

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 110138-EI

REBUTTAL TESTIMONY
OF

MICHAEL J. VILBERT



DOCUMENT NUMBER-DATE

08152 NOV-4 =

FPSC-COMMISSION CLERK

1 GULF POWER COMPANY

2 Before the Florida Public Service Commission
3 Rebuttal Testimony of
4 Michael J. Vilbert
5 Docket No. 110138-El
6 In Support of Rate Relief
7 Date of Filing: November 4, 2011

8 Q. Please state your name and address for the record.

9 A. My name is Michael J. Vilbert. My business address is *The Brattle Group*,
10 201 Mission Street, Suite 2800, San Francisco, CA 94105, USA.

11 Q. Please summarize your background and experience.

12 A. I am a Principal of *The Brattle Group*, ("*Brattle*"), an economic,
13 environmental and management consulting firm with offices in Cambridge,
14 Washington, London, San Francisco, Brussels, Madrid and Rome.

15 *Brattle's* specialties include financial economics, regulatory economics,
16 and the gas and electric industries. My work concentrates on financial
17 and regulatory economics. I hold a B.S. from the U.S. Air Force Academy
18 and a Ph.D. in finance from the Wharton School of Business at the
19 University of Pennsylvania. I have worked in the areas of cost of capital,
20 investment risk and related matters for many industries, regulated and
21 unregulated alike, in many forums. I have testified before the U.S. Federal
22 Energy Regulatory Commission ("FERC"), Canadian National Energy
23 Board ("NEB"), and before many state/provincial regulatory commissions
24 in the U.S. and Canada. I have previously filed testimony and testified
25

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1 before the Florida Public Service Commission. Appendix A to this rebuttal
2 testimony is a more complete description of my professional qualifications.

3

4 Q. What is the purpose of your rebuttal testimony in this proceeding?

5 A. I have been asked by Gulf Power Company to respond to written
6 testimony by Dr. J. Randall Woolridge and Mr. Michael P. Gorman in the
7 current proceeding on the measurement of financial leverage and its
8 impact on a regulated utility's allowed return on equity.

9

10 Q. What portions of their respective testimonies are you addressing?

11 A. The relevant section in Dr. Woolridge's testimony is Section VII.E,
12 Leverage Adjustment, as well as Exhibit JRW-6. Mr. Gorman's discussion
13 of financial leverage is between pages 43 and 47 of his testimony.

14

15 Q. What are their main arguments?

16 A. On behalf of Gulf Power Company, Dr. James H. Vander Weide proposed
17 to add a 90 basis point (0.9 percent) adjustment to the cost of equity
18 estimated from the proxy group to reflect the fact that Gulf Power's capital
19 structure for rate making purposes (53.74 percent debt) has more financial
20 risk than the market value capital structure of the proxy group (44.92
21 percent debt). Dr. Woolridge and Mr. Gorman rejected Dr. Vander
22 Weide's leverage adjustment based on two principal reasons: (Woolridge
23 at pp.79-81, Gorman p.45)

24 a. Financial leverage should be measured on a book value basis.

25 Hence, there is no need for the leverage adjustment.

1 b. Dr. Vander Weide's leverage adjustment would reward equity
2 investors in regulated utilities with above-market risk-adjusted cost
3 of equity.
4

5 Q. What evidence do Dr. Woolridge and Mr. Gorman offer to reject the
6 financial risk adjustment proposed by Dr. Vander Weide?

7 A. Although both Dr. Woolridge and Mr. Gorman acknowledged that financial
8 leverage increases risk to equity investors and increases the cost of
9 equity, they dispute the notion that financial risks are measured on a
10 market value basis. Instead, Dr. Woolridge argues that "financial
11 publications and investment firms report capitalizations on a book value
12 and not a market value basis" and "[T]here is no need for a leverage
13 adjustment since there is no change in leverage." (Woolridge testimony,
14 p.80) Mr. Gorman similarly argues that Gulf Power's financial risk
15 concerns the availability of operating cash flows to meet its book value
16 financial obligations, and "is tied to both its book value capitalization which
17 in turn drives its market value capitalization." (Gorman testimony, pp.44-
18 46)
19

20 Q. What is the fundamental flaw in their arguments?

21 A. The disregard of market value capitalization in measuring a company's
22 financial leverage and risk is a fundamental flaw in Dr. Woolridge's and
23 Mr. Gorman's arguments. As I will explain below, the cost of equity
24 estimated from capital markets reflects both the business risk of the
25

1 company and its financial risk which is properly measured by the market
2 value capital structure.

