BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of)
)
HAWAIIAN ELECTRIC COMPANY, INC.)
)
For Approval of Rate Increases and)
Revised Rate Schedule and Rules)
)

Docket No. 2008-0083

FILED
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PUBLIC UTILITIES
COMMISSION

HECO
2009 TEST YEAR

HECO REBUTTAL TESTIMONIES, EXHIBITS, AND WORKPAPERS

May 22, 2009

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Darcy L. Endo-Omoto
Vice President
Government & Community Affairs

May 22, 2009

The Honorable Chairman and Members of the
  Hawaii Public Utilities Commission
Kekuanaoa Building, First Floor
465 South King Street
Honolulu, Hawaii 96813

Dear Commissioners:

> Subject: Docket No. 2008-0083
> HECO 2009 Test Year Rate Case
> <u>HECO Rebuttal Testimonies, Exhibits, and Workpapers</u>

Enclosed for filing are Hawaiian Electric Company, Inc.'s ("HECO") Rebuttal Testimonies, Exhibits, and Workpapers for the following HECO witnesses:

- HECO RT-1 – Robert A. Alm;
- HECO RT-10A – Lynne T. Unemori;
- HECO RT-19 – Roger A. Morin, Ph.D.;
- HECO RT-20 – Tayne S. Y. Sekimura;
- HECO RT-21 – Steven M. Fetter;
- HECO RT-23 – Tayne S. Y. Sekimura.

Very truly yours,

Enclosure

cc: Division of Consumer Advocacy
    Department of Defense

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Hawaiian Electric Company, Inc.

Docket No. 2008-0083

Application for Approval of Rate Increases and
Revised Rate Schedules and Rules

REBUTTAL TESTIMONIES AND EXHIBIT SPONSORSHIP LIST

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REBUTTAL TESTIMONY OF
ROGER A. MORIN, PH.D.

On Behalf of

HAWAIIAN ELECTRIC COMPANY, INC.

Subject: Rate of Return on Common Equity

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1   **INTRODUCTION**

2   Q.   Please state your name, address, and occupation.

3   A.   My name is Dr. Roger A. Morin. My business address is Georgia State

4   University, Robinson College of Business, University Plaza, Atlanta, Georgia,

5   30303. I am Emeritus Professor of Finance at the College of Business,

6   Georgia State University and Professor of Finance for Regulated Industry at

7   the Center for the Study of Regulated Industry at Georgia State University.

8   I am also a principal in Utility Research International, an enterprise engaged in

9   regulatory finance and economics consulting to business and government. I

10   am filing rebuttal testimony on behalf of Hawaiian Electric Company, Inc.

11   ("HECO" or the "Company").

12   Q.   Are you the same Dr. Morin who previously filed testimony in this

13   proceeding?

14   A.   Yes, I am.

15   Q.   Please describe the purpose of your rebuttal testimony.

16   A.   My testimony rebuts the direct testimonies of Mr. Stephen G. Hill (Department

17   of Defense) and Mr. David C. Parcell (Division of Consumer Advocacy) on

18   the cost of capital, filed on April 17, 2009.

19   Q.   Please describe how your rebuttal testimony is organized.

20   A.   My rebuttal testimony is organized in two sections, corresponding to each of

21   the aforementioned individuals. I am also providing the Commission with an

22   updated recommendation in view of the appreciable changes that have

1   occurred in capital markets since I prepared my direct testimony, almost one

2   year ago.

3   Q. What rate of return on common equity capital ("ROE") do you recommend for

4   the 2009 test year?

5   A. Based on the results of all my analyses, the application of my professional

6   judgment, the risk circumstances of HECO, and the unsettled current market

7   environment, it is my opinion that a conservative just and reasonable ROE of

8   HECO's electric utility business lies in a range of is 11.00% - 11.25%.

9   Q. Please summarize the rate of return recommendations of the witnesses you are

10   rebutting in this case.

11   A. The ROE recommended by each witness I am rebutting in this case is as

12   follows:

                    Mr. Hill   9.5%

14   Mr. Parcell   9.5% -10.5%

15   I note that Mr. Parcell's upper range (10.5%) is within reasonable

16   striking distance of my own updated recommendation of 11.00% - 11.25%,

17   assuming approval of the revenue decoupling mechanisms ("RDM") and in a

18   range of 11.25% - 11.50% without, while Mr. Hill's ROE recommendation is

19   more extreme and outside reasonable limits of probability. I shall therefore

20   devote the bulk of my rebuttal to Mr. Hill's testimony.

1   **REBUTTAL TO MR. HILL'S TESTIMONY**

2   Q.   Please summarize the recommended ROE of Mr. Hill.

3   A.   Mr. Hill recommends a ROE for HECO of only 9.50%, which is slightly below

4   the midpoint of Mr. Hill's range of 9.25% – 10.25%. Mr. Hill relies primarily

5   on two Discounted Cash Flow ("DCF") analyses of a group of eleven electric

6   utilities, the first being the traditional constant growth DCF analysis and the

7   second being a two-stage DCF analysis. I note that this is the first time that

8   Mr. Hill has relied on the latter methodology which, not surprisingly, produces

9   lower results than the traditional DCF analysis on which Mr. Hill has always

10   relied upon in the past. As summarized on pages 30 and 32 of his testimony,

11   the two DCF studies produce an estimated ROE of 10.01% and 9.62%,

12   respectively. Mr. Hill performs three checks on his DCF estimate, based on

13   the Modified Earnings Price, Market-to-Book ("M/B"), and Capital Asset

14   Pricing Model ("CAPM") methodologies. Mr. Hill summarizes the results of

15   these checks in table form on page 44. From these various analyses, Mr. Hill

16   also concludes that the ROE for HECO is 9.50%.

17   Q.   Dr. Morin, before you go on with your technical comments on his testimony,

18   what do you make of Mr. Hill's views on capital costs generally?

19   A.   It is difficult to determine Mr. Hill's stance on this issue. On page 10, he

20   correctly notes that government yields have fallen well below the historical

21   range, and on page 11 lines 1-3 he notes that in the current economic

22   environment capital costs are lower, at least judging from the low level of the

23   risk-free rate. But on page 11 line 4, he notes that corporate bond yields have

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1   increased since the financial crisis began, and yet on page 13 line 1, he notes

2   that utility bond yields have declined. He then states on page 13 lines 14-27

3   that there has been an increase in the cost of equity capital and repeats this

4   assertion on page 14 lines 1-2. Then comes the most confusing paragraph of

5   all on page 14 lines 3-8:

6   *Here we have DCF-based data indicating an **increase in equity***
7   *costs, along with the fixed-income (bond yield) data discussed*
8   *above lending credence to the notion that investors' **return***
9   ***expectations have been lowered** somewhat by the recent events*
10   *in the financial markets. Therefore, it is reasonable to assume*
11   *from publicly-available data that cost of equity capital is likely*
12   *to be similar to or **somewhat higher** than it was at mid-year*
13   *2008 for electric utilities similar in risk to HECO.*
14
15   From these contradictatory statements, I cannot determine whether

16   Mr. Hill believes that capital costs have risen or not.

17   Q.   What is the impact of the ongoing financial crisis on utilities' cost of capital?

18   A.   In a nutshell, it has increased markedly. During the past nine months, capital

19   markets in the U.S. have been more volatile than at any time since the 1930s.

20   Investors have witnessed unprecedented large swings in the stock market and

21   unprecedented corporate interest rate spreads in the debt markets. Many large

22   financial institutions were unable to survive as independent institutions and

23   others have required multi-billion dollar capital infusions.

24   As shown on the graph below, the spreads between the yields on utility

25   debt and U.S. Treasury securities have increased markedly.

BBB Utility Bond Yields vs 30-Yr Treasury

A line chart titled "BBB Utility Bond Yields vs 30-Yr Treasury" with the y-axis labeled "% Spread" ranging from 0.0 to 6.0, and the x-axis labeled "Date" ranging from 1/1/08 through 3/1/09. The spread line begins near 1.8, declines slightly, then rises sharply after 10/1/08 to a peak around 4.5 near 12/1/08, before declining and rising again toward 4.0 near 3/1/09.

1
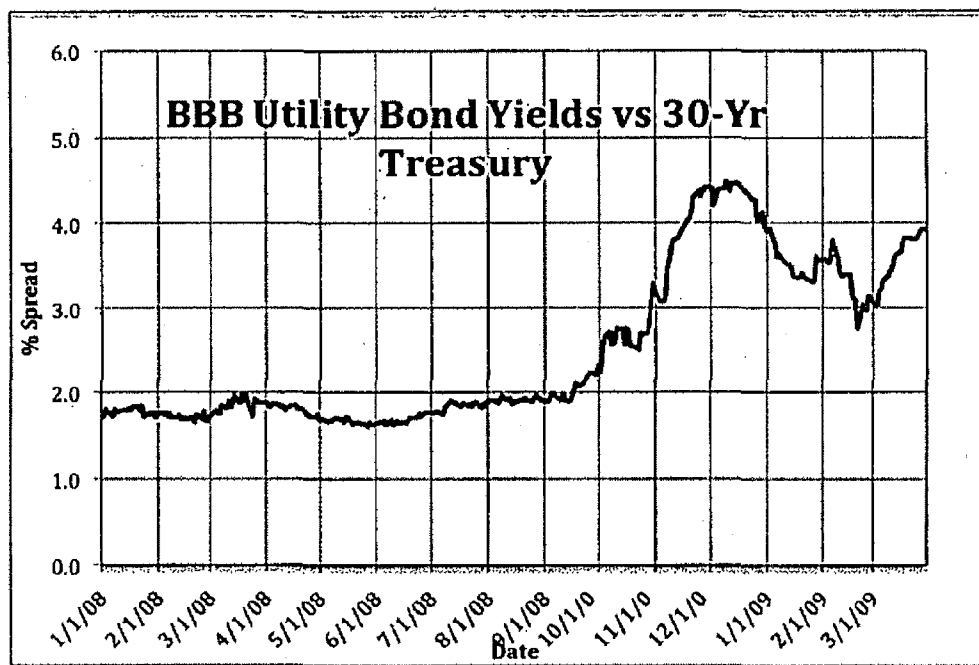
2   Since the commencement of the financial crisis, single-A yield spreads

3   and BBB yield spreads for utility companies have increased to a level which is

4   some three times higher than the spreads that existed little more than a year

5   ago. In short, increased risk aversion and market illiquidity have resulted in

6   significantly higher borrowing costs for corporations, including HECO. In the

7   current environment, investors' return expectations and requirements for

8   providing capital to the utility industry remain high relative to the longer-term

9   traditional view of the utility industry.

10   Q.   How have regulatory commissions reacted to changing market and industry

11   conditions?

12   A.   Over the past five years, allowed equity returns have generally followed

13   interest rate changes. During 2008, allowed rates did increase from the lowest

14   levels of 2006 and 2007. Of course, these historical averages cannot reflect the

1   recent extreme market volatility. The table below summarizes the overall

2   average ROEs allowed for electric utilities since 2004:

3   **Electric Utility Allowed Returns 2004-2008**

	2004	2005	2006	2007	2008
Average Allowed Return	10.75%	10.54%	10.36%	10.36%	10.46%
Average Utility Debt Cost	6.20%	5.67%	6.07%	6.12%	6.65%
Average Risk Premium	4.55%	4.87%	4.29%	4.24%	3.81%

8   Source: *Regulatory Focus*, SNL Energy Major Rate Case Decisions, January 2009.

10 Since 2004, the allowed equity risk premiums have ranged from 3.81%

11 to 4.87%. At the low end of this range, based on average single-A utility

12 interest rates for the three months ended March 2009 of approximately 6.3%,

13 the indicated cost of equity is 10.11% (6.30% + 3.81% = 10.11%). At the

14 upper end of this range, the indicated cost of equity is 11.17% (6.30% + 4.87%

15 = 11.17%). One would think that the upper end of the range is most applicable

16 under the current financial crisis conditions. These estimates based on myriad

17 regulatory awards do not even reflect current market turbulence.

18 Q. Please summarize your specific concerns with Mr. Hill's recommendation.

19 A. The ROE recommended by Mr. Hill significantly understates an appropriate

20   ROE for HECO for the following reasons:

21   (i) *Mr. Hill's recommended ROE for HECO is outside of the*

22   *mainstream for electric utilities.* The ROE recommended by

23   Mr. Hill for HECO is well outside the range of currently authorized

24   ROEs for electric utilities in the United States and the zone of

1   currently authorized ROEs for Mr. Hill's own sample of comparable

2   companies.

3   (ii) *Mr. Hill uses an ambiguous and arbitrary growth rate for each*

4   *utility in his DCF analysis.* Mr. Hill's DCF estimates are unreliable

5   because he has selected a growth rate for each company in his

6   comparable group that is ambiguous, arbitrary and impossible to

7   replicate.

8   (iii) *Mr. Hill erroneously relies on historical growth rates in his DCF*

9   *analysis.* Mr. Hill understates his DCF estimates by erroneously

10   using historical growth rates that have little relevance as proxies for

11   future long-term growth forecasts in the DCF model.

12   (iv) *Mr. Hill erroneously relies on dividend growth forecasts in his DCF*

13   *analysis.* Mr. Hill understates his DCF estimates by improperly using

14   dividend growth forecasts during a period in which energy utilities

15   are expected to continue to lower their dividend payout ratio over the

16   next several years. Using the appropriate growth rate forecasts, Mr.

17   Hill's DCF estimates increases from 10.0% to 10.8% (exclusive of

18   flotation costs) and 11.1% (inclusive of flotation costs) for his group

19   of electric utilities.

20   (v) *Mr. Hill uses the wrong long-term growth rate of the U.S. economy*

21   *in his two-stage DCF analysis.* Mr. Hill understates his DCF

22   estimates by using the wrong long-term growth rates of the U.S.

23   economy.

