

Application No: A.07-05-003
Exhibit No: SCE-4
Witnesses: R. C. Boada
P. T. Hunt



(U 338-E)

***Rebuttal Testimony in Support of 2008 Cost of
Capital Application***

Before the
Public Utilities Commission of the State of California

Rosemead, California
August 28, 2007

1 **EXECUTIVE SUMMARY**

2 This application will determine the cost of capital and capital structure for Southern California
3 Edison Company (SCE) that will take effect on January 1, 2008. In this proceeding, the California
4 Public Utilities Commission (Commission) should, consistent with the law and SCE's financial
5 condition, authorize a return on common equity of 11.80 percent and a return on rate base of 8.87
6 percent, subject to the late update of SCE's projected costs of long-term debt and preferred equity.

7 The Commission must increase SCE's current authorized return on equity in response to the
8 quantitative and qualitative evidence that SCE has presented in its direct testimony. SCE's evidence
9 demonstrates that financial model estimates and evaluations of current economic and financial
10 conditions all support its proposed return on common equity.

11 Of course, the Commission must apply its own reasonable judgment to the evidence that is
12 proffered by parties in this proceeding. The Commission's judgment is particularly important at this
13 time, as recent events related to the sub-prime mortgage market have thrown financial markets into
14 turmoil; utility risk premiums have increased and access to capital has turned volatile. This turmoil
15 cannot be readily captured by the financial models-only approach that intervenors propose as the
16 primary basis for setting authorized return on equity and overall cost of capital.

17 Three intervenors, the Commission's Division of Ratepayer Advocates (DRA), Aglet Consumer
18 Alliance, The Utility Reform Network, and Utility Consumers' Action Network (Aglet-TURN-UCAN),
19 and Federal Executive Agencies (FEA), submitted testimony addressing SCE's cost of capital
20 application. None of the intervenors opposed SCE's proposed costs of long-term debt and preferred
21 equity, and the Commission should adopt these proposed costs, subject to an update after the close of
22 hearings. Additionally, no intervenor opposed SCE's proposed ratemaking capital structure, and the
23 Commission should adopt it.

24 Intervenors recommended lower returns on equity than SCE. As the testimony in this exhibit
25 shows, some of the difference in recommendations is due to different interest rate projections that
26 underlie the financial models. However, intervenors' financial models also contain significant errors
27 that result in substantially different estimates of SCE's required return on equity for 2008. SCE's

1 testimony explains these errors in detail. The Commission should reject intervenors' recommendations
2 and adopt SCE's proposal with regard to return on equity.

3 SCE's access to capital is not guaranteed. For SCE to adequately serve its customers and
4 maintain and expand its system, SCE must have access to large amounts of capital. Adopting SCE's
5 recommended cost of capital and ratemaking capital structure will enable SCE to attract the necessary
6 capital at reasonable prices and terms, provide credit quality stability, and ensure access to capital under
7 a variety of market conditions. Reducing SCE's authorized return on common equity, as proposed by
8 intervenors in this application, will reduce SCE's ability to attract capital on attractive prices and terms.
9 Given the ongoing turmoil in the financial markets and the forecasted need for new capital for system
10 growth and betterment, the Commission should not attempt to take such a misguided step.

2008 COST OF CAPITAL REBUTTAL TESTIMONY

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1 I.

2 **INTERVENORS' RECOMMENDED RETURNS ON COMMON EQUITY ARE**
3 **UNREASONABLE**

4 This testimony responds to the testimony served in this application by the California Public
5 Utility Commission's Division of Ratepayer Advocates (DRA),¹ Federal Executive Agencies (FEA),²
6 and Aglet Consumer Alliance, The Utility Reform Network and Utility Consumers' Action Network
7 (Aglet-TURN-UCAN)³ (collectively, "intervenors").

8 **A. Uncontested Issues**

9 DRA and FEA accept Southern California Edison Company's (SCE) proposals regarding 2008
10 costs of long-term debt and preferred equity, and SCE's proposed capital structure.⁴ Aglet-TURN-
11 UCAN makes no recommendation regarding SCE's capital structure⁵ and does not discuss SCE's 2008
12 costs of long-term debt and preferred equity. Thus, this rebuttal testimony will not address these issues,
13 with the exception of responding to errors in parts of FEA's testimony regarding the level of actual
14 equity capital compared to its authorized amount in SCE's capital structure and issues related to that of
15 its parent company Edison International (EIX).

16 **B. Contested Issue: Return on Equity**

17 DRA, Aglet-TURN-UCAN, and FEA all propose lower returns on common equity (ROE) for
18 SCE than SCE's recommended 11.80 percent. As discussed more fully below, these proposals are

¹ California Public Utilities Commission Division of Ratepayer Advocates, *Report on the Cost of Capital for Test Year 2008*, dated August 8, 2007 ("DRA Testimony").

² *Direct Testimony and Exhibits of Stephen G. Hill Regarding Cost of Capital On behalf of The Federal Executive Agencies*, dated August 8, 2007 ("FEA Testimony").

³ Aglet Consumer Alliance, The Utility Reform Network, and Utility Consumers' Action Network submitted the testimony of three witnesses: *Testimony of William B. Marcus*, dated August 8, 2007 ("Marcus testimony"), *Direct Testimony of L. Jan Reid on Market Risk Premium*, dated August 8, 2005 ("Reid testimony;" SCE assumes that the date should be August 8, 2007), *Direct Testimony of James Weil*, dated August 8, 2007 ("Weil Testimony"), and *Direct Testimony of James Weil on Utility Financial Projections*, dated August 8, 2007 ("Weil Testimony on Financial Projections").

⁴ DRA Testimony, p. 1-17; FEA Testimony regarding SCE, pp. 5-7.

⁵ Weil Testimony, p. 24.

1 unreasonably low, not compensatory, and are based on faulty analyses. As will be shown, besides the
2 fact that the testimonies over-rely on modeling results to determine the cost of equity that should be
3 authorized, they all suffer from unreasonably low inputs to their financial models, producing model
4 results that are downwardly biased. This in turn causes intervenors to recommend ROEs that are not
5 compensatory for retaining and investing new equity into SCE.

6 **C. Capital Structure**

7 While FEA does not oppose SCE's requested capital structure, FEA's testimony includes an
8 erroneous discussion of capital structure that fails to recognize the difference between how capital
9 structure is calculated for financial reporting and accounting purposes and how it is calculated for
10 ratemaking purposes in California. In addition, FEA's testimony includes comments about the
11 relationship between the capital structure of SCE and the capital structure of its parent company, Edison
12 International. That testimony is also erroneous.

13 Additionally, regarding the issue of recognition of debt equivalence from power purchase
14 agreements (PPAs), the Commission has decided this issue affirmatively in prior proceedings.
15 Notwithstanding the Commission's proactive and progressive stance on this issue, DRA is proposing
16 that the Commission take a giant step backward and not recognize debt equivalence as a ratemaking
17 issue. Clearly, such a misguided recommendation would be a major impediment for power supply
18 procurement going forward, as SCE and likely the other California utilities would have to reassess their
19 respective procurement policies if such a recommendation were implemented by the Commission.

20 **D. Summary Of Testimony**

21 In the chapters that follow, SCE addresses the following issues:

- 22 • The Commission's approach to evaluating return on equity (Chapter II);
- 23 • Current economic conditions and interest rate evidence (Chapter III);
- 24 • Capital structure and debt equivalence (Chapter IV);
- 25 • Pension fund returns (Chapter V);
- 26 • Return on equity (Chapter VI); and
- 27 • Decoupling (Chapter VII).

1 **II.**

2 **COMMISSION APPROACH TO EVALUATING RETURN ON EQUITY**

3 SCE's authorized return on equity is critical to SCE's ability to attract capital. SCE is investing
4 in its system at an unprecedented rate in order to serve its customers reliably. In order to finance its
5 capital expansion program, which currently exceeds \$2 billion per year (projected to increase to over \$4
6 billion per year), SCE must have access to debt financing and must be able to attract and retain equity
7 capital. This requires an attractive investment grade credit rating and a compensatory return on equity.

8 In the face of this, SCE is exposed to a variety of risks that challenge the investor in deciding
9 whether to allocate equity capital to SCE or to another utility or other comparable investment
10 opportunity. Although SCE is not uniquely exposed to the risks it faces as an electric utility operating
11 today in the business of providing electric service to its customers, it can be said that the risks are more
12 intensified and more broadly based for electric utilities operating in California. These risks, such as
13 direct access reopening, market structure implementation, renewable resource policy implementation,
14 green house gas and carbon offset policy and other related risks discussed in SCE's application,
15 inherently are compounded. There is a high level of overall uncertainty regarding how these issues will
16 be settled, which leaves the investor uncertain how policy implementation will affect his ability to
17 recover his required return on equity. The Commission is tasked with setting an authorized equity return
18 that overall meets the challenge of adequately meeting investor expectations based on this risk
19 framework.

20 **A. Capital Attraction And Judgment**

21 The authorized return on equity is critical to capital attraction. A compensatory ROE helps
22 provide assurance that debt can be issued at reasonable rates under a wide variety of economic
23 conditions, and that equity investors will support continued use of retained earnings and supply new
24 equity capital to fund critical utility investments.

1 Capital attraction is a standard that the U. S. Supreme Court has embraced in the *Bluefield* and
2 *Hope* decisions, as explained in SCE’s direct testimony in this application.⁶ The Commission is well
3 aware of these decisions and has cited them in multiple cost of capital decisions. Current financial
4 market conditions underscore the importance of maintaining SCE’s ability to attract capital. As
5 discussed in more detail in chapter III, the collapse of the sub-prime mortgage financing market has
6 created an investor stampede to lower risk investments. The Dow Jones Industrial Average declined
7 from over 14,000 to below 13,000 in a matter of days, and corporate debt markets saw widening risk
8 premiums as investors moved into U.S. Treasury securities and other safe investments. Concern that
9 sub-prime lending has negatively affected asset-backed commercial paper has led to flight from this
10 market as well. Despite its current investment grade rating, at present SCE is effectively unable to issue
11 commercial paper with a term of over 7 days, while its borrowing rate on the paper it can issue has
12 increased by 60 to 80 basis points.

13 In the short run SCE’s existing bank credit facilities will allow continued utility operations in the
14 face of this market dislocation, but in the longer term the Company must maintain access to the broader
15 capital markets to support its rate base investments. Thus, setting the cost of capital to support strong
16 credit quality is crucial. Equally important is setting a return on equity that meets shareholders’ return
17 requirements. Lack of shareholder support for SCE’s capital expansion program due to below-market
18 returns would place SCE management in an impossible situation, faced with meeting the obligations of
19 SCE’s utility franchise, yet knowing that any additional equity invested will further degrade investors’
20 willingness to provide capital.

21 Aside from the standards the *Hope* decision sets for authorized return on equity, it also contains
22 an even more important admonition: “Under the statutory standard of 'just and reasonable' it is the result
23 reached not the method employed which is controlling. ... It is not theory but the impact of the rate
24 order which counts.” (Citations omitted.)⁷ In this proceeding, where multiple experts have provided

⁶ Exhibit SCE-1, pp. 2-3.

⁷ *Federal Power Commission et al. v. Hope Natural Gas Co.*, 320 U.S. 591, 602 (1944).

1 conflicting opinions on disparate financial model results, it is important that the Commission continue to
2 apply its reasonable judgment in setting authorized return on equity.

