commission from previously taking a position on how DE should be considered or decided in the regulatory process.[11]

Q 7 Does this conclude your rebuttal testimony?

A 7 Yes, it does.

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8 DRA/Woolridge pp. 3-21 to 3-22.

9 S&P op. cit.

10 See the direct testimonies of: PG&E at p. 1-6 and 1-10; SCE at p. 18; SDG&E/Widjaja at p. 2.

11 See CPUC Decision 04-12-047 (p. 48) where the Commission concluded:

> Debt equivalence should be considered with other financial, regulatory, and operational risks in setting a fair ROE and balanced capital structure reasonably sufficient to assure confidence in the financial soundness of the utility to maintain and support investment grade credit ratings.

PACIFIC GAS AND ELEC TRIC COMPANY

APPENDIX A

STATEMENT OF QUALIFICATIONS

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF BRUCE T. SMITH

Q 1 Please state your name and business address.

A 1 My name is Bruce T. Smith, and my business address is Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California. I am the chief regulatory analyst in the Operations Proceedings Department.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I have been employed by PG&E since 1979. I have held various positions throughout my career with PG&E in the Rates, Revenue Requirements, and Operations Proceedings Departments. I was the project manager for PG&E's 1996, 1999, 2003, and 2007 General Rate Cases and the 2009 Pension Cost Recovery Application. In my current position, I serve as the project manager for several of PG&E's rate cases and assist in the preparation of other filings.

Q 3 Please summarize your educational and professional background.

A 3 I received a bachelor of science degree in mechanical engineering from the Massachusetts Institute of Technology in 1971 and a master of science degree in mechanical engineering from Stanford University in 1972. I received a master in business administration from Harvard University in 1976. I am registered by the state of California as a professional engineer in mechanical engineering. I was employed by Bechtel Power Corporation from 1972 to 1974 as a design engineer and by Detroit Edison from 1976 to 1979 in the Rates and Revenue Requirements Departments.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring Chapter 2, "Rebuttal Testimony of Bruce T. Smith."

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.