1   (vi)   *Mr. Hill improperly uses disguised versions of the DCF as "checks"*

2   *on his DCF analysis and, as a result, are redundant.* Mr. Hill

3   understates his recommend ROE for HECO because the Modified

4   Earnings Price Ratio and M/B methodologies are disguised versions

5   of the DCF model and do not constitute independent stand-alone

6   checks.

7   (vii)   *Mr. Hill's recommended ROE improperly ignores flotation costs.*

8   Mr. Hill understates his recommended ROE by approximately 30

9   basis points because it does not allow for flotation costs and, as a

10   result, leaves a legitimate expense unrecovered.

11   (viii) *The Commission should reject Mr. Hill's claim that HECO is a*

12   *lower than average risk electric utility.* The impact of risk-reducing

13   mechanisms called for in the *Energy Agreement among the State of*

14   *Hawaii, Division of Consumer Advocacy of the Department of*

15   *Commerce and Consumer Affairs, and the Hawaiian Electric*

16   *Companies* ("Energy Agreement") on the Company's risk profile is

17   reflected to some extent in the capital market data of the comparable

18   companies, and the risk impact of these mechanisms is partially offset

19   by several factors that work in the reverse direction, as explained

20   more fully by Ms. Sekimura in RT-20.

21   (ix)   *Actuarial data utilized for pension fund accounting are irrelevant in*

22   *estimating a utility's cost of capital.* Actuarial data utilized for

23   pension fund accounting are by nature very conservative, consistent

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1   with Generally Accepted Accounting Principles ("GAAP")

2   guidelines, and are not suited for assessing the cost of equity capital

3   in a rate proceeding.

4   Correction of the above-described infirmities would likely

5   increase the ROE recommended by Mr. Hill by at least 150 basis

6   points, from a range of 9.25% – 10.25% to a range of 10.75% –

7   11.75%.

8   **(i)   MR. HILL'S RECOMMENDED ROE FOR HECO IS OUTSIDE OF**

9   **THE MAINSTREAM FOR ELECTRIC UTILITIES**

10   Q.   Dr. Morin, please comment on recent decisions regarding allowed ROEs for

11   vertically integrated electric utilities like HECO.

12   A.   Allowed ROEs, although not a precise indication of a utility's cost of equity

13   capital, are nevertheless important determinants of investor growth perceptions

14   and investor expected returns. They also serve to provide some perspective on

15   the validity and reasonableness of Mr. Hill's recommended ROE. Using

16   Regulatory Research Associates (now SNL) reported data for ROE decisions

17   rendered for the past twelve months ending in December 2008, the average

18   allowed ROE for electric utilities was 10.5% and approximately 10.7% for

19   integrated utilities like HECO. I note that the majority of those decisions were

20   rendered prior to the current financial crisis during which capital costs for

21   utilities have increased sharply. These ROE decisions are well in excess of

22   Mr. Hill's recommended 9.5%.

1   Q.   Is Mr. Hill's recommended ROE for HECO consistent with the average

2   authorized ROE of the electric utilities in Mr. Hill's comparable group?

3   A.   No, it is not. The AUS Utility Reports survey for May 2009 reports that the

4   average authorized ROE is 10.7% for the combination gas and electric industry

5   and 10.8% for the overall electric utility industry. All but one of the 59

6   authorized ROEs reported by AUS Utility Reports exceed Mr. Hill's 9.5%

7   recommendation. If we remove the less risky transmission and distribution

8   only ("wires") electric utilities from the AUS sample, the currently authorized

9   returns are higher.

10   Moreover, Mr. Hill's recommended ROE for HECO is below the

11   authorized ROE of each electric utility in Mr. Hill's comparable group and far

12   below the average authorized ROE of 10.7% for the same group, as shown on

13   the table below. If we eliminate the "wires" companies Northeast Utilities and

14   First Energy from the group, the average allowed ROE is 10.7%.

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1 **Mr. Hill's Group of Electric Utilities**

	Company Name	Allowed ROE
1	Central Vermont P. S.	10.71
2	FirstEnergy Corp.	10.67
3	Northeast Utilities	9.72
4	American Electric Power	10.71
5	Cleco Corporation	11.25
6	Empire District Electric	10.80
7	Entergy Corp.	10.83
8	Idacorp	10.50
9	Pinnacle West Capital	10.75
10	Unisource Energy	10.13
11	Xcel Energy	10.74
12	Central Vermont P. S.	10.71
13	FirstEnergy Corp.	10.67
	AVERAGE	**10.62**
	AVERAGE w/o Northeast, First Energy	**10.71**

Source: AUS Utility Reports 05/2009

Although decisions of other regulatory bodies regarding authorized ROEs do not bind this Commission, one cannot overlook the significant difference between Mr. Hill's recommended ROE and the ROEs currently authorized for the electric utility industry.

Q. Is Mr. Hill's ROE significantly lower than other ROEs approved by the Commission?

A. Yes, it is. The ROEs approved by the Commission for Hawaiian Electric utilities in the most recent final decisions are as follows:

	% ROE	Test Yr	Docket No.
HECO	10.70	2005	04-0113
MECO	10.94	1999	97-0346
HELCO	11.50	2000	99-0207

The approved ROEs range from 10.7% to 11.5%. Current capital costs for utilities are at least as high today under unprecedented crisis conditions as they were in prior years when these ROEs were approved .

(ii) MR. HILL USES AN AMBIGUOUS AND ARBITRARY GROWTH RATE FOR EACH UTILITY IN HIS DCF ANALYSIS

Q. What specific DCF methodology does Mr. Hill use to estimate a ROE for HECO equity?

A. Mr. Hill applies a DCF analysis to one sample of eleven electric utilities. Mr. Hill bases the expected dividend yield component on a 6-week average stock price. For the growth component, Mr. Hill examines a broad array of growth rate estimates, including (i) historical and forecast sustainable growth rates, (ii) historical growth rates in book value, earnings, and dividends, (iii) Value Line growth forecasts, and (iv) the consensus growth forecasts reported in Zacks and IBES. This is shown on his Schedules DOD-207 for each company and in summary form on DOD-208 page 2. Mr. Hill then selects a growth rate for each company. However, as I will explain below, his method is arbitrary.

Adding the dividend yield component to the arbitrary growth component selected for each company, Mr. Hill produces a DCF estimate of 10.0% for the group of electric utilities.

1 Q. Did you attempt to replicate Mr. Hill's DCF analysis for a specific company to

2   illustrate Mr. Hill's methodology?

3 A. Yes, I did, but I was unable to replicate the analysis. Mr. Hill selects American

4   Electric Power ("AEP") as his "case study" to derive his DCF growth rate

5   forecast and cites the following growth rate estimates for AEP as reported on

6   page 2 of Schedule DOD-207 and page 2 of Schedule DOD-208:

7

AEP Growth Proxies	Estimate	Reference
5-yr historical sustainable	5.10%	DOD-207 page 2
2008 sustainable	4.88%	DOD-207 page 2
2009 sustainable	5.29%	DOD-207 page 2
projected sustainable 2011-13	5.18%	DOD-207 page 2
5-yr historical Book Value	0.00%	DOD-208 page 2
5-yr historical Dividend	-9.00%	DOD-208 page 2
5-yr historical Earnings	-0.50%	DOD-208 page 2
5-yr Compound Hist Book Value	6.30%	DOD-208 page 2
5-yr Compound Hist Earnings	3.12%	DOD-208 page 2
5-yr Compound Hist Dividends	-0.12%	DOD-208 page 2
VL Projected dividend	4.00%	DOD-208 page 2
VL Projected earnings	5.00%	DOD-208 page 2
VL projected Book Value	6.00%	DOD-208 page 2
analyst IBES projection	5.38%	DOD-208 page 2
analyst Zacks projection	5.50%	DOD-208 page 2

24   On page 24 lines 24-25, Mr. Hill declares that he uses the five-year

25   average sustainable growth rate of 5.2% for AEP as a benchmark against

26   which he measures the company's growth rate trends. Yet, from this array of

27   growth rate estimates, Mr. Hill arbitrarily selects, with little formal

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1   substantiation, a DCF internal growth rate forecast of 5.0%. It is unclear how

2   the benchmark of 5.2% squares with the final choice of a 5.0% internal growth

3   rate.

4   Q.   Were you able to determine how Mr. Hill arrives at a DCF growth rate forecast

5   of 5.0% for AEP?

6   A.   No. The average of the growth rates displayed above for AEP is 3.1%, the

7   median is 5.0%, and the midpoint of the range is -1.4%. I was unable to

8   replicate or decipher how Mr. Hill arrived at a 5.0% growth rate forecast from

9   this vast list of growth rates. As shown below, the most meaningful growth

10   proxies for electric utilities' growth rates are the analysts' growth projections

11   in the range of 6.3% – 7.3% reported on Mr. Hill's Schedule DOD-208 page 2.

12 Q.   Were you able to determine how Mr. Hill arrives at a DCF estimate of 9.63%

13   for AEP?

14 A.   No. On Schedule DOD-207, Mr. Hill asserts that the DCF estimate of ROE

15   for AEP is 10.88%, the sum of a dividend yield of 5.84% plus a growth rate

16   forecast of 5.04%. Mr. Hill derives the growth rate forecast of 5.04% directly

17   from the last column of page 1 of Schedule DOD-208, which computes the

18   sustainable growth rate forecast (g = br + sv) for AEP as the sum of a

19   sustainable internal growth rate (5.00%) and a sustainable external growth rate

20   (0.04%).

21 Q.   How does Mr. Hill arrive at a sustainable internal growth rate of 5.00% and an

22   external growth rate of 0.04% for AEP?

1   A.   It is unclear how Mr. Hill arrived at these two growth rates. The "internal

2   growth" and "external growth" figures are presumably derived from the upper

3   panel of page 2 of Schedule DOD-207, under the headings "internal growth"

4   and "external growth." The internal growth rate of 5.00% cannot be found

5   anywhere on the upper panel of page 2 of Schedule DOD-207 for AEP. The

6   sustainable internal growth rate of 5.0%, however, is contained within the

7   qualitative narrative of AEP's sustainable growth rate in Mr. Hill's Schedule

8   DOD-203 page 2, and is arbitrarily characterized as "reasonable".

9   In short, from a vast array of some fifteen growth estimates, Mr. Hill

10   arbitrarily selects a growth rate forecast of 5.04% for AEP with little

11   quantitative support or academic empirical evidence as to the optimal growth

12   rate proxy in the DCF model.

13   Q.   Were you able to replicate Mr. Hill's growth rate forecasts for any of the

14   companies contained in Mr. Hill's sample?

15   A.   No. I was unable to replicate Mr. Hill's final choice of growth rate estimates

16   of any utility in Mr. Hill's sample of electric utilities from the vast array of

17   growth rate estimates provided in Schedule DOD-208. The growth estimates

18   simply appear without scientific foundation, derivation or ability to be

19   replicated.

20   Q.   What is the sustainable growth rate technique used by Mr. Hill to implement

21   the DCF model?

22   A.   Mr. Hill appears to rely heavily on the so-called sustainable (a.k.a. internal)

23   growth method. *See* pages 24-26 and Schedules DOD-207 and DOD-208 in

1   his direct testimony. In the sustainable growth method, the growth rate

2   forecast is based on the equation $g = b(ROE)$, where b is the percentage of

3   earnings retained and ROE is the expected rate of return on book equity

4   (ROE). Mr. Hill also accounts for the impact of external stock financing on

5   growth by adding an external growth term $(g = sv)$.

6   Q.   Is the sustainable growth methodology an appropriate technique to implement

7   the DCF model in this proceeding?

8   A.   No. The sustainable growth methodology used by Mr. Hill in this proceeding

9   contains a logical contradiction because the method requires an explicit

10   assumption on the ROE expected from the retained earnings that drive future

11   growth. Mr. Hill bases his ROE estimate on (i) achieved ROEs in the past five

12   years 2003-2007 and (ii) Value Line forecast ROEs for 2008, 2009, and the

13   2011-2013 period.

14   In brief, Mr. Hill's implementation of the sustainable growth method, to

15   the extent relied upon, is logically circular because it *assumes* a ROE in a

16   regulatory process that is *designed to estimate* the fair and reasonable ROE.

17   Q.   Is the sustainable growth rate technique consistent with empirical evidence?

18   A.   No. Empirical finance literature demonstrates that the sustainable growth rate

19   technique is a very poor explanatory variable of market value and is not

20   correlated significantly to measures of value, such as stock price and

21   price/earnings ratios.

22   Q.   Are the Value Line estimates of ROE and retention ratio representative of the

23   market consensus?

1   A.   No, not necessarily. Mr. Hill's exclusive reliance on Value Line forecasts of

2   ROE and retention ratio runs the risk that such forecasts are not representative

3   of investors' consensus forecast. Moreover, the forecasts of the expected ROE

4   published by Value Line are based on end-of-period book equity rather than on

5   average book equity. The following formula adjusts the reported end-of-year

6   values so that they are based on average common equity, which is the common

7   regulatory practice:

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10
11

$$ra = rt \, \frac{2\,Bt}{Bt + Bt\text{-}1}$$

12   Where: ra = return on average equity

13   rt = return on year-end equity as reported

14   Bt = reported year-end book equity of the current year

15   Bt-1 = reported year-end book equity of the previous year

16   This one error alone – failing to use average common equity -

17   understates Mr. Hill's DCF estimates by approximately 10-20 basis points,

18   depending on the magnitude of the book value growth rate forecast.

19   (iii) **MR. HILL ERRONEOUSLY RELIES ON HISTORICAL GROWTH**

20   **RATES IN HIS DCF ANALYSIS**

21   Q.   Please discuss the use of historical growth rates in applying the DCF model to

22   energy utilities.