3 **B. The Commission's Historical Basis For Setting Authorized Return On Equity**

4 Historically, in setting authorized return on equity, the Commission has assessed a variety of
5 relevant factors, including economic and financial conditions such as interest rates, company-specific
6 risks and utility creditworthiness, along with the results of financial models. In weighing these factors,
7 the Commission relies heavily on judgment. As it explained in its decision in SCE's 2006 test year cost
8 of capital decision:

9 We attempt to set the ROE at a level of return commensurate with market returns on
10 investments having corresponding risks, and adequate to enable a utility to attract
11 investors to finance the replacement and expansion of a utility's facilities to fulfill its
12 public utility service obligation. To accomplish this objective we have consistently
13 evaluated analytical financial models as a starting point to arrive at a fair ROE.⁸

14 In the same decision, the Commission presented an extensive list of factors it considered,
15 including:

16 ... evidence on the market conditions, trends, creditworthiness, interest rate forecasts,
17 quantitative financial models based on subjective inputs, risk factors, and interest
18 coverage presented by the parties ...⁹

19 In sum, the Commission stated:

20 In the final analysis, it is the application of informed judgment, not the precision of
21 financial models, which is the key to selecting a specific ROE estimate. We affirmed this
22 view in D.89-10-031, which established ROEs for GTE California, Inc. and Pacific Bell,
23 noting that we continue to view the financial models with considerable skepticism.¹⁰

24 **C. The Commission's Historical Skepticism Regarding Financial Model Estimates Is Still**
25 **Justified**

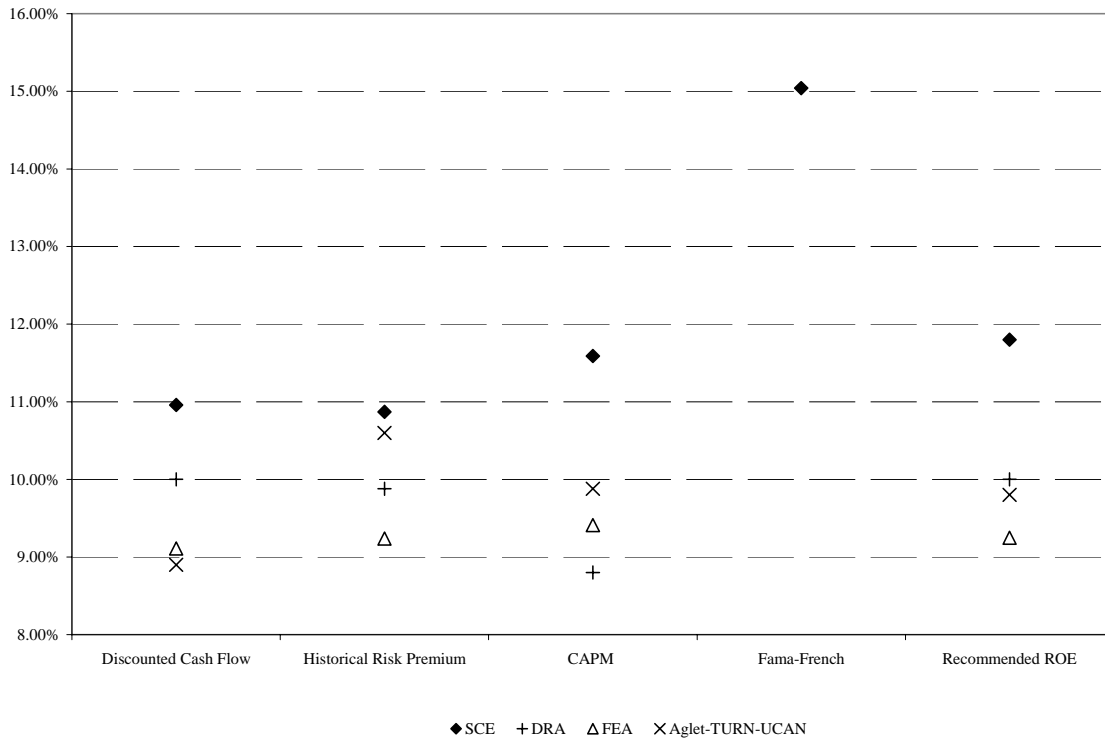
⁸ D.05-12-043, *mimeo*, p. 17.

⁹ D.05-12-043, *mimeo*, p. 27.

¹⁰ D.05-12-043, *mimeo*, p. 23.

1 The Commission has expressed its skepticism regarding financial model results on more than
2 one occasion.¹¹ The wide range of financial model ROE estimates is present in this application as in
3 previous cost of capital applications, as shown in the following figure.

Figure II-1
Parties' Financial Model Estimates Of SCE's Return On Equity



4 As the chart demonstrates, there is a wide range of model estimates in this application. This
5 range illustrates the perils of relying on a purely model-based approach to determining return on equity.
6
7

¹¹ D.99-06-057, 1999 Cal. PUC LEXIS 315 *78, also cites several previous Commission decisions. D.00-06-040, mimeo, p. 15. D.00-12-062, mimeo, p. 19. D.02-11-027, mimeo, pp. 19-20. D.04-12-047, mimeo, p. 33. D.05-12-043, mimeo, p. 23.

1 **III.**

2 **CURRENT ECONOMIC CONDITIONS AND INTEREST RATE EVIDENCE**

3 As noted in the previous section, the Commission has long considered economic factors in
4 setting utility costs of capital. In addition to using interest rates to inform its judgment in annual
5 proceedings, the Commission has in the past relied on changes in interest rate measures as the trigger for
6 automatic cost of capital changes in performance based ratemaking mechanisms. Consistent with its
7 policy of setting electric rates for the test year, the Commission properly considers both current interest
8 rate levels and interest rate forecasts. As discussed in section A, Witnesses Hill and Woolridge err in
9 rejecting the use of interest rate forecasts in financial models. Section B describes current economic
10 conditions which necessitate greater reliance on utility bond rates instead of Treasury rates as indicators
11 of the utility's cost of capital.

12 **A. It Is Appropriate To Use Interest Rate Projections In SCE's Analysis**

13 SCE has used 2008 interest rate projections in its financial model analyses because this
14 application addresses SCE's authorized cost of capital for 2008, not SCE's current cost of capital. This
15 is the same procedure that Aglet-TURN-UCAN follows.¹²

16 In contrast, intervenor witnesses Dr. Woolridge (for DRA) and Mr. Hill (for FEA) utilize current
17 interest rates in their analyses and criticize the use of forecasted interest rates.¹³ Dr. Woolridge goes so
18 far as to state "I am not aware of any empirical studies that indicate forecasted interest rates are better
19 measures of future interest rates than today's rates."¹⁴ This statement is notable since DRA requested
20 information on this very subject from SCE. SCE responded and provided DRA (and presumably Dr.
21 Woolridge) with a study demonstrating that forecasted interest rates *are* better measures of future
22 interest rates than current interest rates. SCE compared the forecasting performance of Global Insight
23 interest rate projections in April of each year for the following year with a naïve forecast based on the

¹² Weil Testimony, pp. 21-22.

¹³ DRA Testimony, pp. 1-4, 4-27, 5-13. FEA Testimony, p. 79.

¹⁴ DRA Testimony, p. 5-13.

1 actual interest rate on April 1, just a few days before the Global Insight projection was released.¹⁵ Over
2 the period from 1999 through 2006, Global Insight projections were superior for all of the following
3 interest rates: Moody's Aa long-term utility bond yield, the federal funds rate, the three-month Treasury
4 bill interest rate, the ten-year Treasury bond interest rate, and the thirty-year Treasury bond interest rate.
5 Excerpts from SCE's data request response are found in Appendix A. SCE's study demonstrates that
6 DRA's witness is in error on this point and that forecasted interest rates are the correct ones to use.¹⁶

7 Moreover, intervenors appear to have no difficulty using projections of *other* financial variables
8 in conducting their analyses. In particular, Dr. Woolridge and Mr. Hill rely extensively on projections
9 of earnings growth and dividend growth in their analyses. This tends to indicate that these witnesses use
10 projections when the projections suit them and ignore projections when they do not. To prevent such
11 convenient manipulation of the analyses, the Commission should continue to rely on interest rate
12 projections for the test year as it has in the past.

13 **B. Recent Economic Events Demonstrate The Dangers Of Relying On Treasury Rates In**
14 **Setting ROE**

15 DRA's and FEA's testimony cites current levels of interest rates on Treasury bonds as evidence
16 that capital costs are low for U.S. corporations and utilities.¹⁷ However, Aglet-TURN-UCAN's
17 testimony notes that "[i]nterest rates are higher than two years ago."¹⁸ Moreover, recent economic
18 events, particularly financial market turmoil resulting from the crisis in sub-prime mortgage lending,
19 have caused the spread between Treasury interest rates and utility interest rates to widen significantly.
20 To the extent that Treasury rates have fallen in recent months, it reflects a "flight to quality" that is not
21 representative of current costs of borrowing for utilities. This increased spread can be seen in the

¹⁵ Global Insight's normal practice is to base each month's macroeconomic projection on data available through the end of the previous month.

¹⁶ SCE response to DRA data request dated July 3, 2007, question JJS1-20.

¹⁷ DRA Testimony, p. 2-1. FEA Testimony, p. 59.

¹⁸ Weil Testimony, p. 16.

1 following table, which compares current interest rates with interest rates that were observed in early
2 May, shortly before SCE filed its application.¹⁹

Table III-1
Actual Interest Rates

Line No.	Interest Rate	May 3, 2007	August 23, 2007	Difference
1.	Moody's Aa Long-Term Utility Bond Yield	5.79%	6.15%	0.36%
2.	Three-Month Treasury Rate (Constant Maturity)	4.90%	3.89%	-1.01%
3.	Ten-Year Treasury Rate (Constant Maturity)	4.68%	4.62%	-0.06%
4.	Thirty-Year Treasury Rate (Constant Maturity)	4.84%	4.93%	0.09%
5.	Utility Bond Yield Premium Over Thirty-Year Treasury Rate	0.95%	1.22%	0.27%

3 Because the U.S. Treasury is a much higher quality credit than SCE or the other applicant
4 utilities in this docket, it is erroneous to assume that changes in Treasury interest rates always reflect
5 changes in interest rates that utilities must pay to obtain financing, or that changes in Treasury interest
6 rates always reflect changes in the cost of equity capital for utilities.

7 The Commission has recognized in past proceedings that upheaval in financial markets may
8 cause Treasury bond rates to be a misleading indicator of the cost of capital. For example, in its 2003
9 test year cost of capital decision, the Commission stated:

¹⁹ Some of this data is also presented in Table IV-6 in Exhibit SCE-1.

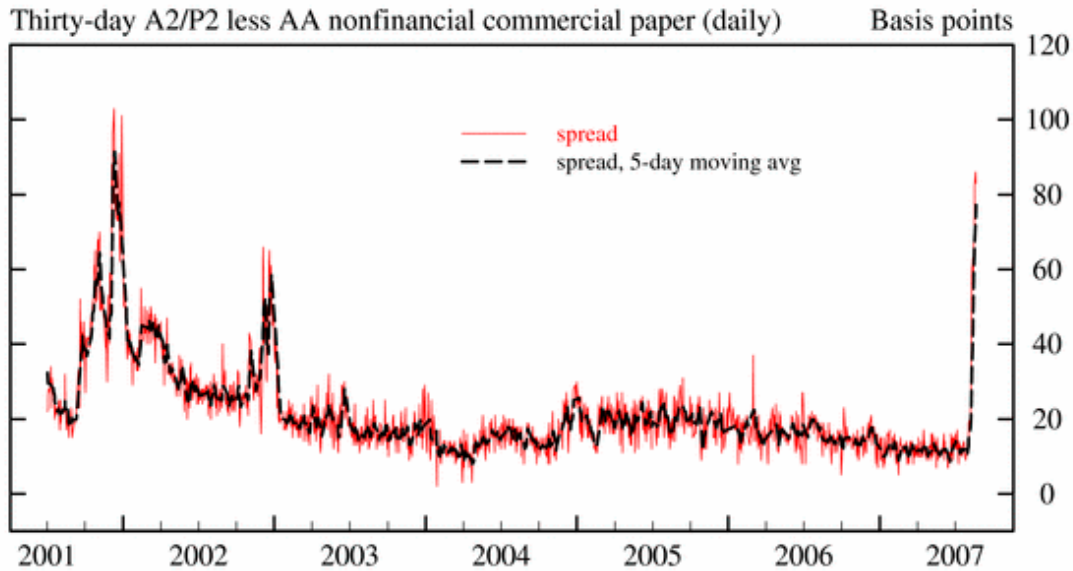
1 In past Commission decisions, 30-year treasury bonds and AA utility bond interest rates
2 were referenced as benchmarks for evaluating cost of common equity for electric utilities.
3 In the 1999 cost of capital order, the Commission discussed evidence on the historic
4 spread between authorized ROE and 30-year Treasury bond rates from test years 1990 to
5 1998, before deciding that AA utility bonds provide a better benchmark for setting the
6 ROE. [196 P.U.R. 4th, 438] In the recent ROE application of SDG&E and other major
7 energy utilities, we continued to rely on AA utility bonds during a period of time that the
8 DRI forecast for 30-year Treasury bonds dropped during a tremendous turmoil in the
9 foreign market. [D.99-06-057, mimeo, p. 49 (1999).] At that time investors were fleeing
10 to the safety of U.S. Government backed securities, resulting in Treasury rates falling to
11 unusual low rates in comparison to AA utility bonds.²⁰

12 The flight to quality that has occurred in the past few weeks is most evident in the commercial
13 paper market, which is the source that SCE turns to first to meet short-term liquidity needs. Figure III-2
14 shows the discount rate spread between good-quality commercial paper, A2/P2 nonfinancial commercial
15 paper, which SCE can issue, and the highest-quality commercial paper, AA nonfinancial commercial
16 paper.²¹

²⁰ D.02-11-027, *mimeo*, p.20.