23   A.   Although it is not clear as to what weight Mr. Hill accords historical growth

24   rates given the arbitrary nature of his final choice of growth estimates, Mr. Hill

1   considers historical growth rates in arriving at proxies for the DCF growth

2   forecast component. It may be reasonable to assume that historical growth

3   rates in dividends/earnings influence investors' assessment of the long-run

4   growth rate forecast of future dividends/earnings if the company and industry

5   are stable. Because of structural changes in the energy industry, however,

6   historical growth rates have little relevance as proxies for long-term growth

7   forecasts. Moreover, historical growth rates are largely redundant because

8   such historical growth patterns are already incorporated in analysts' growth

9   forecasts that should be used in the DCF model.

10 (iv) **MR. HILL ERRONEOUSLY RELIES ON DIVIDEND GROWTH**

11 **FORECASTS IN HIS DCF ANALYSIS**

12 Q.   Should the Value Line dividend growth forecasts be considered in applying the

13   DCF model to electric utilities?

14 A.   No. There are two serious problems with the use of Value Line dividend

15   growth forecasts. First, heavy reliance on Value Line growth forecasts runs

16   the risk that such forecasts are not representative of investors' consensus

17   forecast. Second, it is inappropriate to use dividend growth forecasts of energy

18   utilities at this time in the DCF model. The Value Line dividend growth

19   forecasts are largely dominated by the anticipated dividend performance over

20   the next few years and higher business risk. The intermediate growth rate in

21   dividends cannot equal the long-term growth rate when the dividend payout

22   ratio is expected to change because projected dividend growth and earnings

23   growth must adjust to the changing payout ratio. This "problem" is not unique

1   to analysts' earnings growth forecasts and is also inherent in the use of

2   historical growth rates to forecast growth rates.

3   Reliance on "near-term" dividend growth is improper because first it is

4   expected that energy utilities will continue to lower their dividend payout

5   ratios over the next several years in response to increased business risk.

6   Second, in the current environment where utilities, including HECO, are

7   increasing their capital expenditures, dividends cannot be expected to grow at

8   the same rate that investors expect earnings to grow.

9   Therefore, earnings and dividends are not expected to grow at the same

10   rate in the future. Mr. Hill's own growth rate data on Schedule DOD-208

11   page 2 demonstrate this phenomenon because both historical and projected

12   utility dividend growth rates are less than the earnings growth rate forecast. As

13   discussed in my direct testimony, the use of consensus analysts' earnings

14   growth forecasts in the DCF model mitigates this potential bias—an approach

15   supported by empirical literature.

16   Q.   What does the published academic literature say on the subject of analysts'

17   growth rate forecasts in the DCF model?

18   A.   Published studies in the academic literature demonstrate that (i) analysts'

19   growth rate forecasts are reasonable indicators of investor expectations and

20   (ii) investors rely on such forecasts. Cragg and Malkiel present detailed

21   empirical evidence that (i) the average analysts' growth rate forecast is a better

22   predictor of investor expectations than are historical growth rates; (ii) the

23   average analysts' growth rate forecast represents the best possible source of

1   DCF growth rate forecasts; and (iii) historical growth rates do not contain any

2   information not already included in analysts' growth rate forecasts.[1]   Other

3   studies confirm the superiority of analysts' growth rate forecasts over historical

4   growth extrapolations.[2]

5   Q.   What do you conclude from Mr. Hill's DCF growth rate analysis?

6   A.   Although Mr. Hill reports and discusses historical growth rates and dividend

7   growth rate forecasts, it is difficult to discern from the discussion of each

8   company's growth rate to what extent, if any, Mr. Hill relies on historical

9   growth rates and dividend growth rate forecasts reported by Value Line. To

10   the extent Mr. Hill relies on either of historical growth rates and Value Line's

11   dividend growth forecasts, he does so in error.

12   One would expect that averages of analysts' earnings growth forecasts,

13   such as those contained in IBES, First Call, Reuters, or Zacks, are more

14   reliable estimates of the investors' consensus expectations than either historical

15   growth rates or one particular firm's dividend growth forecast. As discussed in

16   my direct testimony, the empirical finance literature has demonstrated that

17   consensus analysts' growth forecasts (i) are reflected in stock prices, (ii)

18   possess a high explanatory power of equity values, and (iii) are used by

19   investors.

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[1] Malkiel Burton & John Cragg, *Expectations and the Structure of Share Prices* (1982).
[2] James Vander Weide & Willard Carleton, "Investor Growth Expectations: Analysts vs. History,"
     The Journal of Portfolio Management (Spring 1988); Stephen Timme & Peter Eisemann, "On the
     Use of Consensus Forecasts of Growth in the Constant Growth Model: The Case of Electric
     Utilities," *Financial Management* (Winter 1989).

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1   Moreover, it is necessary to use earnings forecasts rather than dividend

2   forecasts because of the extreme scarcity of dividend forecasts compared to the

3   availability of earnings forecasts. Given the paucity and variability of dividend

4   forecasts, use of dividend forecasts produces unreliable DCF results.

5   Use of the analyst growth forecasts would have generated an average

6   growth rate forecast in the range of 5.7% - 7.6% for Mr. Hill's sample group of

7   electric utilities,[3] not the 4.9% average used, as shown on the first column of

8   numbers on Mr. Hill's Schedule DOD-208 page 2. Even if we take the

9   minimum growth rate forecasts of 5.7% instead of Mr. Hill's arbitrary 4.9%,

10   Mr. Hill's DCF estimate increases by 80 basis points, from 10.0% to the 10.8%

11   (exclusive of flotation costs) and 11.1% (inclusive of flotation costs) for his

12   group of electric utilities.

13   **(v)** **MR. HILL USES THE WRONG LONG-TERM GROWTH RATE OF**

14   **THE U.S. ECONOMY IN HIS TWO-STAGE DCF ANALYSIS.**

15   Q. Is Mr. Hill's two-stage DCF analysis consistent with his past practices?

16   A. No. Over the years, Mr. Hill has always performed a traditional DCF analysis

17   in most, if not all, of his testimonies for electric utilities in retail jurisdictions

18   and has never relied on the two-stage DCF model to the best of my knowledge.

19   This is the first time, I believe.

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[3] See Hill Schedule DOD-208 page 2. The average analysts' growth forecasts are 5.73% from Value Line, 7.58% from IBES, and 6.3% from Zacks.

1   Q.   Do you agree with Mr. Hill's two-stage DCF analysis?

2   A.   No, I do not. Mr. Hill implements a two-stage DCF analysis that produces a

3   ROE estimate of 9.62%, as shown on Schedule DOD-211 and on his summary

4   table of results on page 44 of his testimony. Although I certainly agree with

5   the validity of the two-stage DCF methodology, I disagree with the key input

6   data Mr. Hill uses in the second growth stage—the long-term growth estimate.

7   Mr. Hill bases the latter on the Congressional Budget Office's ("CBO")

8   long-term GDP growth forecast of 4.2% for the U.S. economy over the period

9   2009-2019.

10   Q.   Do you agree with that estimate?

11   A.   No. First of all, Mr. Hill's 4.2% forecast is inconsistent with the long-term

12   historical growth of the economy of 6.94% that he calculates on his own

13   Schedule DOD-205. Second, Mr. Hill has cherry-picked the 4.2% forecast

14   shown on Table 2-6 of the January 2009 edition of the CBO's economic

15   projections and failed to mention that right alongside the CBO forecast of 4.2%

16   is the Blue Chip forecast of 5.1% and the Administration's forecast of 4.9%.

17   Third, Mr. Hill should have compared the utility growth rate forecasts

18   with the historical long-term growth of the economy as a whole and/or the

19   long-range growth forecasts in GDP projected for the very long-term. The

20   former has been approximately 6%, 6.94% according to Mr. Hill's Schedule

21   DOD-205, while the latter is in the 5.5% - 6.0% range.[4] Mr. Hill's comparison

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[4] A long-term forecast of nominal growth in GDP can be formulated by combining a long-term inflation
estimate (2.0% - 2.5% according to the CBO projections) with a long-term real growth rate forecast of

1   to a short-term growth rate forecast (the next ten years) is inappropriate

2   because the growth term of the DCF model is perpetual in nature.

3   In short, Mr. Hill's second-stage growth forecast of 4.2% for his

4   comparable group of electric utilities slightly understates the long-term

5   expected GDP nominal growth by at least 130 basis points (5.5% - 4.2% =

6   1.3%).

7   Q. How would Mr. Hill's DCF results change if the appropriate long-term GDP

8   growth forecast were used in the two-stage DCF analysis?

9   A. Use of the GDP long-term growth forecast of 5.5% in Mr. Hill's second-stage

10   DCF analysis instead of the medium-term forecast of 4.2% would raise Mr.

11   Hill's DCF estimates by 130 basis points, from 9.62% to 10.92%.

12   (vi) **MR. HILL IMPROPERLY USES DISGUISED VERSIONS OF THE**

13   **DCF AS "CHECKS" ON HIS DCF ANALYSIS**

14   Q. Does Mr. Hill employ checks on his DCF results?

15   A. Yes. As one of his checks on the DCF results, Mr. Hill employs the Modified

16   Earnings-Price Ratio method. According to this method, the return of earnings

17   to shareholders is the cost to the company of equity funds, and the same rate of

18   return must be earned on equity-financed assets to equal the cost rate.

19   Q. Is the modified earnings-price ratio method an appropriate check of DCF

20   results?

21   A. No. The corporate finance literature in the 1960s extensively discussed the

22   Earnings-Price Ratio methodology that lies at the root of Mr. Hill's Modified

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3.5%, and the long-term expected GDP nominal growth is 5.5% - 6.0%.

1   Earnings-Price Ratio method. Indeed, the Earnings-Price Ratio method

2   enjoyed some brief notoriety in regulatory proceedings during that period.

3   Today, however, the Earnings-Price Ratio method has vanished from

4   use because it produces unreliable results. In fact, the Earnings-Price Ratio

5   method constitutes an accurate measure of the cost of equity (and collapses

6   into the standard constant-growth DCF model) only under two very limited

7   circumstances:

8   (1) the firm must pay all earnings out in dividends, and

9   (2) the firm must be an "ordinary" firm, (i.e., a company without

10   profitable opportunities earning a return on new investments equal

11   to the cost of equity).

12   Neither of these circumstances is present here, and therefore the

13   Commission should reject Mr. Hill's Modified Earnings-Price Ratio.

14   Furthermore, the Modified Earnings-Price Ratio, like the retention growth

15   method discussed above, is logically circular because it requires an assumed

16   ROE, which is the very quantity the model is trying to estimate.

17   I am unaware of any financial witness or regulatory body that has relied

18   on this antiquated methodology.

19   Q.   Is Mr. Hill's modified earnings-price ratio methodology any different from the

20   earnings-price ratio methodology?

21   A.   No, it is not. The two methodologies are equivalent. The relationship between

22   the Earnings-Price Ratio and the Modified Earnings-Price Ratio can easily be

23   seen from Mr. Hill's testimony page 39 line 22 to page 40 line 10. Elton and

1   Gruber (<u>Modern Portfolio Theory and Investment Analysis,</u> New York

2   University, Wiley & Sons, New York, 1995, pp. 401-404) posit the following

3   formula,

4                          $k = (1-b)E/(1-cb)P$

5   where "k" is the cost of equity capital, "b" is the retention ratio, "E" is

6   earnings, "P" is market price and "c" is the ratio of the expected return on

7   equity to the cost of equity capital (ROE/k). Because the process of regulation

8   sets the return on equity equal to the cost of equity, that is, ROE is set equal to

9   "k" by the regulator, "c" equals 1.0 in the above formula. Thus $k = E/P$, and

10   the two methodologies are equivalent.

11 Q. Does Mr. Hill employ a check other than the modified earnings-price ratio of

12   his DCF results?

13 A. Yes. Mr. Hill also uses the M/B ratio to check his DCF results.

14 Q. Is the M/B ratio methodology an appropriate check of DCF results?

15 A. No. On page 42 lines 2-4, Mr. Hill admits that the M/B ratio methodology *"is*

16   *derived algebraically from the DCF model and, therefore, cannot be*

17   *considered a strictly independent check of that method."* Furthermore, the

18   M/B ratio, like both the retention growth method and the Modified

19   Earnings-Price Ratio discussed above, is logically circular because it requires

20   an assumed ROE, which is the very quantity the model is trying to estimate.

21 (vi) **MR. HILL'S CAPM RESULTS SHOULD BE GIVEN VERY LITTLE, IF**

22   **ANY, WEIGHT.**

23 Q. Does Mr. Hill employ a CAPM estimate to check his DCF results?

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1   A.   Yes. As a check on his DCF estimate, Mr. Hill performs a CAPM analysis of

2   ROE summarized on Schedule 8.

3   Q.   Is Mr. Hill correct that the results of a CAPM analysis are less reliable than

4   those from a DCF analysis?

5   A.   Yes, he is. I share Mr. Hill's misgivings on the reliability of the CAPM at this

6   time.

7   Q.   How much weight should be accorded to the CAPM results under current

8   market circumstances?

9   A.   I believe little, if any, weight should be accorded to the CAPM results under

10   present economic circumstances for three reasons. First, the CAPM estimates

11   in the single-digit are barely above the corporate cost of debt and are therefore

12   suspect. Second, because the betas employed in the CAPM analysis are

13   estimated over five-year historical periods, the impact of the ongoing financial

14   crisis is not yet fully captured in the five-year historical betas. Third,

15   government interest rates have decreased substantially following the Federal

16   Reserve's expansionary policies designed to jumpstart the stalled economy,

17   thus lowering the CAPM results. At the same time, the cost of corporate debt

18   and the cost of equity for electric utilities have increased significantly, as

19   evidenced by the record high corporate yield spreads, and by the DCF results

20   for utilities that have increased by some 150-200 basis points in response to

21   lower stock prices (higher dividend yields) following the financial crisis.

22   This anomaly between actual market costs and the estimation techniques

23   used in this proceeding puts the Company at significant financing risk. As

1   such, much less weight should be accorded to this method at present. There is

2   a fundamental structural upward shift in risk aversion as capital markets are

3   re-pricing risk, and capital has become, and will continue to be, more

4   expensive for all market participants, including HECO.

5   For all these reasons, considerably less weight, if any, should be placed

6   on CAPM results. In the interest of brevity and expediency, and given that

7   both Mr. Hill and I agree that very little weight, if any, should be accorded to

8   the CAPM results, I shall refrain from commenting on Mr. Hill's CAPM

9   results.

10   **(vii) MR. HILL'S RECOMMENDED ROE IMPROPERLY IGNORES**

11   **FLOTATION COSTS**

12   Q.   What allowance for flotation costs does Mr. Hill make with respect to his

13   recommended ROE for HECO?

14   A.   Mr. Hill fails to include any allowance whatsoever for flotation costs in his

15   recommended ROE for HECO. Mr. Hill's DCF estimates are therefore

16   downward-biased by approximately 30 basis points as a result of that omission.

17   Moreover, Mr. Hill's testimony is inconsistent with regard to flotation costs.

18   In a discussion of sustainable growth in the DCF model on page 26

19   lines 15-16, Mr. Hill recognizes that "investor expectations regarding growth

20   from external source (sales of stock) must be considered and examined."

21   Indeed, Mr. Hill quantifies the effect of such issues on company growth in his

22   Exhibit DOD-207 under the heading "external growth."

1   Finally, Mr. Hill's disregard of flotation costs is inconsistent with

2   (i) Value Line forecasts that show that electric utilities will be issuing new

3   common stock in the future, and (ii) Mr. Hill's own exhibit, which

4   demonstrates that Mr. Hill's "comparable" groups are scheduled to issue

5   considerable amounts of new equity. See Exhibit DOD-207, pages 1-5, under

6   the heading "external growth" for 2008, 2009 and 2011-2013.

7   Q.   Why should the authorized ROE be adjusted to include an allowance for

8   flotation costs?

9   A.   Flotation costs represent the discounts that must be provided to place new

10   securities in the issues of new equity. Flotation costs have a direct and an

11   indirect component. The direct component represents monetary compensation

12   to the security underwriter for (i) marketing/consulting services, (ii) the risks

13   involved in distributing the issue, and (iii) any operating expenses associated

14   with the issue (printing, legal, prospectus, etc.). The indirect component

15   represents the downward pressure on the stock price as a result of the increased

16   supply of stock from the new issue (frequently referred to as "market

17   pressure").

18   Flotation costs for common stock are analogous to the flotation costs

19   associated with past bond issues, which, as a matter of routine regulatory

20   policy, continue to be amortized over the life of the bond, even though no new

21   bond issues are contemplated. Flotation costs for common stock are not

22   amortized because such securities have no finite life. Therefore, the recovery

23   of flotation cost requires an upward adjustment to the authorized ROE by

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1   dividing the expected dividend yield component of the DCF model by (1 - f),

2   where "f" is the flotation cost factor.

3 Q. Does Mr. Hill explain why he does not provide an allowance for flotation costs

4   in his recommended ROE for HECO?

5 A. Mr. Hill offers four spurious reasons as to why he fails to include an allowance

6   for flotation costs.

7   First, Mr. Hill erroneously asserts that flotation costs on common stocks

8   are analogous to bonds sold at a premium to par value (i.e., the company's cost

9   of debt is less than the coupon rate). See page 45, lines 2-20. In practice, the

10   calculation of the embedded cost of debt accounts for issuance costs and

11   premiums or discounts at the time of issue, and recognizes sinking fund and

12   call provisions. This is because premiums or discounts and flotation costs

13   influence the effective yield to the investor and cost to the utility and are

14   typically allowed to be recovered by regulators.

15   Unlike bonds, however, a utility's book equity account is credited by the

16   net proceeds of a common stock issue after issuance costs and not by the gross

17   proceeds. In other words, the common stock investment recorded on the

18   balance sheet, unlike bond issues, is less than the amount of money actually

19   put up by the investor by the amount of issuance costs, regardless of whether

20   the net issue price is less than, equal to or greater than book value. If the

21   investor is to earn the required return on a reduced book equity base, the

22   allowed return needs to exceed the required return by an amount sufficient to

23   cover the discrepancy between gross and net proceeds from a common stock

1   issue. Moreover, unlike bonds, the allowed ROE is the market, or current,

2   return and not the embedded cost of debt.

3   Q.   What is the second rationale provided by Mr. Hill regarding his omission of

4   flotation costs?

5   A.   Mr. Hill argues on page 45 line 29 to page 46 line 2 that "the reduction of the

6   book value of stockholder investment due to issuance expenses can occur only

7   when the utility's stock is selling at a market price at or below its book value."

8   This argument, however, fails to address the simple fact that, in issuing

9   common stock, a company's common equity account is credited by an amount

10   less than the market value of the issue. Therefore, the company must earn

11   slightly more on its reduced rate base to produce a return equal to that required

12   by shareholders. The stock's M/B ratio is irrelevant because flotation costs are

13   present, irrespective of whether the stock trades above, below, or at book

14   value.

15   Q.   What is the third rationale provided by Mr. Hill regarding his omission of

16   flotation costs?

17   A.   Mr. Hill on page 46, lines 6-12 then argues that the majority of the flotation

18   costs are not out-of-pocket expenses incurred by the issuing utility and, as

19   such, should not be recovered. This argument, if taken to a logical conclusion,

20   would suggest that depreciation expenses associated with the construction of

21   plant should not be recovered because depreciation expenses are not out-of-

22   pocket expenses.

1   *In theory, flotation costs could be expensed and recovered through rates*

2   as they are incurred. This procedure is not considered appropriate, however,

3   because the equity capital raised in a given stock issue remains on the utility's

4   common equity account and continues to provide benefits to ratepayers

5   indefinitely. The expense and recovery of flotation costs would burden current

6   ratepayers with the full costs of raising capital when the benefits of that capital

7   extend indefinitely. Moreover, as discussed in my pre-filed direct testimony,

8   common stocks, unlike bonds, have no finite life over which flotation costs

9   could be amortized. Therefore, the most appropriate method to recover

10   flotation costs is via an upward adjustment to the authorized ROE.

11   Mr. Hill then makes the circular argument on page 46, lines 13-20 that

12   the flotation cost allowance is unwarranted because investors factor these costs

13   in the stock price. Such circular reasoning could be used to justify any

14   regulatory policy, regardless of the propriety of the policy. For example, under

15   Mr. Hill's reasoning, it would be appropriate to authorize a clearly confiscatory

16   ROE, such as of 1%, because investors would reflect this return in the stock

17   price.

18 Q. What is the fourth rationale provided by Mr. Hill regarding the omission of

19   flotation costs?

20 A. Mr. Hill's fourth argument on page 46 lines 21-22 is that *"research has shown*

21   *that a specific adjustment for issuance expenses is unnecessary."* In support of

22   this assertion, Mr. Hill cites a sole source - an "unpublished note" in a

23   relatively obscure bulletin. Indeed, Mr. Hill's statement stands in sharp

1   contrast to (i) most finance textbooks and (ii) the myriad articles published in

2   academic journals documenting and quantifying the flotation cost allowance.

3   Please see Appendix B of my direct testimony for a review of this considerable

4   literature.

5   **(viii) THE COMMISSION SHOULD REJECT MR. HILL'S CLAIM THAT**

6   **HECO IS A LOWER THAN AVERAGE RISK ELECTRIC UTILITY**

7   Q.   Do you agree with Mr. Hill's view that the Commission should shift its view

8   of HECO as an above-average risk utility to one that, with the Energy

9   Agreement, has lower than average risk?

10   A.   No, I do not, and nor does the investment community. The Company's bond

11   ratings remain at BBB, which is approximately the industry average.

12   I do not share Mr. Hill's opinion that HECO's "strong" business risk

13   profile designation by S&P necessarily implies that its business risk is

14   stronger, weaker, or identical to the industry average because the "strong"

15   designation applies to very few utilities. The "excellent" designation on the

16   other hand characterizes most utilities. According to S&P, 143 of the 186

17   utilities possess the "excellent" appellation. The "excellent" designation is

18   intended to show that relative to other industries, the utility industry generally

19   possesses an excellent business risk profile. S&P's previous Business Risk

20   Scores ranging from 1 to 10 were superior in that regard; HECO's business

21   score of 5 indicated that the Company had an average business risk. It should

22   also be pointed out that credit ratings are not directly related to required equity

23   returns. There is little evidence of a causal relationship between credit quality

1   and required or observed equity returns in the utility industry. Finally, in

2   relative terms, it is difficult to argue that HECO's business risk profile is even

3   "strong," given the depressed state of the regional economy and the upcoming

4   Energy Agreement-related challenges. My own belief is that HECO's

5   investment risk has diminished from above average to average, assuming that

6   the risk-mitigating aspects of the Energy Agreement are approved.

7   On pages 6-7, Mr. Hill correctly points out that several aspects of the

8   Energy Agreement lower the Company's operating risk, namely revenue

9   decoupling, pension fund trackers, energy infrastructure surcharges, ability to

10 seek construction work-in-progress ("CWIP") treatment, and the energy cost

11 adjustment clause ("ECAC"). While I agree that these mechanisms reduce risk

12 on an absolute basis, they do not necessarily do so on a relative basis, that is,

13 compared to other utilities. For example, the ECAC does not reduce relative

14 risk since most electric utilities in the industry are under some form of energy

15 cost adjustment mechanism. The approval of adjustment clauses, ROE

16 incentives riders, trackers, forward test years, and cost recovery mechanisms

17 by regulatory commissions is widespread in the utility business and is already

18 largely embedded in financial data, such as bond rating and business risk

19 scores. The fact remains that the Company's credit ratings are slightly below

20 average and remain fragile.

21   While adjustment clauses, riders, and cost tracking mechanisms may

22 mitigate (on an absolute basis but not on a relative basis) a portion of the risk

23 and uncertainty related to the day-to-day management of HECO's operations,

1   there are other significant factors to consider that work in the reverse direction

2   for HECO, for example: (i) the weakening of the Hawaii economy, (ii) the

3   Company's dependence on a huge capital spending program requiring external

4   financing, (iii) weak financial metrics, (iv) uncertain feasibility and unknown

5   costs of the Energy Agreement plans, and (v) regulatory risks, given that

6   details of major provisions of the Energy Agreement have yet to be

7   determined. These additional factors, ignored by Mr. Hill, largely offset the

8   presence of the aforementioned risk-mitigating mechanisms.

9   My own view is that any risk-mitigating impact that the risk-reducing

10   Energy Agreement-related mechanisms could have on the Company's risk

11   profile is reflected to some extent in the capital market data of the comparable

12   companies, and that the risk impact of these mechanisms is partially offset by

13   several factors that work in the reverse direction. The proof is in the pudding

14   in that the Company's bond ratings compare to the industry average despite the

15   presence of such mechanisms.

16   **(ix)   ACTUARIAL DATA UTILIZED FOR PENSION FUND ACCOUNTING**

17   **ARE IRRELEVANT IN ESTIMATING A UTILITY'S COST OF**

18   **CAPITAL.**

19   Q.   Did you detect any logical inconsistency in Mr. Hill's recommended ROE for

20   HECO?

21   A.   Yes, I did. On pages 51-52 of his testimony, Mr. Hill tests the reasonableness

22   of his 9.50% recommended ROE by comparing it to expected stock market

23   returns of 9.25% that are implied in utility pension fund actuarial data, notably

1   Northeast Utilities' retirement portfolio. Mr. Hill concludes that his proposed

2   cost of equity of 9.25% is not only consistent with such data but it is

3   conservative. This is incorrect for several reasons.

4   The return figures cited by Mr. Hill are for the total equity market.

5   HECO and utilities generally are less risky than the overall market. HECO's

6   beta is 0.72 according to Mr. Hill, meaning that HECO is 72% as risky as the

7   overall stock market, and, therefore, should have a lower expected return than

8   the overall market. Yet, Mr. Hill's recommended ROE for HECO exceeds the

9   aforementioned range of expected return for the market as a whole. This is

10   patently illogical. In order to be consistent with his view of stock market

11   returns of 9.25% and with HECO's beta of 0.72, Mr. Hill should have

12   recommended a ROE of 6.7%, that is 0.72 times 9.25%. That result is

13   preposterous, of course, as it is below the cost of debt for BBB utilities.

14   Q.   Is actuarial data relevant in estimating the cost of equity capital?

15   A.   No, it is not. Mr. Hill tests the reasonableness of his recommended ROE of

16   9.50% by comparing this recommendation to expected stock market returns of

17   9.25% that he claims are implied in pension fund actuarial data. This

18   comparison, in the context of a rate proceeding, is highly unusual. I cannot

19   recall any cost of capital witness comparing an individual utility's ROE to its

20   pension fund's actuarial data. Additionally, I am unaware of any regulatory

21   commission that has relied on such data. Indeed, the California Public Utilities

22   Commission recently considered similar arguments and concluded as follows:

1   The objectives of a pension fund are fundamentally different from
2   that of an equity investor in a single utility and the risk profiles
3   are not comparable. The Employee Retirement Income Security
4   Act dictates that pension funds must be diversified whereas a
5   utility's ROE is based on risks specific to that utility's operations.

7   More importantly, pension fund returns are related to market
8   value of assets held in the pension fund while a utility's ROE is
9   applied to a book value rate base. This difference can best be
10   illustrated by dividing an average pension fund return by PG&E's
11   market-to-book ratio. Based on ATU's 9.62% calculated average
12   pension fund return and DRA's market-to-book ratio of 1.9 for
13   PG&E, PG&E would only need to earn a 5.06% ROE on its rate
14   base to equal the 9.62% average pension fund return. However, a
15   5.06% ROE is 116 basis points below its long-term debt cost,
16   effectively eliminating PG&E's ability to support its credit and to
17   raise the equity necessary to fulfill its public utility
18   responsibilities as required by Bluefield and Hope. Pension return
19   assumptions are not comparable to the ROE used in utility
20   ratemaking. Having resolved this issue, PG&E should not be
21   required to continue comparing its pension return assumptions to
22   its ratemaking ROE in future ROE proceedings.