²¹ A2/P2 nonfinancial commercial paper requires an A-2 short-term rating from S&P and a P-2 short-term rating from Moody's. These are SCE's current short-term ratings from these credit agencies. AA nonfinancial commercial paper requires an A-1 short-term rating from S&P and a P-1 short-term rating from Moody's. These are higher ratings than SCE's current ratings.

Figure III-2
Discount Rate Spread Between AA Nonfinancial Commercial Paper and
A2/P2 Nonfinancial Commercial Paper²²



1
2 It is clear from Figure III-2 that SCE’s ability to tap the commercial paper market has been
3 severely affected by the sub-prime mortgage lending crisis. This is a significant adverse impact on SCE
4 from the sub-prime mortgage lending crisis. As of September 2007, if this market condition prevails,
5 SCE is planning to vacate utilization of this market for short term capital and instead rely on funding
6 from our bank market credit facility. This lack of access to the commercial paper market for SCE has
7 only existed at one time in least the past 20 years; that was at the start of the downfall of SCE during the
8 energy crisis. This is no trivial matter as a data point. Even though the events leading to this recent
9 disruption of financial access are factually better from an SCE-only point of view (it is not a specific
10 SCE credit issue that is driving this change, but an overall market confidence issue applicable to all
11 issuers of tier-2 commercial paper), it nonetheless is a critical financial occurrence that if not remedied

²² Source: Board of Governors of the Federal Reserve System. Chart downloaded from <http://www.federalreserve.gov/releases/cp/> on August 22, 2007.

1 could lead to further overall credit access disruption. The Commission should be mindful of this type of
2 market risk in setting an authorized cost of equity and how setting such a return impacts credit ratings
3 and overall capital access. If SCE were a higher-rated entity with an A-1/P-1 short-term credit rating,
4 SCE's access to the commercial paper market would not have been disrupted, since investors have
5 continued lending to higher-credit entities with no rate or term changes.

1 **IV.**

2 **CAPITAL STRUCTURE ISSUES AND DEBT EQUIVALENCE**

3 As noted in the first chapter of this exhibit, no party has opposed SCE's proposed capital
4 structure and the Commission should adopt it. However, intervenors' testimony on capital structure and
5 debt equivalence raises issues that should be clarified.

6 **A. FEA Miscalculates SCE's Capital Structure**

7 FEA states that SCE's common equity and preferred equity ratios over the past year are below
8 the ratios SCE has requested in this proceeding. FEA's conclusion is based on a simplistic assessment
9 of these ratios that does not consider necessary adjustments to the debt levels in SCE's financial
10 statements. These adjustments fall into three main categories: 1) adjustments for non-recourse debt,
11 including Rate Reduction Bonds and debt from Variable Interest Entities, 2) adjustment for unamortized
12 debt issuance and refunding costs, and 3) adjustments for long-term debt used to finance items excluded
13 from rate base.

14 The reasons for these adjustments are discussed below. Once these adjustments have been made,
15 SCE's common equity ratio exceeds its requested ratemaking ratio. Thus, SCE's equity ratio meets the
16 requirements of the Commission's 1988 Holding Company decision that "Edison's equity shall be
17 retained such that the Commission's adopted capital structure will be maintained on average over the
18 period the capital structure is in effect for ratemaking purposes."²³ As an example, Table IV-2 below
19 provides a comparison of Hill's calculations before and after these adjustments for March 2007.

20 **1. Adjustments For Non-Recourse Debt**

21 The long-term debt figures shown in SCE's quarterly financial statements include two
22 types of debt for which SCE bears no responsibility for interest or principal payments, that is, debt
23 deemed non-recourse to the utility. The first is SCE's Rate Reduction Bonds (RRBs), which were
24 issued in 1997 as part of the Commission's industry restructuring plan. RRB bondholders must depend
25 entirely on the revenues from a separate rate component on SCE's bills and have no recourse to SCE for

²³ D.88-01-063, Ordering Paragraph 9, 1988 Cal. PUC LEXIS 2 *72-73.

1 repayment. Although they are recorded on SCE's books for financial reporting purposes, as required by
2 the SEC, the RRBs are separate and distinct from SCE's utility capitalization, and they have always
3 been excluded for purposes of determining SCE's ratemaking equity ratio in cost of capital proceedings
4 because of the non-recourse nature of these securities to SCE.

5 The second form of non-recourse debt on SCE's balance sheet stems from a 2004 change
6 in accounting requirements by the Financial Accounting Standards Board (FASB). These FIN 46
7 accounting requirements were set in place to eliminate accounting abuses from off-balance sheet
8 partnerships such as those created by Enron. Because of the broad reach of these requirements, the plant
9 owners in certain SCE long-term power contracts have been deemed Variable Interest Entities (VIEs)
10 which must be consolidated with SCE for financial reporting purposes. These power plants' liabilities,
11 including long-term debt, are now included on SCE's balance sheet, even though the creditors of these
12 power plants have no recourse to SCE for payment.

13 Although these long-term power contracts affect SCE's credit quality due to the
14 contracts' debt equivalence, this impact is considered separately based on adopted rating agency
15 methodologies.²⁴ The financial indebtedness of these companies has no impact on SCE and is thus
16 appropriately excluded from SCE's ratemaking capital structure.

17 **2. Security Issuance Costs**

18 Based on long-standing Commission procedures, SCE recovers the financing issuance
19 costs for debt and preferred equity in its embedded cost calculations by amortizing these costs over the
20 life of each security issued. Because these costs are not recovered immediately, the amount available to
21 invest in rate base from each new issue is not the face value of the security, but the net proceeds of the
22 security issue after financing expenses have been deducted. As a result, SCE's ratemaking
23 capitalization is determined based on the after-tax²⁵ net proceeds from its securities.

²⁴ Debt equivalence and its impacts are discussed in SCE's direct testimony. See Exhibit SCE-1, pp. 17-21.

²⁵ When issuing debt SCE receives a tax deduction for issuance costs. As a result, these costs are tax adjusted to give customers the tax timing benefit.

1 For consistency, each security's net proceeds are used in determining both SCE's
2 ratemaking capital structure and the embedded costs of debt and preferred equity. To determine the
3 overall weighted average cost of debt or preferred equity, the costs for each issue are calculated for the
4 net proceeds of that issue, that is, the face value less issuance and refinancing costs.²⁶ Calculating both
5 embedded costs and SCE's ratemaking capitalization on a net proceeds basis assures that SCE's
6 weighted average cost of capital recovers the appropriate amount of debt and preferred costs and that its
7 ratemaking capitalization measures the proportion of funds actually available to invest in rate base from
8 each capital component.

9 **3. Financing for Non-Rate Base Items**

10 The Commission authorizes SCE to recover financing costs for a variety of other assets
11 which are explicitly excluded from rate base. These assets include fuel inventories and regulatory
12 receivables from balancing account under-collections. The Commission's policies allow cost recovery
13 for the related financing costs through balancing accounts and exclusion of the related financial
14 instruments from the ratemaking capital structure. To the extent these assets have cost recovery periods
15 of one year or longer, SCE has the opportunity to finance them with indebtedness with maturities of one
16 year or more. Consequently, these financings are not included in SCE's long-term debt for ratemaking
17 capitalization reporting purposes, as they are not supporting rate base but these non-rate base related
18 asset accounts and their associated direct recovery rate mechanisms.

19 At present SCE has floating rate notes outstanding supporting its nuclear fuel inventories
20 and its Catastrophic Event Memorandum Account balancing account. For purposes of determining
21 SCE's ratemaking capitalization, these notes are excluded since they do not finance rate base and the
22 associated borrowing costs are not recovered through SCE's embedded costs of debt in the Cost of
23 Capital proceeding.

²⁶ For example, for a new 20 year issue of \$100 million with a coupon of 5%, for which after-tax issuance costs are \$1 million, the annual cost would be calculated as:

$$\frac{(5\% \times \$100 \text{ million}) + (\$1 \text{ million} \div 20)}{\$100 \text{ million} - \$1 \text{ million}}$$

Thus, annual costs of \$5,050,000 would be divided by the net proceeds of \$99,000,000 to obtain an annual debt cost of 5.10%.

1

Table IV-2
Ratemaking Capital Structure, March 2007

Line No.	Capital Structure Component	\$ Millions	Ratio
1.	<u>Hill Calculations</u>		
2.	Common equity	5,795	47.4%
3.	Preferred equity	929	7.6%
4.	Debt	5,496	45.0%
5.			
6.	<u>SCE Calculations</u>		
7.	Common equity	5,795	
8.	Plus miscellaneous adjustments	<u>17</u>	
9.	Ratemaking Common Equity	5,812	50.2%
10.			
11.	Preferred equity	929	
12.	Less unamortized refinancing costs	<u>- 4</u>	
13.	Ratemaking Preferred Equity	925	8.0%
14.			
15.	Long-Term Debt	5,496	
16.	Less Rate Reduction Bonds Outstanding	-183	
17.	Less VIE Debt	- 45	
18.	Less Unamortized Financing Costs	-222	
19.	Less Nuclear Fuel and CEMA Notes	<u>-201</u>	
20.	Ratemaking Long-Term Debt	4,846	41.8%

2

3 **B. FEA Errs In Concluding That SCE's Capital Structure May Result In Financial Cross**
4 **Subsidization To EIX**

5 FEA calculates a difference between SCE's capital structure and the capital structure of its parent
6 EIX and argues that this may constitute financial cross-subsidization of SCE's parent. FEA's analysis
7 fails to recognize a critical component with respect to structural separations between entities within a
8 holding company. A weaker entity can only benefit from a stronger family member if the weaker
9 member can gain access to the stronger member's cash or borrowing capabilities. If, as in California,
10 regulatory restrictions prevent a weak parent from burdening a utility with additional debt during
11 financial stress, the utility is insulated from the parent's risks.

12 California's utility holding company regulations are taken into consideration by the credit rating
13 agencies when determining the rating of each entity within a holding company structure, and their
14 reports for SCE and EIX show that no cross subsidization is taking place. For example, the strength of

1 these restrictions is evidenced in Standard and Poor’s (S&P’s) 2006 ratings assessment of EIX. S&P
2 states: “the ratings on the regulated utility, Southern California Edison Co. (SCE) benefit from the
3 numerous regulatory and legislative safeguards that constrain the utility’s ability to make distributions to
4 its unregulated affiliates.”²⁷ This was during a period when a ratings update for EIX resulted in a ratings
5 downgrade of the parent company, Edison International, of one notch (from BBB to BBB-), while
6 SCE’s rating was maintained at BBB+.

7 S&P cites a number of factors in support of its conclusions on regulatory insulation, including

- 8 • The requirement that SCE’s equity ratio must be maintained at the Commission
9 authorized level;
- 10 • The requirement that SCE’s capital requirements be given first priority by the EIX board
11 of directors; and
- 12 • Criminal penalties that may be imposed on management if funds borrowed by the utility
13 are not used solely for utility purposes.²⁸

14 In addition to these safeguards, SCE is also prohibited from guaranteeing non-utility debt
15 without Commission permission and must provide regular reports to the Commission, including
16 financial statements and details regarding any transactions between the utility and its unregulated
17 affiliates. As a result of these restrictions, SCE is well insulated from the risks from its unregulated
18 affiliates and does not provide these entities with any subsidies, financial or otherwise.

19 **C. DRA’s Testimony On Debt Equivalence Is Completely Opposite To Established**
20 **Commission Policy**

21 DRA comments that it “does not accept that DE [debt equivalence] needs to be part of the
22 determination of the appropriate capital structures for ratemaking purposes.”²⁹ DRA’s position is
23 completely contrary to established Commission policy regarding debt equivalence. There is no reason

²⁷ Standard and Poor’s Ratings Direct, “Edison International,” October 19, 2006, p. 4.

²⁸ Ibid.

²⁹ DRA Testimony, p. 3-4.

1 for the Commission to modify its current policy. The Commission’s policy is well described in its most
2 recent cost of capital proceeding:

3 We declined to adopt a formal debt equivalence policy in that proceeding [the previous
4 year’s cost of capital proceeding]. However, we affirmed that debt equivalence impacts
5 would be assessed on a case-by-case basis along with other financial, regulatory, and
6 operational risks in setting a balanced capital structure and fair ROE. Our goal in so
7 doing was and continues to be to provide reasonable confidence in the utilities’ financial
8 soundness, maintain and support investment-grade credit ratings, and provide utilities the
9 ability to raise money necessary for the proper discharge of their public duty. (Footnote
10 omitted.) We have no reason to change, and no utility has requested that we change this
11 method of considering debt equivalence.³⁰

12 The Commission’s policy in this matter has been proactive in addressing the impact of power
13 purchase agreements on SCE’s balance sheet. This proactive stance has been instrumental in allowing
14 SCE to establish policy support for PPA exposure as a key to implementing its overall procurement plan
15 framework for AB57 implementation. A turnaround by the Commission would likely require a review of
16 this policy issue by SCE and could likely result in a policy turnaround by SCE and other affected parties
17 such as the other California electric utilities.

18 **D. FEA’s Testimony Contains Misstatements And Errors Regarding Debt Equivalence**

19 FEA comments that “the obligation of the Company to meet its contractual purchased power
20 expenses is included in rates without any adjustment whatsoever to the ratemaking capital structure.”³¹
21 This is incorrect. Although the Commission has rejected automatic adjustments for debt equivalence in
22 the utility’s ratemaking capital structure, it has recognized the need to address its impacts on the utilities
23 credit quality. The Commission’s policy is described clearly in its most recent cost of capital decision:

24 We specifically recognized in last year’s ROE proceeding, in which SDG&E along with
25 PG&E and SCE participated, that debt equivalence associated with purchased power
26 agreements (PPA) can affect utility credit ratios, credit ratings, and capital structure.

³⁰ D. 05-12-043, (mimeo) p. 9.

³¹ FEA Testimony, p. 88.

1 We declined to adopt a formal debt equivalence policy in that proceeding. However, we
2 affirmed that debt equivalence impacts would be assessed on a case-by-case basis along
3 with other financial, regulatory, and operational risks in setting a balanced capital
4 structure and fair ROE. Our goal in so doing was and continues to be to provide
5 reasonable confidence in the utilities' financial soundness, maintain and support
6 investment-grade credit ratings, and provide utilities the ability to raise money necessary
7 for the proper discharge of their public duty. (D.04-12-047, *mimeo.*, p. 13.) We have no
8 reason to change, and no utility has requested that we change this method of considering
9 debt equivalence.³²

10 More importantly, FEA's comment ignores the fact that without remediation, debt equivalence
11 produces weaker credit ratios. Even if debt equivalence does not directly cause a credit downgrade,³³
12 weaker credit ratios increase the likelihood that a credit downgrade can occur due to other factors. This
13 is why SCE and other utilities seek to remedy debt equivalence through adjustments to capital structure.

14 FEA asserts, "S&P assumes that purchased power obligations are equivalent to generation plant
15 that is 100% debt financed."³⁴ When the debt equivalence risk factor, which normally can vary from
16 zero to 50 percent for a regulated utility, is factored in, this is not the case. S&P only assumes that
17 purchased power obligations are equivalent to generation plant that is financed at a debt percentage that
18 is equal to the risk factor.

19 FEA complains of a "lack of continuity in S&P's ... business risk matrix."³⁵ FEA correctly
20 points out that transmission and distribution companies generally have a better business profile score
21 than integrated electric companies. FEA then comments that increasing purchased power increases risk
22 (which it does, all other things equal), until purchased power reaches 100 percent of a utility's power
23 supply. At that point, FEA claims, "S&P declares that it [the utility] has less risk."³⁶

24 FEA errs for two reasons. First, FEA's perceived discontinuity stems from looking at only one
25 part of S&P's methodology. Debt equivalence risk is a financial risk (risk associated with leverage.)

³² D. 05-12-043, (mimeo) p. 9.

³³ In 1992, both Standard & Poor's and Moody's downgraded SCE due to the Commission's refusal to authorize an increase in SCE's common equity ratio needed to offset debt equivalence.

³⁴ FEA Testimony, p. 88.

³⁵ FEA Testimony, p. 90.

³⁶ FEA Testimony, p. 91.

1 These risks are not included in S&P’s business risk assessment but instead are considered in the utilities’
2 financial measures, such as debt and coverage ratios. S&P uses its business risk assessment to
3 determine benchmarks for each of these ratios. As S&P’s business risk level increases, these
4 benchmarks require higher and higher financial quality. Each utility’s financial ratios (including debt
5 equivalence) are assessed relative to these benchmarks to reach a combined quantification of both
6 business and financial risk. Although a transmission and distribution company with high debt
7 equivalence may not have a high business risk number, it will have a high debt ratio and low coverage
8 ratios, leading to a lower ratings assessment.

9 Moreover, whether a utility’s risk is increased or decreased at 100 percent purchased power
10 depends critically on the legal and regulatory structure that is established with respect to purchased
11 power in the state or states where the utility operates. A recent S&P article explains:

12 A 100% risk factor would signify that substantially all risk related to contractual
13 obligations rests on the company, with no mitigating regulatory or legislative support. For
14 example, an unregulated energy company that has entered into a tolling arrangement with
15 a third-party supplier would be assigned a 100% risk factor. Conversely, a 0% risk factor
16 indicates that the burden of the contractual payments rests solely with ratepayers. This
17 fact pattern frequently is found among regulated utilities that act as conduits for the
18 delivery of a third party's electricity, and essentially deliver power, collect charges, and
19 remit revenues to the suppliers. These utilities typically have been directed to divest their
20 generation assets; are barred from developing new generation assets; and the power
21 supplied to their customers is sourced through a state auction or third parties that act as
22 intermediaries between retail customers and electricity suppliers.³⁷

23 Therefore, if a utility is a “conduit” as described here, then the risk of purchased power does not fall on
24 the utility and utility risk will be lower when compared with an integrated utility which is not a conduit.
25 Conversely, for an integrated utility that is not a conduit, purchased power risk will increase as the
26 percentage of purchased power increases, and the risk will not be reversed.

27 Finally, FEA implies that if the Commission authorizes an offset to debt equivalence in the form
28 of an increased equity ratio, it will be nothing more than a phantom increase.³⁸ This comment illustrates

³⁷ Standard & Poor’s Ratings Direct, *Criteria: Standard & Poor's Encyclopedia Of Analytical Adjustments For Corporate Entities*, dated July 9, 2007.

³⁸ FEA Testimony, p. 89, fn. 47: “However, I am unaware of any requirement that actual equity capital be infused and actual debt be retired.”

1 the FEA witness' lack of knowledge about California energy regulation. All three parent companies of
2 the applicant utilities in this application are required to maintain an actual equity ratio that is consistent
3 with the authorized common equity established by the Commission in cost of capital applications.³⁹ If
4 any of the three applicants request and receive an increased equity ratio from the Commission, there
5 must be a corresponding adjustment to the actual capital structure.

6 These misstatements and errors indicate that the FEA witness does not understand significant
7 features of debt equivalence and related Commission policy. Insofar as his recommendations affect
8 general Commission policy on debt equivalence or as the Commission's policy pertains to SCE, they
9 should be rejected.

³⁹ The relevant CPUC decisions are known as the "holding company decisions." The relevant portions include D.88-01-063, Ordering Paragraph 9 (1988 Cal. PUC LEXIS 2 *77-78) and D.96-11-017, Ordering Paragraph 14 (1996 Cal. PUC LEXIS 1141 *73).

1 V.

2 PENSION FUND RETURNS

3 FEA and Aglet-TURN-UCAN claim that pension fund return assumptions are relevant to the
4 determination of authorized return on equity. This chapter explains why they are not relevant.

5 **A. Pension Fund Return Assumptions Are Based On Market Values**

6 Pension fund returns are related to the market value of assets held in the pension fund, whereas
7 SCE's required return on equity is applied to a book value rate base. If the value of rate base is
8 significantly less than market value, applying a market return percentage to the dollar amount of rate
9 base will not provide enough earnings dollars to meet investors' requirements. Any comparison
10 between a pension fund return (calculated based on the market value of the fund) and a required return
11 on rate base equity must recognize this difference, and none of the intervenor comparisons incorporate
12 this fact. DRA's testimony notes the significant difference between book value and market value,
13 approximately double,⁴⁰ but draws an inference that is contrary to reality. DRA claims that the market-
14 to-book ratio "proves" that utilities are earning returns above cost, but in fact, utilities must earn the
15 market return on *market* value to attract capital away from competing opportunities. Accordingly, in the
16 current environment and in the simplest sense, a pension return assumption of 8 percent for equities
17 equates to a return of 16 percent on two times book value market value utility.

18 The importance of this fact is not limited to a comparison of pension return assumptions to
19 required returns on equity. It is relevant to the whole use of financial models in this proceeding. All of
20 the models in this application seek to estimate the market return on market-valued assets. Yet the
21 market return derived from these models is applied to a book value rate base, with the result that if the
22 model estimates of return on equity are blindly applied without any judgment, the resulting authorized
23 return will be insufficient to attract capital. This is an important point for the Commission to realize in
24 basing its decision on an informed judgment approach rather than a pure models-only approach. Said
25 another way, the financial models used in determining the level of required return needed as a basis for

⁴⁰ DRA Testimony, pp. 4-52 through 4-53.

1 setting the authorized return on equity are a data point to be used and not an end-all determinant because
2 these models are market based models and need to be “adjusted” when applied to a rate of return
3 historical book value based regulated utility.

4 **B. Intervenor’s Pension Fund Testimony Omits Important Facts**

5 Intervenor’s cite SCE’s pension fund return assumptions and assumptions from other utilities.
6 These return assumptions are net of investment expenses, whereas SCE’s requested return on equity
7 *includes* investment expenses.⁴¹ The intervenor’s testimony omits these facts. Since the difference
8 between gross (before investment expenses are deducted) and net pension returns is approximately 30
9 basis points, this indicates that it would be quite normal for SCE’s return on equity request to exceed
10 SCE’s pension fund return by 30 basis points.

11 Additionally, it can be argued that an assumed pension fund return is an estimate of the expected
12 rate of return on plan assets over a long period, including an allowance for the risk of adverse outcomes,
13 and this would tend to bias the assumed return downward in order to avoid underfunding contributions
14 and creating volatility.

15 Finally, Aglet-TURN-UCAN complains that more conservative pension fund returns cause
16 ratepayers to overpay in the short run, even if they eventually get the money back through lower
17 contributions. Aglet-TURN-UCAN fails to recognize the downside of pension under-funding. Should a
18 sharp market reversal lead to significant under-funding, the utilities would face both negative accounting
19 implications and potential negative credit rating impacts. Neither of these impacts would bode well for
20 the utility’s cost of capital. Furthermore, should the utility be required to provide significantly more
21 funds, ratepayers could see untoward rate increases. On the other hand, because SCE has instituted
22 balancing accounts for its pension contributions, if returns are greater than expected ratepayers are
23 assured of receiving the benefit of these returns, along with the compounding of earnings on the higher
24 fund balance.

⁴¹ Investors pay their investment expenses out of their earned return. To the extent that expected investment expenses are embedded in investors’ required return, they are not netted out of SCE’s requested return on common equity.

1 **VI.**

2 **RETURN ON EQUITY**

3 **A. DRA’s Analysis Presents The Fundamental Problem Facing The Commission**

4 Table 4-18 of DRA’s testimony illustrates the fundamental problem that this Commission must
5 solve in this application. This table shows the average earned returns on equity for the sample
6 companies used by DRA and the utilities in their model estimates. For reference, the table is reproduced
7 here. (Tables 3-3a, 3-3b, and 3-3c are found in DRA’s testimony. They contain the source data for
8 Table 4-18.)