24   *In re S. Cal. Edison Co.*, 262 P.U.R. 4th 53, 72 (Ca. Pub. Utils. Comm'n.
25   2007).

27   Q.   Do you find the reasoning of the California Public Utilities Commission

28   convincing?

29   A.   Yes. Actuarial data utilized for pension fund accounting are by nature very

30   conservative, consistent with GAAP guidelines, and are not well suited for

31   assessing the cost of equity capital in a rate proceeding. By virtue of the very

32   long-term nature of pension fund assets, projected returns on pension fund

33   assets are not indicative of the cost of equity in the context of a regulatory

34   proceeding. Moreover, the actuarial data on which Mr. Hill relies--namely one

35   particular corporate actuary's assumptions (Northeast Utilities)--is highly

36   selective.

1   Q.   Are actuarial pension fund projected returns based on arithmetic or geometric

2   averages?

3   A.   The actuarial pension data arbitrarily selected by Mr. Hill are based on

4   geometric mean returns rather than on arithmetic mean returns because of the

5   very long-term nature of pension fund assets. As discussed later in my rebuttal

6   testimony, only arithmetic means are appropriate for forecasting and

7   estimating the cost of capital.

8   Q.   What else is wrong with Mr. Hill's reliance on pension fund actuarial data and

9   financial advisors' estimates?

10   A.   The return figures cited by Mr. Hill are market returns and not book returns.

11   The manner in which the regulator applies market-based returns to book equity

12   understates the cost of equity under current capital market conditions.

13   Application of market-based returns produces estimates of common equity cost

14   that are consistent with investors' expected return only when stock price and

15   book value are reasonably similar, that is, when the M/B ratio is close to unity.

16   Application of market-based returns to equity book values does not account for

17   the investor's expected return when the M/B ratio of a given stock deviates

18   from unity. The reason for the distortion is that the market-based return is

19   applied to a book value rate base by the regulator, that is, a utility's earnings

20   are limited to earnings on a book value rate base. The return given to equity

21   investors is lower than what they actually require when M/B ratios exceed

22   unity. This is neither equitable for the existing stockholders nor efficient from

1   the point of view of attracting capital to cover the significant capital

2   expenditures that need to be undertaken.

3   In short, this Commission, like the California Public Utilities

4   Commission, should ignore Mr. Hill's views on the applicability of actuarial

5   pension returns and individual financial advisory returns in determining a

6   utility's allowed ROE.

7 Q. What do you conclude from Mr. Hill's recommended ROE?

8 A. Mr. Hill understates the appropriate ROE for HECO. The following table

9   summarizes the principal reasons why Mr. Hill's DCF-based recommended

10   ROE understates an appropriate ROE for HECO:

Source	Basis Points
Flotation Cost Allowance	30
Sustainable Growth Calculation	20
Analysts Growth Rate Forecasts	80

16   Correction of these understatements would increase Mr. Hill's

17   recommended ROE based upon his traditional DCF study, the mainstay of his

18   recommendation, from 10.0% to 11.3%, which is comparable to my own

19   recommendation. Moreover, Mr. Hill's two-stage DCF results increase to

20   nearly 11% from using the proper long-term GDP growth rate.

21 Q. Would the adoption of Mr. Hill's recommended ROE endanger HECO's credit

22   quality?

23 A. Yes, it certainly increases the probability of a deterioration in HECO's credit

24   quality. Extreme decreases in HECO's authorized ROE, such as the decreases

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1   recommended by Mr. Hill, could alarm the investment community, lower stock

2   price, and threaten HECO's credit ratings. A weakening of HECO's credit

3   ratings, stock price, and earnings power at a time when the HECO needs to

4   attract significant external capital on reasonable terms is ill-advised in the

5   current crisis environment of turmoil and uncertainty.

6   **RESPONSES TO MR. HILL'S CRITICISMS**

7   **INTEREST RATES**

8   Q.   Do you agree with Mr. Hill that interest rates have fallen since you prepared

9   your direct testimony?

10   A.   Yes, I do. On page 57 of his testimony, Mr. Hill argues that interest rates have

11   fallen by 110 basis points since I prepared my direct testimony, and that my

12   CAPM estimates are therefore too high. While I agree that government

13   interest rates have decreased since I prepared my direct testimony, the cost of

14   corporate debt and the cost of equity for electric utilities have increased, as

15   evidenced by the DCF results for electric utilities that have increased

16   significantly by some 100 basis points in response to lower stock prices (higher

17   dividend yields) following the financial crisis.

18   Capital markets remain in a state of turmoil. As a result, the cost of

19   money for corporations has increased, and new debt/stock issues are limited to

20   the highest-quality borrowers. The debt markets have witnessed record high

21   yield spreads (the incremental yield over Treasury rates needed to issue debt)

22   and a more severe differentiation between the spreads charged to companies

23   with different credit ratings.

1   **BETA ESTIMATES**

2   Q.   Do you agree with Mr. Hill that betas have fallen since you prepared your

3   direct testimony?

4   A.   Yes, I do, and my updated recommendation recognizes this fact. On page 58,

5   Mr. Hill points out that betas have fallen from the 0.80 level to the 0.70 level

6   since I prepared my direct testimony in May 2008. However, I note that betas

7   are estimated based on five-year historical periods and that the impact of the

8   ongoing financial crisis is not yet fully captured in the five-year historical

9   betas. As I mentioned above, there is a fundamental structural upward shift in

10   risk aversion as capital markets are re-pricing risk, and capital has become, and

11   will continue to be, more expensive for all market participants over the next

12   18-24 months at least.

13 **MARKET RISK PREMIUM**

14 Q.   How do you respond to Mr. Hill's reference to a PowerPoint slide presented by

15   Professor Marston to buttress his claim that the prospective market risk

16   premium has declined relative to historical measures?

17 A.   On pages 59-60 of his testimony, Mr. Hill argues that the reference to the

18   Harris-Marston research in my direct testimony on the magnitude of the

19   prospective market risk premium ("MRP"), namely 7.2%, has been superseded

20   by a PowerPoint slide in a presentation made by Professor Marston in 2007.

21   Mr. Hill reproduces the slide on page 60 of his testimony.

22   Reliance on a PowerPoint slide to support Mr. Hill's contention that the

23   MRP has shrunk in recent years does not provide the kind of analysis that

1   would allow this Commission to make a reasonable determination of the

2   appropriate MRP. A PowerPoint slide is a highly questionable source of

3   information in assessing an appropriate risk premium for a regulated utility and

4   in gauging the academic state of the art in the field of finance. Moreover, I am

5   not aware that the Harris-Marston updated findings have been published in any

6   peer-reviewed academic journal.

7   **EMPIRICAL CAPM**

8   Q.   Please comment on Mr. Hill's assessment of the empirical CAPM used in your

9   testimony.

10   A.   On pages 16-20 of his direct testimony, Mr. Hill erroneously asserts that use of

11   "adjusted" betas with an Empirical CAPM analysis "double-counts the effect

12   of changing the slope of the capital market line." Contrary to such suggestion,

13   the Empirical CAPM is not an adjustment (increase or decrease) in beta.

14   Instead, the Empirical CAPM is a formal recognition of the fact that empirical

15   evidence demonstrates that the observed risk-return tradeoff is flatter than

16   predicted by the CAPM.

17   The Empirical CAPM and the use of adjusted betas comprise two

18   separate features of asset pricing. Assuming *arguendo* a company's beta is

19   estimated accurately, the CAPM will still understate the return for low-beta

20   stocks. Furthermore, if a company's beta is understated, the Empirical CAPM

21   will also understate the return for low-beta stocks. Both adjustments are

22   necessary.

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1   The graph on page 44 of my direct testimony demonstrates that the

2 Empirical CAPM is a return (vertical axis) adjustment and not a beta

3 (horizontal axis) adjustment. Moreover, the use of adjusted betas compensates

4 for interest rate sensitivity of utility stocks not captured by unadjusted betas.

5   With respect to the empirical validity of the plain vanilla CAPM,

6 empirical studies of the CAPM to determine to what extent security returns and

7 betas are related in the manner predicted by the CAPM have supported the

8 conclusion that (i) beta is related to security returns, (ii) the risk-return tradeoff

9 is positive, and (iii) the relationship is linear. The contradictory finding is that

10 the risk-return tradeoff is not as steeply sloped as predicted by CAPM. In

11 other words, low-beta securities earn returns somewhat higher than the CAPM

12 would predict, and high-beta securities earn returns somewhat less the CAPM

13 would predict.

14   In sum, a plain vanilla CAPM will understate the return required for

15 low-beta securities and overstate the return required for high-beta securities.

16 The Empirical CAPM refines the plain vanilla CAPM to account for this

17 phenomenon.

18 **DCF DIVIDEND YIELD**

19 Q. Is Mr. Hill's criticism that you multiplied the spot dividend yield by one plus

20   the expected growth rate $(1 + g)$ warranted?

21 A. No. The basic annual DCF model ignores the time value of quarterly dividend

22   payments and assumes dividends are paid once a year at the end of the year.

23   Because the appropriate dividend to use in a DCF model is the prospective

1   dividend for all companies that have positive growth rate forecasts, the

2   dividend for all companies should be increased by the $(1 + g)$ factor.

3   Multiplying the spot dividend yield by $(1 + g)$ is actually a conservative

4   attempt to capture the reality of quarterly dividend payments and understates

5   the expected return on equity. Use of this method is conservative in the sense

6   that the annual DCF model ignores the more frequent compounding of

7   quarterly dividends.

8   Q.   Does Mr. Hill multiply the spot dividend yield by one plus the expected

9   growth rate $(1 + g)$?

10   A.   Yes. Mr. Hill multiplies the spot dividend yield by one plus the expected

11   growth rate $(1 + g)$ for those companies expected to raise their quarterly

12   dividends in the second quarter of calendar year 2009.

13   Q.   Did you double-count the expected dividend yield for growth?

14   A.   No. Contrary to assertions of Mr. Hill at pages 54 and 63 of his testimony,

15   I did not overstate the dividend yield by double-counting the dividend increase.

16   This is because I used the "current dividend yield" as defined by Value Line in

17   the Value Line Investment Analyzer software and then grossed up the current

18   dividend yield to produce the expected dividend yield required by the DCF

19   model.

20   **DCF GROWTH RATES**

21   Q.   Is reliance on analysts' earnings growth forecasts in the DCF model

22   problematic?

1 A. No, it is not. On page 64 of his testimony, lines 1-6, Mr. Hill erroneously

2 asserts as follows with respect to my exclusive use of analysts' earnings

3 growth forecasts in the DCF:

4 *...exclusive reliance on earnings growth, absent any examination*
5 *of the underlying fundamentals of long-run growth, can lead to*
6 *inaccurate equity cost estimates. For example, reliance on*
7 *projected earnings growth in a situation in which projected*
8 *earnings were expected to recover from reduced levels would*
9 *include (in any DCF estimate) the assumption that equity returns*
10 *will increase at the same exaggerated rate every five years into*
11 *the indefinite future.*
12
13 In other words, the intermediate growth rate in dividends cannot equal

14 the long-term growth rate when the dividend payout ratio is expected to change

15 because projected dividend growth and earnings growth must adjust to the

16 changing payout ratio. This "problem" is not unique to analysts' earnings

17 growth forecasts and is also inherent in the use of historical growth rates to

18 forecast growth rates.

19 Reliance on "near-term" dividend growth is improper because it is

20 expected that energy utilities will continue to lower their dividend payout

21 ratios over the next several years in response to increased business risk and the

22 need to alleviate reliance on external financing. Therefore, earnings and

23 dividends are not expected to grow at the same rate in the future. Mr. Hill has

24 conveniently supplied growth data on Schedule DOD-208 page 2 of his

25 testimony. The growth rate data clearly demonstrate this phenomenon because

26 projected utility dividend growth rate forecasts (4.1%) are less than the

27 earnings growth rate forecast (7.6%). As discussed in my direct testimony,

1   I used consensus analysts' earnings growth forecasts in the DCF model to

2   mitigate potential bias—an approach supported by empirical literature.

3   Q.   Is your growth rate analysis "mechanistic in that it simply plugs selected

4   projected data into a formula to produce a growth rate with no underlying

5   analysis of either the historical or projected growth rate fundamentals," as

6   Mr. Hill suggests?

7   A.   No, it is not. Contrary to this statement on page 63 of Mr. Hill's testimony,

8   lines 22-25, my direct testimony devotes several pages to an analysis of

9   historical growth rates and analysts' growth forecasts. Given this analysis,

10   Mr. Hill's statement that I undertook "no underlying analysis of either the

11   historical or projected growth rate fundamentals" is patently false.

12   Mr. Hill continues on page 63, lines 24-25 to state that "Dr. Morin, in

13   his own published work, warns against this type of analysis." This is a clear

14   example of Mr. Hill selectively citing materials out of context. The passage

15   cited by Mr. Hill immediately precedes the following section of my book:

16   A note of caution is also necessary when dealing with historical
17   growth rates and their use in the DCF model. Historical growth
18   rates can be downward biased by the impact of diversification
19   and restructuring activities and by the impact of abnormal
20   weather patterns in the case of energy utilities. Acquisitions,
21   start up expenses, and front end capital investments associated
22   with diversification and restructuring efforts, and unfavorable
23   weather patterns can retard and dilute historical earnings growth,
24   and such growth is not representative of a company's long term
25   growth potential. Therefore, caution must be exercised when
26   applying any of the growth estimating techniques directly to
27   recent historical utility company data.
28
29   Given a dramatic change in a utility's operating environment, the
30   need to be forward looking is apparent. Historically based

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1   measures of risk and growth can be downward biased in
2   assessing present circumstances... The fundamental risks and
3   growth prospects of electric utilities are also changing rapidly
4   following the passage of the Energy Bill in 1993. These shifts in
5   growth prospects take some time before they are fully reflected
6   in the historical growth rates. Hence, backward looking growth
7   and statistical analysis may fail to fully reflect the fact that the
8   risks and growth prospects of utilities have escalated, and may
9   only provide limited evidence that the risk and the cost of capital
10   to these utilities have increased. Of course, the converse may
11   also be true under certain circumstances.
12
13   Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital* at
14   pages 237-38 (1st ed. 1994) (emphasis added).
15

16   Indeed, the same chapter contains an entire section that comprehensively

17   discusses the hazards of relying on historical growth rates.

18   Q.   What does the published academic literature say on the subject of analysts'

19   growth rate forecasts in the DCF model?

20   A.   As I discussed earlier in my rebuttal testimony, published studies in the

21   academic literature demonstrate that (i) analysts' growth rate forecasts are

22   reasonable indicators of investor expectations, and (ii) investors rely on such

23   forecasts.

24   Q.   Mr. Hill criticizes your DCF analysis because it relies on earnings growth

25   projections and he believes that such forecasts are overly optimistic. How do

26   you respond?

27   A.   On page 64 of his testimony, Mr. Hill denounces the use of financial analysts'

28   earnings forecasts on the grounds that such forecasts are overly-optimistic.

29   I disagree, at least for utility stocks. Using virtually all publicly available

30   analyst earnings forecasts for a large sample of companies (over 23,000

1   individual forecasts by 100 analyst firms), Lys and Sohn show that stock

2   returns respond to individual analyst earnings forecasts, even when they are

3   closely preceded by earnings forecasts made by other analysts or by corporate

4   accounting disclosures.[5] Using actual and IBES data from 1982-1995,

5   Easterwood and Nutt regress the analysts' forecast errors against either

6   historical earnings changes or analysts' forecasting errors in the prior years.[6]

7   Results show that analysts tend to under-react to negative earnings

8   information, but overreact to positive earnings information.

9   The more recent studies provide evidence that analysts make biased

10   forecasts and misinterpret the impact of new information.[7] For example,

11   several studies in the early 1990s suggest that analysts either systematically

12   underreact or overreact to new information. Easterwood and Nutt discriminate

13   between these different reactions and reported that analysts underreact to

14   negative information, but overreact to positive information. The recent studies

15   do not necessarily contradict the earlier literature. The earlier research focused

16   on whether analysts' earnings forecasts are better at forecasting future earnings

17   than historical averages, whereas the recent literature investigates whether the

[5] Thomas Lys & Sungkyu Sohn, "The Association Between Revisions of Financial Analysts' Earnings Forecasts and Security Price Changes," *Journal of Accounting and Economics* 13, 341-363 (1990).

[6] John Easterwood & Stacey Nutt, "Inefficiency in Analysts' Earnings Forecasts: Systematic Misreaction or Systematic Optimism?" *The Journal of Finance* 54: 1777-1797 (1999).

[7] Other relevant papers corroborating the superiority of analysts forecasts as predictors of future returns versus historical growth rates include: Dan Fried & Dov Givoly, "Financial Analysts Forecasts of Earnings: A Better Surrogate for Earning Expectations," *Journal of Accounting and Econometrics* 85-107 (1982); R. Charles Moyer, *et al.*, "The Accuracy of Long-Term Earnings Forecasts in the Electric Utility Industry" *International Journal of Forecasting*, 1, 241-252 (1985); and David Gordon, "Choice Among Methods of Estimating Share Yield," *Journal of Portfolio Management* 15, 50-55 (1989).

1   analysts' earnings forecasts are unbiased estimates of future earnings. It is

2   possible that even if the analysts' forecasts are biased, they are still closer to

3   future earnings than the historical averages, although this hypothesis has not

4   been tested in the recent studies. One way to assess the concern that analysts'

5   forecasts may be biased upward is to incorporate into the analysis the growth

6   forecasts of independent research firms, such as Value Line, in addition to the

7   analyst consensus forecast. Unlike investment banking firms and stock

8   brokerage firms, independent research firms such as Value Line have no

9   incentive to distort earnings growth estimates in order to bolster interest in

10   common stocks.

11   Mr. Hill argues that analysts tend to forecast earnings growth rates that

12   exceed those actually achieved and that this optimism biases the DCF results

13   upward. The magnitude of the optimism bias for large rate-regulated

14   companies in stable segments of an industry is likely to be very small.

15   Empirically, the severity of the optimism problem is unclear for regulated

16   utilities, if a problem exists at all. It is interesting to note that Value Line

17   forecasts for utility companies made by independent analysts with no incentive

18   for over- or understating growth forecasts are not materially different from

19   those published by analysts in security firms with incentives not based on

20   forecast accuracy, and may in fact be more robust.

21   **MARKET-TO-BOOK (M/B) RATIOS**

22   Q.   Is Mr. Hill correct in his claims that there are inconsistencies in your published

23   works regarding the DCF model and market-to-book ratios?

1   A.   No. In his testimony, on page 65, lines 12-17, Mr. Hill argues that the 1984

2   edition of my book (twenty-five years ago) did not criticize the ability of the

3   DCF model to accurately estimate the cost of equity depending on the M/B

4   ratio of utilities. Similarly, Mr. Hill asserts the following:

> 5 Dr. Morin's first text on the cost of capital, Utilities' Cost of
> 6 Capital, was published in 1984, and was conceived and written
> 7 during a time period for utilities in which interest rates were very
> 8 high and market prices were generally below book value.
> 9 ....There is no indication in Dr. Morin's 1984 text that when
> 10 market prices are below book value (as they were at that time), the
> 11 DCF overstates the cost of equity (as is now Dr. Morin's claim).

13   Mr. Hill fails to recognize, however, that the ability of the DCF model to

14   estimate the cost of equity accurately depending on the M/B ratio of utilities

15   was simply not an issue for utilities a quarter century ago because utilities were

16   trading at market prices very close to book value. Similarly, it was not an

17   important issue when Professor Gordon developed the DCF model in the mid-

18   1960s. Instead of reaching back some 25 years, perhaps Mr. Hill should have

19   consulted the 1994 and 2006 editions of my book,[8] each of which discusses at

20   length the chronic inability of the DCF model to accurately estimate investor

21   returns when Market-to-Book ratios deviate markedly from unity.

22   Q.   Is Mr. Hill's contention that your views on the applicability of the DCF have

23   changed since 1984 correct?

24   A.   No. Mr. Hill has once more distorted my views and cited passages from my

25   1984 book out of context. Mr. Hill falsely asserts that there is no reference to

[8] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, chapter 10 (1st ed. 1994);

1   the DCF understating the cost of equity in my 1984 text when Market-to-Book

2   ratios are below one. In late 1984 when the book was published, M/B ratios

3   were at nearly 1.0. Indeed, M/B ratios have been well above 1.0 for over

4   twenty years.

5   The reference to the understatement of the cost of equity when M/B

6   ratios are slightly below one referred to the dilutive effects of issuing stock

7   below book value and the necessity of allowing for flotation cost.

8   Q.   How do you respond to Mr. Hill's discussion of your numerical example

9   regarding the reliability of DCF estimates?

10   A.   On pages 67-68 of his testimony, Mr. Hill digs out a numerical example from a

11   Puget Sound Energy rebuttal and concludes on page 68 that this particular

12   numerical example does not show that the DCF understates the cost of equity

13   when the M/B ratio exceeds 1.0. Mr. Hill appears to be confused on this

14   subject. First, the allowed return of 10% is not assumed to be determined by

15   the DCF, as claimed by Mr. Hill on page 68, line 27. Such an assumption

16   would be circular. The allowed return of 10% is assumed to be determined

17   exogenously by the CAPM or the Risk Premium method, for example.

18   The numerical example is quite simple despite Mr. Hill's attempts to

19   confuse the issue. A stock is trading at $100 and the investor requires a 10%

20   return, so that $10 of earnings are needed. But the regulatory body applies the

21   10% return to a $50 book value. So, there are only $5 of earnings available to

22   the investor, and the realized return is only 5%. It is that simple.

Roger A. Morin, *The New Regulatory Finance: Utilities' Cost of Capital*, ch.12 (1st ed. 2006).

1   To pursue the analogy provided by Mr. Hill at page 69 of his testimony,

2 imagine a broker trying to sell to an investor with a return requirement of 10%

3 a utility stock priced at $100 per share and whose M/B ratio is 2.0. The broker

4 would say to the investor: "I've got a stock for you that's going to pay a 10%

5 return on a $50 book value – in other words one share will get you $5 but each

6 share has to drop from $100 to $50 in order for the price to drop to book value.

7 Are you interested?" No rational investor would pay $100 for a stock that is

8 going to drop to $50. In short, the analogy defies logic.

9 Q. Do you agree with Mr. Hill's criticism of your comparable group?

10 A. No, I do not. On page 55 of his testimony, Mr. Hill argues that the risk of my

11 second group of electric utilities is not comparable to my first group of electric

12 utilities. I disagree, for both groups had almost identical betas of 0.87 when I

13 prepared my direct testimony.

14   **REBUTTAL TO MR. PARCELL'S TESTIMONY**

15 Q. Please summarize Mr. Parcell's ROE recommendation.

16 A. Mr. Parcell recommends that a return allowance in a range of 9.5% - 10.5% be

17 employed on the common equity capital of HECO. In determining HECO's

18 cost of equity, Mr. Parcell applies a DCF analysis to three groups of electric

19 utilities. For the growth component of his DCF analysis, he uses a blend of

20 analysts' growth forecasts, historical growth rates, and the earnings retention

21 method. From his DCF estimates, summarized on page 38 of his testimony,

22 Mr. Parcell concludes that the DCF estimate of HECO's cost of equity lies in a

23 range of 10.0% - 11.0%.

1   Mr. Parcell also applies a CAPM analysis to the same three groups of

2   companies, using long-term Treasury bond yields as proxies for the risk-free

3   rate and Value Line beta estimates. He seems to place little, if any, weight on

4   the CAPM results of 7.5%, as they are barely above the Company's cost of

5   debt, if at all.

6   Lastly, Mr. Parcell performs a Comparable Earnings analysis on a

7   sample of utilities and a sample of unregulated industrial companies.

8   From these various analyses, Mr. Parcell concludes that HECO's cost of

9   common equity capital lies in the range of 9.5% - 10.5%. Mr. Parcell proposes

10   a ROE at the lower end of his proposed range to reflect the lower risk

11   associated with the decoupling mechanism.

12   Q.   Please summarize your specific concerns with Mr. Parcell's testimony.

13   A.   I have nine concerns:

14   **1. Stale Stock Price.** Mr. Parcell's use of the 3-month period ending

15   February 2009 to calculate average stock prices in his DCF analysis ignores

16   the impact of decreased stock prices over that 3-month period. The impact of

17   the ongoing current financial crisis that began in early October continues to

18   place upward pressure on required returns. Capital costs have exploded

19   upward in the past 9 months and remain high. Using current stock prices that

20   reflect the impact of the ongoing financial crisis on capital costs and its

21   devastating impact on utility stock prices raises Mr. Parcell's DCF estimate by

22   45 basis points from this factor alone.

1   The financial risks and, therefore, the cost of capital, have increased

2 substantially for all firms, including utilities.

3 **2. Understated Dividend Yield.** Mr. Parcell's dividend yield component is

4 understated because it is not consistent with the annual form of the DCF

5 model. It is inappropriate to increase the dividend yield by adding one-half of

6 the future growth rate ($1 + \frac{1}{2} g$) to the spot dividend yield. The appropriate

7 manner of computing the expected dividend yield when using the basic annual

8 DCF model is to add the full growth rate rather than one-half of the growth

9 rate. This adjustment also allows for the failure of the annual DCF model to

10 allow for the quarterly timing of dividend payments. This error understates the

11 DCF results by some 20 basis points.

12 **3. DCF Retention Growth.** The retention growth method for estimating the

13 growth component of the DCF calculation is suspect because one is forced to

14 assume the answer to implement the method. From Mr. Parcell's own

15 evidence, investors expect substantially higher returns for utilities than what he

16 recommends.

17 **4. DCF Growth Rates.** Analysts' Forecasts. Investors are expecting

18 substantially higher growth rates than Mr. Parcell's growth rates for the sample

19 companies. Using analysts' consensus growth forecasts increases the DCF

20 estimate of the cost of common equity by 130 basis points (1.30%).

21 **5. CAPM Weight.** For reasons discussed earlier, CAPM results should be

22 accorded little, if any, weight.

1   **6. CAPM Risk-Free Rate.** Mr. Parcell's risk-free rate proxy is stale since it

2   relies on the average yield on 20-year Treasury bonds over a 3-month period

3   instead of the current yield on 20-year Treasury bonds. Yields on long-term

4   Treasury securities have escalated substantially over the 3-month period.

5   Using the appropriate risk-free rate, Mr. Parcell's CAPM estimates must be

6   raised by 20 basis points for this correction alone.

7   **7. CAPM Market Risk Premium ("MRP").** There are conceptual blemishes

8   in Mr. Parcell's three MRP proxies.

9   **8. Downward ROE Adjustment.** I disagree with the magnitude of Mr.

10   Parcell's downward ROE adjustment in order to account for the risk-mitigating

11   impact of the decoupling mechanism.

12   **9. Mr. Parcell's criticisms of my testimony are largely unfounded.**

13   **1. STALE STOCK PRICES**

14   Q.   Are the stock prices used by Mr. Parcell in his DCF analysis current?

15   A.   No, they are not. Mr. Parcell relies on average stock prices over the three-

16   month period December 2008 – February 2009. These stock prices are stale.

17   Using current stock prices instead of 3-month old prices in Mr. Parcell's DCF

18   analysis, the average DCF estimates increase by approximately 35 basis points.