9 **Table 4-18**
Return on Equity and Market-to-Book Ratios
SCE, PG&E, and SDG&E Electric Utility Groups

	Return on Equity	Market-to-Book Ratio
SCE	11.9%	210
PG&E	11.4%	190
SDG&E	11.6%	196
Average	11.7%	199

Source: Tables 3-3a, 3-3b, and 3-3c.

10 This table shows that the companies with which SCE must compete for capital earn 11.9 percent
11 on common equity. Because these companies were selected to be generally of comparable risk, SCE is
12 at least as risky as the firms typical of this sample. *Yet these companies earn a higher return on equity*
13 *than the authorized return on equity SCE has requested in this application.* Whatever financial models
14 the Commission might choose in this application, and whatever inputs to those models the Commission
15 might use, if it were to estimate its own financial models, the fundamental fact is that the companies
16 with which SCE must compete for capital are earning more than SCE’s requested ROE. Thus, SCE’s
17 requested return is necessary to attract capital.

18 **B. Key Issues Regarding Financial Models**

19 At the prehearing conference in this application on June 14, 2007, Assigned Commissioner Bohn
20 referenced a letter that he had sent to workshop participants on February 9, 2007. That letter stressed
21 Commissioner Bohn’s interest in the financial models and stated his observation “that the underlying
22 input information and methods of using the models can make a significant difference in the results that

1 are produced.” As shown in Figure II-1 above, there are significant differences in the modeling results
2 obtained by the parties to this application.

3 As stated in SCE’s direct testimony, it is inappropriate to use the discounted cash flow (DCF)
4 model at this time for several reasons.⁴² This matter is explored in the next section. Within the DCF
5 model itself, the principal driver of differences in estimated ROE is the growth rate that is used in the
6 DCF calculation. For the Capital Asset Pricing Model (CAPM), the principal difference is in the equity
7 risk premium that is used. (The choice of equity risk premium also affects the Fama-French (FF) model
8 results. Some of the issues involved in choosing and calculating the market risk premium also affect the
9 results obtained from the historical risk premium (HRP) model.) Below, we address these and other
10 modeling issues.

11 **1. DCF Estimates Generally Are Not Reliable At This Time**

12 SCE has explained in its direct testimony why the DCF model estimates are not reliable
13 at the present time.⁴³ As shown in the table above from DRA’s testimony, the market-to-book ratios for
14 SCE’s comparable companies average 210 percent, or approximately two. Because the market-to-book
15 ratio exceeds one for utilities generally, all of the DCF estimates for SCE in this application are subject
16 to this distortion. To estimate the magnitude of the distortion, one can use the following formula that
17 relates the required return on book equity to the DCF cost of equity, the retention rate, and the market-
18 to-book ratio.

$$19 \quad r = \frac{\left(\frac{M}{B}\right)K}{1 + b\left(\frac{M}{B} - 1\right)} \quad (1)$$

20 This formula is based on the work of Dr. Roger Morin.⁴⁴ Starting with the standard DCF formula for
21 price as a function of dividend, required return and growth, Dr. Morin develops a formula that expresses
22 the DCF cost of equity (K) as a function of the book return on equity (r), the market-to-book ratio (M/B),

⁴² Exhibit SCE-1, pp. 31-34.

⁴³ Exhibit SCE-1, pp. 31-34.

⁴⁴ Roger A. Morin, *New Regulatory Finance*, (Arlington, Virginia: Public Utilities Reports, Inc., 2006), p. 360.

1 and the retention ratio (*b*).⁴⁵ The formula shown above is a rearrangement of the formula derived by Dr.
2 Morin. (Appendix B provides more details.) Given the DCF estimated return on equity, the retention
3 ratio and the market-to-book ratio, equation (1) can be solved for *r*.

4 FEA calculates a standard DCF estimate of 9.23 percent for SCE.⁴⁶ Using this formula to
5 adjust the individual company estimates and then averaging, a 13.30% required return on equity results.
6 If this formula were applied to FEA's other DCF estimates, or to the DCF estimates of other parties,
7 similar upward adjustments would occur.

8 FEA tries to explain away the problem of market-to-book ratios and DCF estimates in an
9 argument about expected return and required return that misses or tries to confuse the essential
10 problem.⁴⁷ The problem is not confusing. If an investor's required return is 12 percent on a market
11 value of \$100 per share, then the investor is requires a return of \$12 to invest in the utility. If the
12 required return of 12 percent is applied to a book value of only \$50 per share, then the investor will only
13 realize a return of \$6 and will not invest.

14 Intervenors argue at various places that the utility stock should never be selling for more
15 than book value in the first place, but this is a misleading argument. A share price above book value can
16 result from non-utility investments, prices paid in takeovers and mergers, or other causes, including
17 general accounting and historical capital retention policy regarding the level of the book value. The
18 table shown at the beginning of this chapter shows that the companies with which SCE is competing for
19 capital are selling at substantial premiums to book value. Trying to set a return on the basis of a
20 theoretical argument that all these companies should be selling at exactly book value is simply
21 unrealistic. Trying to force current share prices to equal book value will only result in capital losses for
22 existing shareholders, and will be highly detrimental to SCE's ability to attract capital.

23 This Commission is aware of the DCF model's deficiencies. In fact, in D.04-09-063, the
24 Commission found the following:

⁴⁵ The retention ratio is the fraction of earnings not paid out as dividends.

⁴⁶ FEA Testimony, p. 13, Schedule 5.

⁴⁷ FEA Testimony, pp. 25-27.

1 When setting the cost of equity, we prefer to use CAPM model results, rather than
2 the DCF model. The DCF model relies heavily on growth forecasts for
3 telecommunications firms, which vary greatly depending on the source. This leads
4 to a large disparity in DCF results depending on the time period and forecasters
5 selected. It appears that the DCF model is too dependent on this one forecasted
6 input, and we prefer instead to use CAPM, which is based on betas, the risk-free
7 rate and the market risk premium rather than highly disputed growth forecasts for
8 one industry. Therefore, we will base our adopted cost of equity on the
9 conservatively higher CAPM results.⁴⁸ ...

10 We give no weight to the parties' DCF analyses.⁴⁹

11 **2. DRA's Regression Analysis Does Not Support The Claimed Relationship Between**
12 **Earned Return, Cost Of Equity, And The Market-To-Book Ratio**

13 DRA presents a table that purports to show a relationship between the earned return on
14 equity, the cost of equity, and the market-to-book ratio.⁵⁰ This table is followed by three graphs
15 depicting regressions of market-to-book ratio on estimated ROE. DRA claims that these graphs show a
16 "strong positive relationship between ROEs and market-to-book ratios for public utilities. (Footnote
17 omitted.)"⁵¹ The graphs may show this relationship, but they show nothing about the relationship
18 between earned ROEs and the cost of equity, because there is only one ROE value present in the graphs,
19 the "estimated ROE." This can be either the earned ROE or the cost of equity, but it cannot be both
20 simultaneously. If is both simultaneously, then $ROE = K$ and the market-to-book ratio should equal one,
21 which is clearly not the case according to the graphs themselves. So the graphs show nothing about the
22 relationship of interest.

23 **3. DRA Witness Woolridge's Arguments Supporting DCF Are Contradicted By His**
24 **Own Book**

25 DRA's witness, Dr. Woolridge, claims in several places that investment firms use the
26 DCF model as a valuation tool. This does not mean that investment firms use the DCF model to
27 estimate cost of capital, as opposed using it to simply value investments. The two are not the same,

⁴⁸ D.04-09-063, *mimeo*, p. 159.

⁴⁹ D.04-09-063, *mimeo*, p. 170.

⁵⁰ DRA Testimony, p. 2-11. The table is found in lines 9-12.

⁵¹ DRA Testimony, p. 2-13.

1 since any DCF evaluation of an investment must have a discount rate. The key question is: where does
2 the discount rate come from?

3 When advising investors, Dr. Woolridge does not use the DCF to estimate cost of capital.
4 With two other professors, Dr. Woolridge is the author of *Streetsmart Guide to Valuing a Stock: the*
5 *Saavy Investor's Key to Beating the Market*.⁵² This book contains ten financial principles, the tenth of
6 which is “An asset pricing model should be used to value investments.” This principle is followed by a
7 discussion of the CAPM that concludes with this discussion:

8 CAPM is the granddaddy of asset pricing models. It has been around since the
9 mid-1960s, and provides an estimate of the return that the market requires for
10 investing in risky stock. The CAPM has been the subject of hundreds of
11 academic tests, most of which have found that it works reasonably well. ...

12 We use the cost of equity capital calculated by the Capital Asset Pricing Model as
13 an input for our discounted cash flow stock valuation model. ...

14 We believe that CAPM is the best way to estimate the discount rate associated
15 with a risky common stock, and we recommend that you use it as well.⁵³

16 So while Dr. Woolridge's testimony gives “primary weight to the DCF results,”⁵⁴ his
17 recommendations for investing give *no* weight to DCF results.

18 There is also a discrepancy between the market risk premium that Dr. Woolridge
19 provides in his testimony and the market risk premium that he provides in his book. See the discussion
20 in Section VI.B.8.c) below.

21 **4. It Is Correct To Use Analyst Earnings Growth Estimates As The DCF Growth Rate**

22 DRA and FEA criticize SCE's use of analyst earnings growth forecasts in the DCF
23 model. These criticisms are without merit, since there is considerable research evidence indicating the

⁵² Gary Gray, Patrick J. Cusatis, and J. Randall Woolridge, *Streetsmart Guide to Valuing a Stock: the Saavy Investor's Key to Beating the Market*, second edition (New York: McGraw-Hill, 2004).

⁵³ Gary Gray, Patrick J. Cusatis, and J. Randall Woolridge, *Streetsmart Guide to Valuing a Stock: the Saavy Investor's Key to Beating the Market*, second edition (New York: McGraw-Hill, 2004), p. 56.

⁵⁴ DRA Testimony, p. 4-1.

1 superiority of analyst earnings growth forecasts, as explained in Morin⁵⁵ and referenced in SCE’s direct
2 testimony.⁵⁶

3 DRA does present a study in Chapter 5 of its testimony that purports to explain how
4 analyst earnings estimates can be erroneous. The bulk of this discussion concerns analyst earnings
5 estimates generally. It is important to recognize that utilities and their parent companies are subject to
6 significant regulation and their rate of earnings growth is governed in large part by the decisions of
7 regulatory commissions. Because of this, the magnitude of so-called “optimism bias” is likely to be
8 much smaller than for unregulated corporations. With regard to DRA’s comparison of forecasted versus
9 actual long-term growth rates for electric utilities,⁵⁷ the actual growth rates are likely to be contaminated
10 by the Western energy crisis of 2000 and 2001, which seriously depressed growth rates for a number of
11 Western utilities. DRA’s graph spans the period from 1994 through early 2006, and the forecasted
12 versus actual growth rates are quite close through 2002, when a backward-looking long-term growth rate
13 would begin to be affected by the Western energy crisis.⁵⁸

14 FEA’s view of analyst earnings growth rates is that “studies show that projected growth
15 rates are superior to simple, mechanical averages of historical growth rates.”⁵⁹ This is an endorsement
16 of using analyst earnings growth rate forecasts, as SCE has done.

17 With respect to FEA’s own DCF growth rates, it is not clear to what extent they follow
18 any consistent pattern. Appendix C to FEA’s testimony contains a multi-paragraph discussion of growth
19 rate evidence for each company in FEA’s comparable group, usually culminating in the sentence
20 “[i]nvestors can reasonably expect a sustainable growth rate in the future of X.XX% for XYZ.”

⁵⁵ Roger A. Morin, *New Regulatory Finance*, (Arlington, Virginia: Public Utilities Reports, Inc., 2006), pp. 297-302.

⁵⁶ Exhibit SCE-1, p. 31.

⁵⁷ DRA Testimony, Graph 5-3, p. 5-8.

⁵⁸ SCE knows that the long-term growth rate must be backward looking, because Dr. Woolridge’s chart shows values for 2006 and the caption indicates that the growth rate spans three to five years. SCE does not know why his chart does not include any values for late 2006 or early 2007.

⁵⁹ FEA Testimony, p. 14.

1 Aglet-TURN-UCAN relies solely on dividend growth rates to provide the growth rate in
2 its DCF model.⁶⁰ Dr. Morin explains why earnings growth rates are superior to dividend growth rates
3 for use in the DCF model:

4 Only Value Line provides comprehensive long-term dividend growth forecasts.
5 The wide availability of earnings forecasts is not surprising. There is an
6 abundance of evidence attesting to the importance of earnings in assessing
7 investors' expectations. The sheer volume of earnings forecasts available from
8 the investment community relative to the scarcity of dividend forecasts attests to
9 their importance. The fact that these investment information providers focus on
10 growth in earnings rather than growth in dividends indicates that the investment
11 community regards earnings growth as a superior indicator of long-term growth.⁶¹

12 Aglet-TURN-UCAN is using an inferior growth rate in its analysis.

13 **5. SCE's DCF Dividend Yield Calculation Is Correct; Intervenors' Is Not**

14 FEA criticizes SCE's multiplication of the current dividend rate in the DCF model by the
15 factor $1+g$, where g is the DCF growth rate. FEA's criticism is erroneous. The fundamental assumption
16 of the annual DCF model, which SCE uses, is that dividends are received at the end of each year and
17 that the first dividend is to be received one year from now. Since the appropriate dividend to use in a
18 DCF model is the prospective dividend one year from now, SCE approach is correct and FEA's
19 criticism is not correct. Conversely, by multiplying the current dividend by $1+0.5g$, FEA and DRA
20 incorrectly understate the dividend yield in the DCF calculation. DRA claims that there is an
21 overstatement when the cost of capital is applied to a projected rate base. DRA's argument is false
22 because the growth rate in the DCF calculation is the growth rate associated with the comparable group,
23 whereas the retained earnings associated with an increase in rate base involve a growth rate for the target
24 company, which has no effect on the DCF calculation, since SCE has excluded its parent company from
25 its comparable group and DRA has used the same comparable group.

26 **6. FEA's Statistical Screening Of Utility DCF Estimates Is Faulty**

27 FEA adjusts utility DCF estimates by excluding individual company estimates that are
28 more than one standard deviation from the average and then computes the average again on the smaller

⁶⁰ Weil Testimony, p. 21.

⁶¹ Roger A. Morin, *New Regulatory Finance*, (Arlington, Virginia: Public Utilities Reports, Inc., 2006), pp. 302-303.

1 sample. There is no statistical basis for this calculation and FEA has provided none. The falseness of
2 FEA's calculation is shown by FEA's claim that excluding results outside the one standard deviation
3 range would not skew the results.⁶² In fact, this procedure results in a lower average for the truncated
4 sample than for the full sample for all three utilities, skewing the results downward in all three cases.
5 FEA's statistical screening should be rejected.

6 **7. The Use Of Arithmetic Averages For Calculation Of The Historical Risk Premium** 7 **And Market Risk Premium Is Correct**

8 When using return data to estimate the cost of capital, use of the arithmetic average is
9 appropriate because it is the best measure of the expected value of the distribution of returns. This is
10 confirmed by multiple references.⁶³ As Morningstar explains:

11 The equity risk premium data presented in this book are arithmetic average risk
12 premia as opposed to geometric average risk premia. The arithmetic average
13 equity risk premium can be demonstrated to be most appropriate when
14 discounting future cash flows. For use as the expected equity risk premium in
15 either the CAPM or the building block approach, the arithmetic mean or the
16 simple difference of the arithmetic means of stock market returns and riskless
17 rates is the relevant number.⁶⁴

18 Morningstar shows that annual equity risk premia have serial correlation that is close to
19 zero. Because of this, the best estimate of the expected value of the equity risk premium is the average
20 of its past values.⁶⁵ Thus, SCE's use of arithmetic averages is correct, and use of geometric averages is
21 not correct.

⁶² FEA Testimony, p. 76.

⁶³ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), pp. 77-79. Roger A. Morin, *New Regulatory Finance*, (Arlington, Virginia: Public Utilities Reports, Inc., 2006), pp. 133-143. Richard A. Brealey, Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance*, 8th edition (Boston: McGraw-Hill/Irwin, 2006), pp. 150-151.

⁶⁴ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 77.

⁶⁵ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 81.

1 **8. Market Risk Premium**

2 The market risk premium is the difference between the return on the market portfolio and
3 the risk-free rate. For the expected market risk premium, SCE used the long-term risk premium of 7.10
4 percent from the Morningstar 2007 Yearbook,⁶⁶ as explained in SCE’s direct testimony.⁶⁷ The two
5 important characteristics of the Morningstar market risk premium that make it the right one to use are
6 (1) it is estimated over a long period of time, and (2) it is an arithmetic mean.⁶⁸

7 a) **DRA And FEA Cite The Morningstar Estimate Incorrectly**

8 DRA and FEA both cite Morningstar as estimating the market risk premium at 6.5
9 percent when using arithmetic averages.⁶⁹ However, Morningstar calculates a 7.1 percent market risk
10 premium,⁷⁰ which Aglet-TURN-UCAN cites correctly.⁷¹ The difference is that DRA and FEA reference
11 a calculation where the average total return on long-term government bonds is subtracted from the
12 average total return on large company stocks.⁷² However, Morningstar does not calculate the market
13 risk premium in this way. Instead, Morningstar subtracts the arithmetic mean of the income return on
14 long-term government bonds, since this is the true riskless portion of the total return.⁷³

15 b) **DRA Omits Findings From Recent Research**

16 DRA does not always cite evidence from the most recent research. For example,
17 DRA cites a 2002 study by Ibbotson and Chen.⁷⁴ However, Ibbotson and Chen’s work has been

⁶⁶ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 262.

⁶⁷ Exhibit SCE-1, pp. 37-38.

⁶⁸ These features are explained in more detail in Exhibit SCE-1, pp. 37-38.

⁶⁹ DRA Testimony, Table 4-10, p. 4-36. FEA Testimony, p. 34.

⁷⁰ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 262.

⁷¹ Reid testimony, p. 6.

⁷² Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 28.

⁷³ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 76.

⁷⁴ DRA Testimony, p. 4-37.

1 updated. Ibbotson and Chen now report an arithmetic average supply side equity risk premium of 6.35
2 percent for the period 1926 through 2006. Morningstar comments as follows:

3 Contrary to several recent studies on equity risk premium that declare the
4 forward-looking equity risk premium to be close to zero, or even negative,
5 Ibbotson and Chen have found the long-term supply of equity premium to be
6 only slightly lower than the straight historical estimate.

7 The supply side equity risk premium calculated earlier is a geometric
8 calculation. An arithmetic calculation, as mentioned earlier in the chapter, is
9 most appropriate when discounting future cash flows. For use as the expected
10 equity risk premium in either the CAPM or the buildup approach, the
11 arithmetic calculation is the relevant number. ...⁷⁵

12 This highlights two problems with DRA's analysis: first, the use of geometric
13 averages in deriving the market risk premium for the CAPM, and two, the level of the estimates that
14 DRA cites or derives. For example, DRA's testimony uses a "building blocks approach" based on data
15 from 1926-2000 to derive a market risk premium of 2.65 percent.⁷⁶ Ibbotson and Chen's updated work,
16 which incorporates six more years of data, shows this estimate to be seriously skewed. In addition,
17 reviewing Table 4-10 of DRA's testimony shows it to be only 25 basis points above the lowest estimate
18 in the table.

19 c) [DRA Witness Woolridge Uses A Different Market Risk Premium In His](#)
20 [Testimony Than He Uses In His Book](#)

21 Section VI.B.3 above discusses differences between Dr. Woolridge's book for
22 investors and his testimony in this application. In his testimony, Dr. Woolridge estimates a market risk
23 premium of 4.14 percent.⁷⁷ But with his co-authors, Dr. Woolridge recommends a market risk premium
24 of only 3 percent in his book, *Streetsmart Guide to Valuing a Stock: the Saavy Investor's Key to Beating*
25 *the Market*, when valuing stocks.⁷⁸

⁷⁵ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 97.

⁷⁶ DRA Testimony, p. 4-45.

⁷⁷ DRA Testimony, p. 4-46.

⁷⁸ Gary Gray, Patrick J. Cusatis, and J. Randall Woolridge, *Streetsmart Guide to Valuing a Stock: the Saavy Investor's Key to Beating the Market*, second edition (New York: McGraw-Hill, 2004), p. 234.

1 d) [No Intervenor Presents Estimates From The California State Board Of](#)
2 [Equalization](#)

3 Each year, the California State Board of Equalization (Board) produces a
4 capitalization rate study that is used in the assessment of utility property taxes. In the 2007 study, the
5 Board estimates an ex ante market risk premium of 8.88 percent and an ex post market risk premium of
6 7.10 percent.⁷⁹ The Board estimates an overall ROE for SCE of 12.25 percent.⁸⁰ None of the
7 intervenors present this information.

8 e) [FEA Does Not Provide Complete Information From An Article It Cites](#)

9 FEA's testimony prominently discusses an article by Dimson, Marsh, and
10 Staunton on returns over the past one hundred years in the United States and other countries. FEA cites
11 this article as supporting a market risk premium of 5.0 percent,⁸¹ but that 5.0 percent is for stocks
12 worldwide, not in the United States. For the United States, the corresponding estimated market risk
13 premium was 5.3 percent over the entire period and 7.3 percent for the second half of the 20th century.
14 In addition, FEA fails to note that the return data it cites from the article are geometric average returns,
15 so that the calculated risk premiums are under-estimates of the true arithmetic average values. Dimson,
16 Marsh, and Staunton explain the difference this way:

17 The risk premia reported above were computed as geometric means. This has
18 intuitive appeal from an investment perspective, since, when past performance is
19 being considered, the geometric mean summarises the annualized rate of return
20 over a historical period. ... When decisions are being taken on a forward-looking
21 basis, however, the arithmetic mean is the appropriate measure, since it represents
22 the mean of all the returns that may possibly occur over the investment holding
23 period.⁸²

24 Accordingly, Dimson, Marsh, and Staunton's article supports SCE's method of estimating the market
25 risk premium, despite what FEA's testimony represents.

⁷⁹ California State Board of Equalization, *Capitalization Rate Study*, March 2007, pp. 13-14.

⁸⁰ California State Board of Equalization, *Capitalization Rate Study*, March 2007, pp. 1, 9.

⁸¹ FEA Testimony, p. 36.

⁸² Elroy Dimson, Paul Marsh, and Mike Staunton, "Risk and Return in the 20th and 21st Centuries," *Business Strategy Review*, Volume 11, Issue 2, p. 9.

1 After publishing the article cited by FEA, these three authors published a book on
2 the same subject. Brealey, Myers and Allen cite the book “with updates by the authors” through 2003.
3 As shown in Brealey, Myers and Allen, over the period 1900-2003, the market risk premium over
4 government bonds is approximately 6.4 percent.⁸³ This is higher than the risk premium that the authors
5 originally estimated.

6 f) [DRA And FEA Cite Risk Premium Analyses Based On Less Reliable Data](#)

7 Several of the historical market risk premium studies use data that extends prior to
8 1926, which is when the Morningstar return series begins. Using data before 1926 is questionable,
9 because prior data are not as reliable. As Morningstar comments:

10 Our equity risk premium covers the time period from 1926 to the present.
11 The original data source for the time series comprising the equity risk
12 premium is the Center for Research in Security Prices. CRSP chose to
13 begin their analysis of market returns with 1926 for two main reasons.
14 CRSP determined that the time period around 1926 was approximately
15 when quality financial data became available. They also made a conscious
16 effort to include the period of extreme market volatility from the late
17 twenties and early thirties; 1926 was chosen because it includes one full
18 business cycle of data before the market crash of 1929. There are the most
19 basic reasons why our equity risk premium calculation window starts in
20 1926.⁸⁴

21 The lack of quality financial data is especially a problem when considering the
22 results of Siegel, referenced by FEA.⁸⁵ Siegel’s data extend as far back as 1802 in some instances. The
23 major concern with the Siegel data for a period beginning in 1802 is the reliability of the data. The
24 stock market of the early 1800’s was severely limited, embryonic in scope, with very few issues trading,
25 and few industries represented. Dividend data were unavailable over most of this early period and stock
26 prices were based on wide bid-ask spreads rather than on actual transaction prices. The stock market of
27 the 19th century is not comparable to today’s stock market. It is also worth noting that Siegel’s analysis
28 ended in 1992, so it does not reflect the last 14 years of history.