19   Q.   What is the impact of using current stock prices on Mr. Parcell's DCF results?

20   A.   Set forth below is a graph that replicates the recent price movements of the

21   Dow Jones Utility Average over the 3-month period used by Mr. Parcell in his

22   DCF analysis. Utility stocks have dropped from the 370 level to the 310 level,

23   that is, more than 15% over that 3-month period. Yet, Mr. Parcell's reliance

1   on a 3-month average index stock price of 340 [(370+310/2)] ending February

2   2009 ignores this substantial change in equity market conditions. The practical

3   effect is that his stock prices are overstated by approximately 7.5%.

DJ UTILITY AVE THEORETICAL
as of 16-Mar-2009

4

5   Source: http://chart.finance.yahoo.com/c/6m/_/_dju
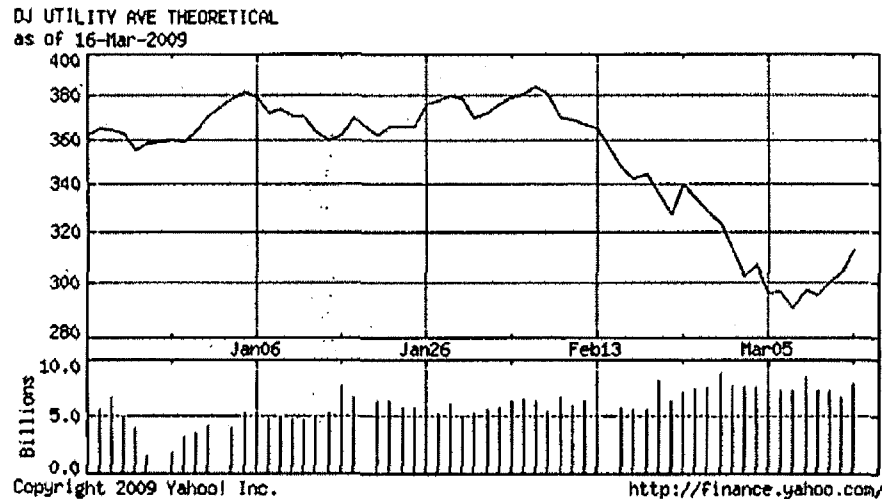
6   Using current stock prices instead of stock prices averaged over three

7   months ending February 2009 in Mr. Parcell's DCF analysis, the average DCF

8   estimate of Mr. Parcell's proxy group of companies increases by 45 basis

9   points.[9]

10   Q.   What is the impact of using more current stock prices on Mr. Parcell's final

11   ROE recommendation?

12   A.   In his final summary of results shown in table form on page 49 of his

13   testimony, Mr. Parcell's DCF results of 10.0% - 11.0% increase by 45 basis

14   points and become 10.5% - 11.5%. Since Mr. Parcell places little weight in

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[9] Mr. Parcell reports a dividend yield (D/P) of approximately 5.5% for his three groups of companies on Exhibit CA-403 page 3. Since utility stock prices are currently 7.5% lower relative to the 3-month average, they stand at 92.5% of their previous level, the updated dividend yield becomes 5.5/0.925 = 5.95, an increase of 45 basis points.

1   his final recommendation on the outlying CAPM results shown on that table,

2   we are left with the DCF results of 10.5% and 11.5% and the Comparable

3   Earnings results of 9.5% - 11.5%. I submit that a range of 10.0% - 11.0% with

4   a midpoint of 10.5% is quite consistent with these updated results. In other

5   words, from these amended results, it is clear that Mr. Parcell should have at

6   least recommended the upper end of his range from this fact alone.

2. DIVIDEND YIELD

8   Q.   Please discuss Mr. Parcell's dividend yield component in the DCF model.

9   A.   The annual DCF model states very clearly that the expected rate of return on a

10   stock is equal to the expected dividend at the end of the year divided by the

11   current price of the stock, plus the expected growth rate. Thus the appropriate

12   dividend to use in a DCF model is the full prospective dividend to be received

13   at the end of the year. Mr. Parcell understates the dividend yield by halving it.

14   Mr. Parcell uses a spot dividend yield inflated by one-half of the expected

15   dividend growth, $D_0(1 + 1/2\ g)$, rather than the correct expected dividend yield

16   that is inflated by one full year of growth, $D_0(1 + g)$.

17   This mathematical adjustment fails to measure the full dividend flow

18   expected by the investor and underestimates the cost of equity by

19   approximately 20 basis points. For example, for a spot dividend yield of 5%

20   and a growth rate of 5%, Mr. Parcell's estimated dividend yield is 5%(1 +

21   .05/2) = 5.1%. The correct dividend yield to employ is 5%(1 + .05) = 5.3%,

22   which is about 20 basis points higher.

3. DCF RETENTION GROWTH

2 Q. Please describe Mr. Parcell's methodology for specifying the growth

3   component of the DCF model.

4 A. As summarized on page 36 of his testimony, Mr. Parcell employs five proxies

5   as a proxy for the expected growth component of the DCF model: 1) historical

6   earnings retention ratio, 2) projected earnings retention ratio, 3) five-year

7   historical growth rates in dividends, earnings, and book value, 4) projected

8   growth rates in dividends, earnings, and book value, and 5) analysts' forecasts

9   of EPS growth as reported in First Call.

10 Q. Can you comment on Mr. Parcell's earnings retention growth estimate in the

11   DCF model?

12 A. Earlier in my rebuttal of Mr. Hill, I discussed the conceptual and empirical

13   infirmities of the retention growth method. I believe that the results from its

14   use should be given little, if any, weight.

4. DCF GROWTH RATES

16 Q. Are the historical growth rates of electric utilities reliable proxies for expected

17   future growth?

18 A. No, they are not. Mr. Parcell uses historical growth rates in dividends,

19   earnings, and book value as proxies for expected growth, as shown in the first

20   three columns of Exhibit CA-408 page 3. If historical growth rates are to be

21   representative of long-term future growth rates, they must not be biased by

22   non-recurring events. This is certainly the case for electric utilities, where

23   growing competition, diversification programs, acquisitions, restructurings and

1   write-off activities have exerted a dilutive effect on historical earnings and

2   dividends. In such cases, it is obvious that analysts' growth forecasts provide a

3   more realistic and representative growth proxy for what is likely to happen in

4   the future than historical growth. In any event, historical growth rates are

5   somewhat redundant given that analysts formulate their growth expectations

6   based in part on historical patterns. I note that more than one third of all the

7   historical growth rates shown in the first three columns of Schedule CA-408

8   page 3 are negative, which is quite contrary to the constant perpetual positive

9   growth assumption that underlies the DCF model.

10   In conclusion, Mr. Parcell's historical growth rates should be given

11   considerably less weight, if any.

12   Q.   Do you see any dangers in relying on Value Line as an exclusive source of

13   forecasts in applying the DCF model?

14   A.   Yes, I do. As discussed earlier, one would expect that averages of analysts'

15   growth forecasts such as those contained in First Call and/or Zacks, rather than

16   one particular firm's forecast, are more reliable estimates of the investors'

17   consensus expectations likely to be impounded in stock prices.

18   Q.   What does the published academic literature say on the subject of growth rates

19   in the DCF model?

20   A.   As discussed earlier, published studies in the academic literature demonstrate

21   that growth forecasts made by security analysts are reasonable indicators of

22   investor expectations, and that investors rely on analysts' forecasts.

23   Q.   Are investors expecting growth rates equal to Mr. Parcell's range?

1   A.   No. The best evidence shows that investors are expecting growth rates higher

2   than Mr. Parcell has found. For his first group of electric utilities, Mr. Parcell

3   has found (see upper panel of Schedule CA-408 page 4) growth rates ranging

4   from 3.1% to 6.2%, with a mean of 4.3%. As indicated earlier, the retention

5   growth estimate should be discarded from the analysis and historical growth

6   rates should be given considerably less weight, which leaves us with the Value

7   Line growth forecast of 4.3% and the consensus analyst forecast of 6.2%, that

8   is a range of 4.3% - 6.2% (midpoint 5.2%). The midpoint result is 90 basis

9   points (0.9%) above Mr. Parcell's median estimate of 4.3%. This

10   understatement alone causes Mr. Parcell's DCF cost of equity estimates for

11   this first group of companies to be downward-biased by 90 points even without

12   factoring in the appropriate expected dividend yield component. To different

13   degrees, the same is true for Mr. Parcell's DCF estimates for the second and

14   third group of companies, which are also downward-biased by similar

15   amounts.

16   Q.   Please comment on Mr. Parcell's criticism of your DCF analysis.

17   A.   On page 63 of his testimony, Mr. Parcell takes issue with the fact that I have

18   used only one indicator of growth in the DCF analysis, namely, analyst growth

19   projections and that I have ignored historical and projected growth rates in

20   dividends and book value. In my direct testimony, I discussed the impropriety

21   of relying on "near-term" dividend growth because: 1) earnings growth drives

22   dividend growth, 2) of the scarcity of dividend forecasts, and 3) it is widely

23   expected that energy utilities will continue to lower their dividend payout ratio

1   over the next several years in response to increased business risk and external

2   financing requirements, and that earnings and dividends are not expected to

3   grow at the same rate in the future. In my direct testimony and earlier in my

4   rebuttal, I also discussed the merits of using consensus analysts' earnings

5   growth forecasts in the DCF model and the supportive empirical literature.

5. CAPM WEIGHT

7   Q. How much weight should be accorded to the CAPM results under current

8   market circumstances?

9   A. As I discussed at length earlier, I believe considerably less weight should be

10   accorded to the CAPM results under present economic circumstances. To the

11   extent that Mr. Parcell has accorded any weight to his CAPM results, and I do

12   not believe that he did, he should have recommended a ROE at the upper end

13   of his range. If the Commission were to accord any weight to Mr. Parcell's

14   CAPM results, the following comments on Mr. Parcell's CAPM analysis are

15   germane.

6. CAPM RISK-FREE RATE

17 Q. Do you agree with Mr. Parcell's risk-free rate proxy in his CAPM analysis?

18 A. No, I do not, because it is stale. As a proxy for the risk-free rate, Mr. Parcell

19   uses 3.49% which is the average yield on 20-year Treasury bonds for the

20   3-month period December 2008 – February 2009. The latest Value Line issue

21   (May 8, 2009) reports a yield of 4.0% on 30-year Treasury bonds, an increase

22   of 50 basis points.

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1 Q. Do you agree with Mr. Parcell's beta estimates in his CAPM analysis?

2 A. Yes, I do.

7. CAPM MARKET RISK PREMIUM

4 Q. How does Mr. Parcell estimate the MRP component of the CAPM?

5 A. In order to determine the MRP component of his CAPM analysis, Mr. Parcell

6 relies on three estimates. First, he examines the difference between the

7 accounting returns on book equity (ROE) on the S&P 500 Index companies

8 group over the 1978-2007 period and the contemporaneous level of 20-year

9 Treasury bond yields. The average spread (MRP) is 6.45%. Second, he relies

10 on the long-term 5.6% historical MRP reported in the Ibbotson Associates

11 Valuation 2009 Yearbook for the 1926-2008 period based on arithmetic

12 averages. Third, he relies on the long-term 3.9% historical MRP reported in

13 the same publication for the same period but this time based on geometric

14 averages. From these three estimates, Mr. Parcell concludes that the MRP is

15 5.32%, that is, the average of the three MRP estimates. I seriously disagree

16 with these estimates for several reasons.

17 Q. Do you agree with Mr. Parcell's first estimate of 6.45% for the MRP in his

18 CAPM analysis?

19 A. I do not agree with this first estimate. Mr. Parcell has combined *accounting*

20 *book returns* on equity for the S&P 500 companies with *market returns* on

21 long-term U.S. Treasury bonds in order to arrive at his first estimate of the

22 MRP. In a classic apples and oranges situation, Mr. Parcell has mismatched

23 accounting (book) returns with market (economic) returns.

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1   Q.   Do you agree with Mr. Parcell's second estimate of 5.6% for the MRP in his

2   CAPM analysis?

3   A.   No, not quite. For his second MRP proxy, Mr. Parcell used a historical risk

4   premium of 5.6%. This estimate is drawn from Ibbotson and Associates (now

5   Morningstar) in the Stock, Bonds, Bills and Inflation, 2009 Yearbook. Over

6   the period 1926 through 2008, Ibbotson estimated that the arithmetic average

7   of the achieved total return on the S&P 500 was 11.7%, and the total return on

8   long-term Treasury bonds was 6.1%. The indicated equity risk premium is

9   5.6% (11.7% - 6.1% = 5.6%).[10]

10   As I discussed in my direct testimony, the more accurate way to estimate

11   the market risk premium from historic data is to use the *income* return, not

12   *total* returns, on government bonds. The long-term (1926-2008) market risk

13   premium (based on income returns, as required) is 6.5%, rather than 5.6%.

14   Ibbotson Associates recommends use of the *income* return on government

15   bonds as a more reliable estimate of the historical market risk premium

16   because the income component of total bond return (i.e., the coupon rate) is a

17   better estimate of expected return than the total return (i.e., the coupon rate +

18   capital gain).[11] In other words, bond investors focus on income rather than

19   realized capital gains/losses. This correction alone increases Mr. Parcell's

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[10] Parcell Direct Testimony, page 34, line 7.

[11] *See* Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation 2007 Yearbook: Valuation Edition*, 66 (2007).

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1   CAPM estimate by approximately 70 basis points (the difference between

2   6.5% and 5.6% times Mr. Parcell's beta of 0.78 shown on Schedule 13).

3   Q.   Do you agree with Mr. Parcell's third estimate of 3.9% for the MRP in his

4   CAPM analysis?

5   A.   No, I do not. For his third MRP proxy, Mr. Parcell uses a historical risk

6   premium of 3.9% based on the aforementioned Ibbotson historical MRP study,

7   only this time relying on the geometric average of historical returns instead of

8   the arithmetic average of historical returns.