⁸³ Richard A. Brealey, Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance*, 8th edition (Boston: McGraw-Hill/Irwin, 2006), p. 149.

⁸⁴ Morningstar, *Stocks, Bonds, Bills, and Inflation 2007 Valuation Edition Yearbook* (Chicago: Morningstar, Inc., 2007), p. 80.

⁸⁵ FEA Testimony, p. 37.

1 g) Aglet-TURN-UCAN Uses Its Estimated Market Risk Premium Incorrectly

2 In his CAPM analysis, Aglet-TURN-UCAN witness Weil uses a market risk
3 premium of 5.71 percent, which is the median of 28 estimates surveyed by his colleague Mr. Reid.⁸⁶
4 Inspection of Mr. Reid’s testimony reveals that the estimates that he surveyed are dominated by
5 estimates measured relative to the 20-year Treasury bond rate.⁸⁷ It is incorrect to estimate the market
6 risk premium with respect to the 20-year Treasury bond rate and then use it without modification in a
7 CAPM equation with a risk-free rate of different duration. Yet this is what Mr. Weil does. Because of
8 this, his CAPM estimates should not be used.

9 It turns out that Mr. Reid actually recognizes this problem, as he states:

10 A biased estimate of return on equity may result if researchers use an
11 MRP based on the 20-year bond and then apply it to forecasts of 30-year
12 bond rates.

13 The bias results from the fact that bonds of longer duration will typically
14 have higher yields than bonds of shorter duration.⁸⁸

15 The same problem arises when using a market risk premium based on the 20-year
16 Treasury bond with a risk-free rate equal to the 10-year Treasury bond. The only difference is that the
17 bias is in the opposite direction: the CAPM estimate is too low, not too high.

18 **9. FEA’s Statistical Analysis Of Historical Risk Premium Data Is Incorrect**

19 Regarding the utilities’ historical risk premium estimates, FEA claims that the standard
20 deviation of the individual annual risk premiums indicates the range within which the historical risk
21 premium exists.⁸⁹ FEA’s analysis is faulty because FEA confuses the standard deviation of the annual
22 observations with the standard deviation of the mean, which is the relevant standard deviation, since the
23 historical risk premium is calculated as the mean of all the annual risk premiums.⁹⁰

⁸⁶ Weil Testimony, p. 22.

⁸⁷ Reid testimony, pp. 5-7. See the column labeled “Risk Free Rate Proxy.”

⁸⁸ Reid testimony, p. 9.

⁸⁹ FEA Testimony, p. 50.

⁹⁰ An analogy may help explain the difference. Suppose that the all annual calculated risk premiums are written on ping-pong balls and placed into an urn. If we drew one ball at random and used it to estimate the risk premium, then the relevant standard deviation would be the standard deviation that Mr. Hill estimates. But that is not how the historical

(Continued)

1 To calculate the standard deviation of the mean, one starts by calculating the sample
2 standard deviation according to the standard formula. The standard deviation of the mean is the sample
3 standard deviation divided by the square root of the number of observations. If we have a sample of N
4 observations $x_1 \dots x_N$ drawn from a population, then the following formulas are true:

$$\text{sample mean} = \bar{x} = \frac{\sum_{i=1}^N x_i}{N} \quad (2)$$

$$\text{sample standard deviation} = s = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2} \quad (3)$$

$$\text{standard deviation of the sample mean} = \frac{s}{\sqrt{N}} \quad (4)$$

8 FEA's estimates for SCE, when correctly calculated, are shown in Table VI-3. It is clear
9 that the estimates that FEA includes in its testimony grossly overstate the confidence interval on SCE's
10 historical risk premium. Instead of ranging from +32.76 percent to -23.48 percent as FEA erroneously
11 claims, the true range is from 8.24 percent to 1.05 percent. Because the average is the expected value,
12 the average value of 4.64 percent is still the best estimate of the unknown true value.

Continued from the previous page

risk premium is calculated. Instead of drawing one ball, we draw all of the balls and calculate the average value. The standard deviation that is now relevant is the standard deviation of the mean, not the standard deviation of the variable observations from which the mean is calculated.

**Table VI-3
Mr. Hill's Risk Premium Table,
Corrected Values For SCE**

Line No.		
1.	Average (Mean) Risk Premium	4.64%
2.	Maximum	42.68%
3.	Minimum	-29.33%
4.	Standard Deviation Of Average (Mean) Risk Premium	1.80%
5.	Average Plus Two Standard Deviations	8.24%
6.	Average Minus Two Standard Deviations	1.05%

2
3

10. Aglet-TURN-UCAN's Historical Risk Premium Model Is Flawed And Should Not Be Used

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5
6
7

Aglet-TURN-UCAN estimates a historical risk premium model, but over a time period that is too short: 16 years (1991-2006).⁹¹ It is a fundamental practice when constructing a historical risk premium model to use the longest possible period for which data are available. Using short periods can give misleading results. On this subject, Dr. Roger Morin writes:

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9
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16

The historical risk premium approach assumes that the average realized return is an appropriate surrogate for expected return, or, in other words, that investor expectations are realized. However, realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. Therefore, a risk premium study should consider the longest possible period for which data are available. Short-run periods during which investors earn a lower risk premium than they expect are offset by short-run periods during which investors earn a higher risk premium than they expect. Only over long time periods will investor return expectations and realizations converge.⁹²

⁹¹ Weil testimony, pp. 21-22.

⁹² Roger A. Morin, *New Regulatory Finance* (Arlington, Virginia: Public Utilities Reports, Inc., 2006), p. 114.

1 In comparison with the data that are available to construct a historical risk premium
2 estimate, the period used by Aglet-TURN-UCAN is too short. As shown in SCE's direct testimony, it is
3 possible to construct a historical risk premium estimate based on data from 1946-2006.⁹³ Aglet-TURN-
4 UCAN's historical risk premium analysis could have and should have been based on a longer period of
5 data.

6 **11. DRA's Criticism Of SCE's Use Of Utility Bond Returns Is Incorrect**

7 Regarding the utilities' historical risk premium estimates, DRA claims that it is
8 inappropriate to use long-term utility bond rates because utility bonds are subject to credit risk.⁹⁴ DRA
9 is incorrect. While it is true that utility bonds are subject to credit risk relative to Treasury bonds, the
10 fact that SCE used a utility bond yield for Moody's Aa utility bonds will minimize the fluctuations in
11 this credit risk over time, since as individual bonds become more risky, they will drop out of the
12 Moody's Aa utility bond yield index. The bond yield index will only capture broad changes in utility
13 bond risk. Secondly, one would expect that default risk on utility bonds would correlate with
14 bankruptcy risk on utility stocks. If anything, because utility bonds are senior obligations to utility
15 stocks in bankruptcy, an increase in the average default risk on utility bonds would understate the
16 change in required returns on utility stocks. But the fact that a utility bond index will reflect default risk
17 across the industry is its own virtue. When there is a flight to safety because of financial turmoil,
18 Treasury bond yields will decline as non-Treasury bond yields increase. In such a situation, a historical
19 risk premium estimate based on Treasury bond yields will give exactly the wrong information,⁹⁵ while
20 SCE's methodology will be more accurate. This also makes SCE's methodology more accurate than
21 FEA's historical risk premium estimate.⁹⁶

⁹³ Exhibit SCE-1, Appendix E.

⁹⁴ DRA Testimony, p. 5-25.

⁹⁵ In the CAPM model, a flight to safety should be reflected in an increase in the forward-looking beta. However, this can be difficult to identify empirically.

⁹⁶ FEA's historical risk premium estimate is discussed at FEA Testimony, p. 51, ll. 20-27. Also see FEA Testimony, Schedule 11.

1 **12. DRA’s Claim That Recent Changes In The Income Tax Rate On Dividend Income**
2 **Has Lowered Utility Cost Of Capital Is Not Proven**

3 DRA argues that the 2003 reduction in the Federal income tax rate on dividends has
4 lowered the cost of equity capital.⁹⁷ DRA presents no evidence to what extent this has occurred. DRA’s
5 argument assumes that all investors are taxable. However, many important investors are not taxable,
6 hence for them, the change in the tax rate cannot have any effect. For example, qualified pension plans
7 that own utility stock pay no Federal income tax. Certain individual retirement accounts and 401(k)
8 plans are also exempt from Federal income tax on investment earnings. To the extent that utility stock is
9 held by such entities and such entities engage in trading of utility stock, the tax law change will have no
10 effect. It is quite plausible that taxable retail investors are relatively inactive traders and that large non-
11 taxable investors have a much more substantial influence on capital markets. If non-taxable investors
12 dominate, then the tax law change has no effect.

13 **C. Selection Of Comparable Companies**

14 **1. FEA’s Additional Screening Criteria Are Unreasonable**

15 SCE chose its comparable companies from electric utilities classified by Value Line on
16 the basis of bond ratings, with additional screening on revenues, dividend payment history and
17 expectations, and merger and restructuring status. FEA devises an additional screen on electric utility
18 revenues, arguing that it is justified because “SCE witness Hunt (SCE Direct, p. 28) recommends that
19 the Commission not rely on Edison International (SCE’s parent) as a proxy company because it derives
20 “only” 82% of its operating revenues from electric utility operations.”⁹⁸ As a first comment, FEA
21 distorts Dr. Hunt’s direct testimony, which referenced “nonutility revenues,” not electric utility
22 revenues.⁹⁹ The distinction is an important one, because gas distribution operations are usually
23 conducted by a regulated utility subsidiary of a holding company. For example, according to FEA’s
24 electric revenue screen, Wisconsin Energy should be excluded, because its electric revenues are only 63

⁹⁷ DRA Testimony, p. 2-5.

⁹⁸ FEA Testimony, p. 5.

⁹⁹ See Exhibit SCE-1, p. 28.

1 percent of its total revenues.¹⁰⁰ But according to Wisconsin Energy’s own annual report, for the year
2 ended December 31, 2006, over 98 percent of Wisconsin Energy’s revenues were from utility
3 operations.¹⁰¹ As another example, FEA’s electric revenue screen excludes NiSource, since according to
4 FEA’s data, only 17 percent of its revenues are electric utility revenues. Yet NiSource’s 2006 10-K
5 Report says this: “NiSource is an energy holding company whose subsidiaries are engaged in the
6 transmission, storage and distribution of natural gas in the high demand energy corridor stretching from
7 the Gulf Coast through the Midwest to New England and the generation, transmission and distribution of
8 electricity in Indiana. NiSource generates virtually 100% of its operating income through these rate-
9 regulated businesses.” An examination of NiSource’s financial statements indicates that when electric
10 revenues are combined with gas distribution and gas transmission and storage revenues, the combination
11 accounts for 87 percent of NiSource’s revenues. These examples demonstrate that FEA’s additional
12 screen is unreasonable, and the Commission should not adopt FEA’s proxy group to evaluate SCE’s cost
13 of capital.

14 **2. Aglet-TURN-UCAN’s Comparable Group Is Unreasonable**

15 On the other hand, Aglet-TURN-UCAN’s witness Mr. Weil believes in using what
16 appears to be the entire set of Value Line electric and gas utilities, 82 companies in all.¹⁰² According to
17 Mr. Weil, “I did no screening to isolate comparable utilities based on size, location, asset base,
18 regulatory status, dividend history, market news or any other variable.”¹⁰³ To do no screening is to
19 create estimates for the average utility across the entire 82 companies, regardless of whether the
20 applicant utilities are more or less risky than that average utility.

21 **D. Fama-French Model**

22 Intervenors raise several objections to SCE’s Fama-French estimates. These objections are
23 either without merit or even if true, would not change the implications of the Fama-French estimates.

¹⁰⁰ FEA Testimony, Schedule 1, pp. 2-4.

¹⁰¹ Wisconsin Energy Corporation 2006 Annual Report, p. F-78.

¹⁰² Weil Testimony, p. 19.

¹⁰³ Weil Testimony, p. 19.

1 **1. Size Premium**

2 FEA claims that the size premium is unreliable and does not apply to regulated utility
3 operations. If this is true, then the individual firm regressions for SCE’s comparable group will have
4 estimated size coefficients of zero or close to zero and the size premium will have little effect on the
5 overall Fama-French equity estimates. Stated differently, if the size premium is noise, then the Fama-
6 French regression equations will not detect a signal, except by pure chance. If there is no signal, then
7 the estimated individual ROEs will not be affected.

8 DRA references an article suggesting that the size premium is only about one-half as
9 large as traditionally reported. This issue is addressed below.

10 **2. Value Premium**

11 FEA’s testimony claims that “[b]ecause high book-to-market firms have, in the FF
12 model, the propensity to earn higher returns than low book-to-market firms, utilities will be assigned
13 high expected returns associated with FF’s ‘HML’ factor.” This claim is not accurate. The HML factor
14 measures the difference in returns between firms with a high book-to-market ratio and firms with a low
15 book-to-market ratio.¹⁰⁴ Like the size premium, the extent to which the earned returns of the companies
16 in SCE’s comparable group reflect this factor will determine the estimated coefficient in the Fama-
17 French regression equations. The extent to which this factor affects the Fama-French ROE estimate will
18 depend on the historic relationship between this factor and the earned returns. There is no propensity for
19 high or low returns other than as the regression methodology measures one. FEA’s objection is
20 baseless.

21 **3. Fama-French Estimates Based On DRA Values**

22 One way to test the objections of intervenors is to substitute DRA’s values for the
23 expected size premium and the expected market risk premium into SCE’s Fama-French analysis. In this
24 exercise, it is important to remember that DRA’s expected market risk premium (which SCE does not
25 endorse, as explained elsewhere in this exhibit) is measured against long-term Treasury bonds, not the

¹⁰⁴ The book-to-market ratio is the inverse of the market-to-book ratio discussed elsewhere in this exhibit.

1 short-term risk-free rate used in the FF analysis.¹⁰⁵ So even if DRA’s overall method for estimating the
2 market risk premium were correct, applying it in the FF analysis without modification will produce a
3 downward-biased result. So the results presented in this section incorporate that downward bias.

4 DRA’s market risk premium is 4.14 percent.¹⁰⁶ Incorporating this market risk premium
5 into SCE’s FF analysis and reducing the size premium by one-half produces a new Fama-French
6 estimate of SCE’s required ROE of 12.34 percent. This is still well above SCE’s requested ROE of
7 11.80 percent.

8 Regarding the accuracy of Fama-French, for SCE’s group of comparable companies, the
9 Fama-French model has about twice the explanatory power, on average, of an equivalent CAPM
10 analysis estimated on the same data.¹⁰⁷ That is, Fama-French does about twice as good a job of
11 explaining the variation in observed market return on equity data. This should not be surprising,
12 because it is consistent with the reason why Fama and French advanced the model in the first place. In
13 addition, of all the models in this proceeding, the Fama-French model is the only one to incorporate
14 explicit pricing factors based on the market-to-book ratio and the size of firm.

15 **E. Diversifiable Risks Cannot Be Dismissed**

16 **1. Aglet-TURN-UCAN’s Position On Diversifiable Risk**

17 Aglet-TURN-UCAN argues that financial markets do not reward diversifiable risks and
18 that restructuring and procurement risks are diversifiable.¹⁰⁸ However, despite this broad
19 pronouncement, Aglet-TURN-UCAN’s witness, Mr. Weil, states: “Nonetheless, I agree with the

¹⁰⁵ Table 4-10 of DRA’s testimony, which is the basis for DRA’s market risk premium, references a 6.50 percent market risk premium calculated by Ibbotson. This market risk premium is measured against 20-year Treasury bonds.

¹⁰⁶ DRA Testimony, p. 4-46.

¹⁰⁷ SCE measures model explanatory power by the coefficient of determination, or R^2 (“R-squared”). This number measures the variability in a set of data that is explained by a statistical model, where variability is measured by squared deviations from the mean. Because it is possible to increase the coefficient of determination by adding any variable to a statistical model, some investigators prefer adjusted R^2 . This measure accounts for the number of variables in the model and penalizes a model that has more variables. By this measure, the average increase in explanatory power is about 60 percent versus 98 percent for R^2 .

¹⁰⁸ Weil testimony, p. 13.

1 Commission that distinctions between diversifiable and non-diversifiable risks are not clearcut. (Note
2 cites D.94-11-076.)”¹⁰⁹

3 **2. If The Commission Refuses To Compensate Investors For Diversifiable Risk, SCE**
4 **Will Not Be Able To Attract Sufficient Equity Capital**

5 The fact that a risk is diversifiable does not mean that it goes away. Someone has to bear
6 that risk and should be compensated for doing so. The diversifiability argument does not change that
7 fundamental fact.

8 In the United States, where capital markets are large and function reasonably well,
9 investors can diversify and limit their exposure to a single security. But the fact that they have many
10 investment alternatives means that they can refuse to supply their capital to a company that does not
11 provide an appropriate return. Capital already supplied can be held hostage to inadequate returns, but
12 new capital may be withheld by investors. The Commission cannot mandate investments by investors.
13 If the Commission chooses to ignore the risks facing SCE, it runs the risk of turning new capital away.

14 Mr. Weil apparently believes that the Commission should embark on exactly such a
15 strategy: “I believe that electric restructuring and procurement risks are in large part diversifiable. If
16 investors are unwilling to accept business risks associated with California regulation, they can invest in
17 companies outside California or companies with business risks not affected by California regulation.”¹¹⁰
18 Aglet-TURN-UCAN provides no strategy for SCE to obtain capital to maintain and expand its system if
19 investors do not provide it.

20 Aglet-TURN-UCAN’s testimony on this point underscores the apparent viewpoint of all
21 the intervenors in this application: that the Commission need not take any responsibility for ensuring
22 that the applicant utilities are able to obtain capital to maintain and expand their utility systems.
23 Fortunately for California utility customers, the Commission has been very cognizant of the importance

¹⁰⁹ Weil testimony, p. 13.

¹¹⁰ Weil testimony, p. 9.

1 of capital attraction in setting authorized rates of return. The Commission should continue to recognize
2 the importance of capital attraction and adopt SCE's recommended cost of capital.

3

1 **VII.**

2 **DECOUPLING**

3 Aglet and FEA both submitted testimony on decoupling. Aglet correctly points out that while
4 decoupling can reduce the variability of sales, it can produce an adverse effect on utility earnings: if
5 sales are higher than forecast, utility costs will be higher than forecast, but none of the increased revenue
6 will be kept.¹¹¹ This important point is completely missed by Mr. Hill, who only discusses decoupling
7 in terms of its impact on the variability of sales. Variability of earnings matters much more to
8 shareholders than variability of sales. Mr. Hill's appendix on decoupling says nothing about variability
9 of earnings; thus his analysis and conclusions are misleading. For this reason, the Commission should
10 ignore his conclusions.

¹¹¹ Weil Testimony, pp. 10-11.

1 **VIII.**

2 **CONCLUSION**

3 The Commission must address this question: Will the Commission grant a cost of capital that is
4 compensatory based on risks and returns of similar investments and allows SCE to attract the capital that
5 it needs to maintain and expand its business on a long-term basis? The Commission should continue on
6 a course that supports SCE's credit standing, and look for positive steps that will improve SCE's
7 business profile, which will ultimately improve SCE's credit ratings and benefit SCE's customers.
8 SCE's requests in this application are reasonable, and they are amply supported by SCE's testimony. In
9 order for SCE to raise capital from investors and generate equity capital internally to make investments,
10 SCE must be accorded a reasonable authorized cost of capital and ratemaking capital structure. The
11 Commission should grant the cost of capital that SCE has requested.

Appendix A

Excerpt From SCE Data Request Response Regarding Forecast Accuracy

Southern California Edison
2008 COC A.07-05-003

DATA REQUEST SET A0705003 DRA JJS1-SCE-01

To: DRA
Prepared by: Paul T. Hunt, Jr.
Title: Manager of Regulatory Finance and Economics
Dated: 07/03/2007

Question 20:

With reference to Chapter IV, please provide copies of all studies that indicate that the interest rate forecasts of Global Insight are superior estimates of future interest rates than current market interest rates.

Response to Question 20:

SCE has compared the performance of Global Insight interest rate forecasts (April Control projection for the following year) with naive forecasts based on contemporaneous market interest rates (April 1 spot interest rate or next available day's spot interest rate), for the following five interest rates over the period 1999-2006. Forecast accuracy was measured by mean squared error.

1. Moody's Aa long-term utility bond yield
2. Federal funds interest rate
3. Three-month Treasury interest rate
4. Ten-year Treasury interest rate
5. Thirty-year Treasury interest rate

In each of the five cases, the Global Insight forecast was a superior predictor (lower mean squared error) of the next year's average interest rate. Please see the attached file for details.

Mean Squared Error

	Aa-rated public utility bonds, Moody's	Federal Funds Rate	3-Month Bill, Bond Equiv. Yield	10-Year Note Yield	30-Year Bond Yield*
GI Projection	0.16	0.12	0.10	0.14	0.07
Spot Value	0.27	3.69	3.13	0.52	0.18

Squared Error, GI Projection

	Aa-rated public utility bonds, Moody's	Federal Funds Rate	3-Month Bill, Bond Equiv. Yield	10-Year Note Yield	30-Year Bond Yield*
1999	0.17	0.01	0.03	0.14	0.09
2000	0.12	0.00	0.01	0.04	0.02
2001	0.09	0.70	0.50	0.01	0.00
2002	**	0.15	0.08	0.62	0.15
2003	**	0.02	0.02	0.01	0.01
2004	0.02	0.05	0.11	0.00	0.00
2005	0.47	0.00	0.00	0.27	0.29
2006	0.07	0.00	0.00	0.02	0.01
Mean Squared Error	0.16	0.12	0.10	0.14	0.07

Squared Error, Spot Value

	Aa-rated public utility bonds, Moody's	Federal Funds Rate	3-Month Bill, Bond Equiv. Yield	10-Year Note Yield	30-Year Bond Yield*
1999	0.25	0.56	0.12	0.00	0.00
2000	0.74	0.68	2.43	0.58	0.07
2001	0.11	5.16	5.72	0.96	0.12
2002	**	13.20	6.68	0.13	0.01
2003	**	0.57	0.58	2.03	1.17
2004	0.16	0.00	0.08	0.19	0.04
2005	0.33	4.78	5.23	0.14	0.02
2006	0.01	4.56	4.21	0.11	0.00
Mean Squared Error	0.27	3.69	3.13	0.52	0.18

* 20-year yield substituted for 30-year yield, 2/18/2002 through 2/9/2006

** Global Insight projected a Standard & Poor's utility bond rate in April 2001 and April 2002, hence forecast errors for 2002 and 2003 are excluded from the analysis

Appendix B

Derivation Of DCF Adjustment Formula

Derivation of DCF Adjustment Formula

Dr. Roger Morin shows that a relationship between r , K , and M/B can be demonstrated by transformation of the basic DCF equation.¹¹² Starting with the basic DCF model expressed in the form:¹¹³

$$P_0 = \frac{D_1}{K - g} \quad (1)$$

Dr. Morin derives this equation:¹¹⁴

$$K = \frac{r(1-b)}{\left(\frac{M}{B}\right)} + br \quad (2)$$

Multiplying both sides by (M/B) produces:

$$\left(\frac{M}{B}\right)K = r(1-b) + b\left(\frac{M}{B}\right)r \quad (3)$$

Rearranging terms on the right-hand side produces:

$$\left(\frac{M}{B}\right)K = r\left(1 + b\left(\frac{M}{B} - 1\right)\right) \quad (4)$$

Dividing both sides by the term in parentheses on the right-hand side results in the equation showing r as a function of K , M/B , and b :

$$r = \frac{\left(\frac{M}{B}\right)K}{1 + b\left(\frac{M}{B} - 1\right)} \quad (5)$$

¹¹² Roger A. Morin, *New Regulatory Finance* (Arlington, Virginia: Public Utilities Reports, Inc., 2006), p. 360.

¹¹³ Ibid, equation (12-1).

¹¹⁴ Ibid, equation (12-7).