9   Q.   Is it appropriate to use geometric averages in measuring expected return?

10   A.   No, it is not. Arithmetic means are appropriate for forecasting and estimating

11   the cost of capital, while geometric means are not.[12] Indeed, the Ibbotson

12   Associates publication cited on page 41 of Mr. Parcell's testimony contains a

13   detailed and rigorous discussion of the impropriety of using geometric

14   averages in estimating the cost of capital. There is no theoretical or empirical

15   justification for the use of geometric mean rates of return. Briefly, the

16   disparity between the arithmetic average return and the geometric average

17   return raises the question as to what purposes should these different return

18   measures be used. The answer is that the geometric average return should be

19   used for measuring historical returns that are compounded over multiple time

20   periods. The arithmetic average return should be used for future-oriented

21   analysis, where the use of expected values is appropriate.

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[12] See Roger A. Morin, *The New Regulatory Finance*, chapter 11 (2006); Brealey, Myers, and Allen, *Principles of Corporate Finance* (8th ed. 2006).

1   It is inappropriate to average the arithmetic and geometric average

2   return; they measure different quantities in different ways. Please see

3   Morin, R. A., *The New Regulatory Finance*, chapter 11 (2006) for a discussion

4   regarding the theoretical underpinnings, empirical validation, and the

5   consensus of academics on why geometric means are inappropriate for

6   forecasting and estimating the cost of capital.

7   Q.   What is the effect of Mr. Parcell's use of the geometric mean instead of the

8   arithmetic mean MRP?

9   A.   Mr. Parcell's use of the geometric mean MRP of 3.9% rather than the

10   arithmetic mean of 5.6% significantly understates the MRP, which suggests an

11   understatement of HECO's cost of equity by 120 basis points (1.2%) using

12   Mr. Parcell's beta for HECO of approximately 0.73:

13   β_{HECO} x (Arithmetic Mean – Geometric Mean)

14   0.73 x (5.6% – 3.9%) = 0.73 x (1.7%) = 1.2%

15   Q.   Should the historical MRP be estimated using the income component of bond

16   returns or the total return component?

17   A.   The historical MRP should be computed using the income component of bond

18   returns because the intent, even using historical data, is to identify an expected

19   MRP. As discussed earlier, the use of the latter is a more reliable estimate of

20   the historical MRP because the income component of total bond return (i.e.,

21   the coupon rate) is a far better estimate of expected return than the total return

22   (i.e., the coupon rate plus capital gains), because realized capital gains/losses

23   are largely unanticipated by investors.

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1   Q.   Mr. Parcell claims on page 60 of his testimony that the empirical CAPM

2   inflates the CAPM result for the selected company or industry. Is he correct?

3   A.   I do not believe it does. For companies with betas less than one, the CAPM

4   understates the return; for companies with betas greater than one, the CAPM

5   overstates the return. I discussed the conceptual and empirical foundations in

6   Appendix A of my direct testimony.

7   Q.   Mr. Parcell disagrees with the risk premium methodology because economic

8   conditions today are different and risk premiums are unstable from year to

9   year. How do you respond?

10   A.   On pages 61-62 of his testimony, Mr. Parcell critiques the risk premium

11   method on two grounds: 1) the method assumes that past is prologue, and

12   2) the method assumes that the risk premium is constant over time whereas in

13   fact the risk premium results are dominated by the influence of capital gains in

14   many years.

15   The first criticism is unwarranted. I employed returns realized over long

16   time periods rather than returns realized over more recent time periods.

17   Realized returns can be substantially different from prospective returns

18   anticipated by investors, especially when measured over short time periods.

19   A risk premium study should consider the longest possible period for which

20   data are available. Short-run periods during which investors earned a lower

21   risk premium than they expected are offset by short-run periods during which

22   investors earned a higher risk premium than they expected. Only over long

1   time periods will investor return expectations and realizations converge, or

2   else, investors would never commit any funds.

3   I have ignored realized risk premiums measured over short time periods

4   because they are heavily dependent on short-term market movements. Instead,

5   I have relied on results over periods of enough length to smooth out short-term

6   aberrations, and to encompass several business and interest rate cycles. By

7   using the entire study period to estimate the appropriate market risk premium,

8   subjective judgment is minimized and many diverse regimes of inflation,

9   interest rate cycles, and economic cycles spanned.

10   Mr. Parcell's second concern is unwarranted as well. The influence of

11   unexpected capital gains is offset by the influence of unexpected capital losses.

12   To the extent that the estimated historical equity risk premium follows what is

13   known in statistics as a random walk, one should expect the equity risk

14   premium to remain at its historical mean. Thus the best estimate of the future

15   risk premium is the historical mean. As I explained in my direct testimony,

16   because I found no evidence that the market price of risk or the amount of risk

17   in common stocks has changed over time, that is, no significant serial

18   correlation in the successive market risk premiums from year to year, it is

19   reasonable to assume that these quantities will remain stable in the future.

20   Q. What do you conclude from Mr. Parcell's rate of return recommendation?

21   A. Mr. Parcell's recommended ROE is understated. Using current stock prices

22   that reflect the impact of the ongoing financial crisis on capital costs and its

23   devastating impact on utility stock prices raises Mr. Parcell's DCF estimate by

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1   45 basis points from this factor alone. Recognition of the proper functional

2   form of the DCF model (20 basis points), a far greater emphasis on analysts'

3   growth forecasts in the DCF analysis (120 basis points), and the appropriate

4   historical MRP in the CAPM analysis (50 - 120 basis points), would suggest

5   much higher returns that are quite close to my own ROE recommendation for

6   HECO.

REVENUE DECOUPLING RISK ADJUSTMENT

8   Q.   Dr. Morin, do you agree with Mr. Parcell's downward risk adjustment on

9   account of the RDM?

10   A.   I disagree with the magnitude of the adjustment. Mr. Parcell argues that a

11   steep downward ROE adjustment of 50 basis points is required to account for

12   what he considers to be the risk-reducing effect of the RDM relative to the

13   comparable companies is warranted. While I agree with the notion of a

14   downward risk adjustment, I disagree with its magnitude.

15   Not only is this 50 basis points adjustment arbitrary, but most, if not all,

16   energy utilities in the industry are under some form of adjustment clause/cost

17   recovery/rider mechanism(s). The approval of adjustment clauses, riders, and

18   cost recovery mechanisms by regulatory commissions is widespread in the

19   utility business and is already largely embedded in financial data, such as bond

20   rating and business risk scores. The experience with the operation of RDMs

21   for electric utilities in general is very scant at this time, let alone the specific

22   RDM variant that the Commission may adopt.

1   *Moreover, a RDM can actually increase regulatory risks, particularly the*

2   *risk of the Commission denying timely recovery if deferred balances get too*

3   *large. Therefore, it is speculative as to whether, and if so how, a RDM will*

4   *affect the Company's risk profile. My own judgment is that a maximum of*

5   *25 basis points adjustment is warranted at best.*

6   <div align="center">**UPDATED RECOMMENDATION**</div>

7   Q.   What is the purpose of this section of your rebuttal testimony?

8   A.   The purpose of this section is to review my original ROE recommendation in

9   light of the changes in capital markets and in the Company's risk profile that

10   have occurred since I prepared my direct testimony. My original ROE

11   recommendation of 11.25% is amended to a range of 11.00% - 11.25%

12   assuming that the Company's proposed RDM is approved, and a range of

13   11.25% - 11.50% otherwise.

14   Q.   Please describe the current state of the capital markets compared to when you

15   prepared your testimony in May 2008.

16   A.   As discussed earlier, capital markets continue to be in a state of turmoil,

17   although some modest signs of improvement have appeared. The debt markets

18   have witnessed record high yield spreads and a more severe differentiation

19   between the spreads charged to companies with different levels of credit.

20   A fundamental structural upward shift in risk aversion has occurred as capital

21   markets are re-pricing risk, and capital has become, and will continue to be,

22   more expensive for all market participants.

1   Q.   Can you briefly describe the behavior of interest rates since you filed your

2   original testimony based on May 2008 data?

3   A.   Yes. Significant changes have occurred in capital market conditions since I

4   prepared my original testimony for HECO based on May 2008 data. The

5   current level of U.S. Treasury 30-year long-term bond yield is 4.0%, versus

6   4.6% when I prepared my direct testimony. The decrease in interest rates

7   lowers the CAPM and Risk Premium estimates that are based on the risk-free

8   rate.

9   Q.   Dr. Morin, what has happened to electric utility betas since you prepared your

10   direct testimony?

11   A.   Betas have decreased from the 0.85 level to the 0.75 level although I note that

12   betas are estimated on five-year historical periods, and therefore do not capture

13   the current increased risk environment faced by utilities.

14   Q.   How much weight should be accorded to the CAPM results under current

15   market circumstances?

16   A.   I believe much less weight should be accorded to the CAPM results under

17   present economic circumstances for reasons discussed earlier in my rebuttal.

18   Q.   Dr. Morin, please describe what has happened to the DCF results since the

19   financial crisis began.

20   A.   The Dow Jones Utility Average has fallen some 35% over the past year. The

21   devastating downward impact of the financial crisis on utility stock prices has

22   resulted in lower stock prices, implying higher dividend yields which in turn

23   imply higher DCF estimates. As of May 2009, the DCF results for the energy

1   utilities have increased significantly by 100 basis points in response to lower

2   stock prices (higher dividend yields) following the financial crisis.

3   Q.   What input data did you use in the CAPM analysis to arrive at your updated

4   ROE?

5   A.   For the risk-free rate, I used 4.0% based on the current level of long-term

6   Treasury interest rates. For beta, I used 0.75 and for the market risk premium

7   ("MRP"), I used 6.5%.

8   Q.   Did you make any methodological changes in your historical risk premium

9   analysis of the utility industry?

10   A.   In light of the financial crisis that began after I prepared my direct testimony,

11   I made two changes in my historical risk premium analysis. First, in my

12   original testimony, I relied on the Moody's Electric Utility Index to perform

13   my historical risk premium study. Following the acquisition of Moody's by

14   Mergent in 2002, publication of the electric utility index was discontinued.

15   Therefore, I chose to rely on the S&P Utility Index instead of the Moody's

16   Index in order to ensure continuity and timeliness of the risk premium data.

17   I note that this change does not alter the results significantly.

18   Second, given the current chaotic state of the capital markets at this

19   time, it is no longer appropriate to perform a historical risk premium analysis

20   using government bond yields. Trends in utility cost of capital are directly

21   reflected in their cost of debt and are not directly captured by a risk premium

22   estimate tied to government bond yields. This is especially germane in the

23   current financial crisis where corporate spreads have reached record levels.

1   Because a utility's cost of capital is determined by its business and financial

2   risks, it is reasonable to surmise that its cost of equity will track its cost of debt

3   more closely than it will track the government bond yield. To guard against

4   this possibility, I have performed my historical premium analysis of the utility

5   industry using the A-rated utility bond yield instead of the government bond

6   yield. The average historical risk premium over the period is 5.0% over both

7   utility bond returns and utility bond yields. Given that the current yield on

8   utility bonds rated single A is 6.2%, and using the historical risk premium

9   estimate of 5.0%, the implied cost of equity from this particular method is

10   6.2% + 5.0% = 11.2% without flotation costs and 11.5% with the flotation cost

11   allowance.

12   I did not implement the allowed risk premium analysis in view of the

13   scarcity of decisions since the financial crisis began in Fall 2008.

14   Q.   Did you make any methodological changes in your DCF analyses?

15   A.   Not really. I relied on current stock prices and growth forecasts from both

16   Value Line and financial analysts. The only minor departure from my original

17   DCF analysis is that for my second group of comparable utilities, I relied on

18   the electric utilities that make up the S&P Utility index instead of the Moody's

19   Utility Index. The use of S&P Utility Index instead of the Moody's Index is

20   necessitated by the discontinued publication of the Moody's Index since the

21   acquisition of Moody's by Mergent, and is also consistent with the use of that

22   same index in my historical risk premium analysis.

1 Q. Dr. Morin, please summarize your updated results from the various

2   methodologies.

3 A. The revised ROE estimates for the average risk electric utility are summarized

4   in the table below.

STUDY	Updated ROE
CAPM	9.2%
Empirical CAPM	9.6%
Risk Premium Electric	11.5%
DCF Vert. Integrated Electric Utilities Value Line Growth	12.3%
DCF Vert. Integrated Electric Utilities Zacks Growth	12.6%
DCF Moody's Elec Utilities Value Line Growth	12.0%
Moody's Elec Utilities Zacks Growth	12.0%

15   The average result from all the methodologies is 11.3%, rounded to 11.25% to

16   the nearest quartile.

17 Q. Have you adjusted the cost of equity estimates to account for the fact that

18   HECO's risk is higher than the industry average, as you did in your direct

19   testimony?

20 A. No, I did not. In my original testimony, I applied a 25 basis points risk

21   premium in order to allow for HECO's greater investment risk relative to the

22   industry, mainly due to its relatively small size. At the time I prepared my

23   direct testimony, HECO's investment risks certainly exceeded those of the

24   industry. I estimated the risk adjustment to be at least 25 basis points. Should

25   the Commission allow the Company to establish and implement a revenue

26   adjustment mechanism as proposed in the joint decoupling proposal filed by

1   the Company and the Division of Consumer Advocacy in the decoupling

2   proceeding (Docket No. 2008-0274), and given the various riders discussed

3   earlier, the need for such a risk premium is unnecessary, and HECO's risk is

4   comparable to the industry average.

5   Q.   What is your final conclusion regarding HECO's updated cost of common

6   equity capital?

7   A.   Based on the results of all my analyses, the application of my professional

8   judgment, the risk circumstances of HECO, and the unsettled current market

9   environment, it is my opinion that a conservative just and reasonable return on

10   the common equity capital of HECO's electric utility business is in a range of

11   11.00% - 11.25% assuming approval of decoupling in its existing format and

12   in a range of 11.25% - 11.50% without.

13   Q.   Does this conclude your rebuttal?

14   A.   Yes, it does.