3
4 Q. Does the use of an estimated ROE based upon market value information
5 conflict with the use of a book value rate base to set rates?

6 A. No. In Florida, as well as in most U.S. utility regulation, rates are set using
7 the regulated company's rate base which is measured on the basis of the
8 original costs or book value. The book value capital structure embedded
9 in the depreciated rate base is generally different from the market value
10 capital structures of the sample companies used to estimate the cost of
11 equity. The estimated (market derived) ROEs are applied to the book
12 value rate base, but financial risk inherent in the rate base may differ from
13 the financial risk of the sample used to estimate the ROE. To account
14 properly for the difference in financial risk between the ROE estimated
15 from market data and the capital structure of the regulated firm, I agree
16 with Dr. Vander Weide that the allowed return on equity should be
17 adjusted to reflect the difference in financial leverage, so that equity
18 investors will be given a fair opportunity to earn their cost of equity. The
19 leverage adjustment should not be confused with the market-to-book ratio
20 adjustment ("MV/BV") referred to by Mr. Gorman.¹

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¹ The Gorman Testimony at p. 45 argues that the leverage adjustment is "nothing more than a flawed market-to-book ratio adjustment."

1 Q. How does Mr. Gorman confuse the two concepts?

2 A. Consider first a situation in which the book value and market value for all
3 sample companies are equal. The estimated cost of equity from the
4 sample will reflect the business risk and the financial risk of the sample
5 companies as before. Further assume that the rate base capital structure
6 of the regulated entity differs from the average capital structure of the
7 sample companies. I believe that Dr. Woolridge and Mr. Gorman would
8 agree with me and Dr. Vander Weide that an adjustment would be
9 warranted for the allowed ROE for the regulated company, although
10 Dr. Woolridge and Mr. Gorman may or may not agree with the exact
11 adjustment recommended by Dr. Vander Weide.

12
13 Q. Why is the situation different if the MV/BV ratio is not equal to 1.0?

14 A. This is the essence of the disagreement between us. Dr. Woolridge and
15 Mr. Gorman assert that financial risk is properly measured by the book
16 value capital structure so there is no need for the leverage adjustment.
17 This is incorrect. It is the market value capital structure that matters for
18 measuring financial risk, and a leverage adjustment is required if the rate
19 base capital structure is different from the market value capital structure
20 embedded in the sample companies' estimates of the cost of equity. More
21 importantly, except for the difference between current cost of debt and
22 embedded cost of debt, the after-tax weighted-average cost of capital
23 ("ATWACC") is the same under either 11.7 percent ROE with 44.92
24 percent book value capital structure or 10.8 percent ROE with 53.74
25 percent market value capital structure.

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The notion that financial leverage is and should be measured on a market value basis, shared by Dr. Vander Weide and me, is supported in every textbook on corporate finance of which I am aware.² Further, the view is not just an ivory-tower creation. Professional valuation books and guidance advocate the use of market value capital structure.³

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Q. Isn't it true that credit rating agencies measure financial risk with reference to book values?

A. Yes and no. Credit rating agencies are concerned with the credit worthiness of debt issuing entities; their ability to pay interest and repay debt. They are only indirectly concerned with the cost of equity capital.

² See, e.g., Richard A. Brealey, Stewart C. Myers, and Franklin Allen, 2011, *Principles of Corporate Finance*, 10th edition, McGraw-Hill Irwin, at p. 472; Stephen A. Ross, Randolph W. Westerfield, and Jeffrey Jaffe, 2002, *Corporate Finance*, 6th edition, McGraw-Hill Irwin, at p.386; and Mark Grinblatt and Sheridan Titman, 1998, *Financial Markets and Corporate Strategy*, 1st edition, Irwin/McGraw-Hill, at p. 464.

³ See, e.g., Tom Copeland, Tim Koller, and Jack Murrin, 2000, *Valuation: Measuring and managing the value of companies*, 3rd edition John Wiley & Sons, p. 204; and Shannon P. Pratt and Alina V. Niculita, 2008, *Valuation a business: The analysis and appraisal of closely held companies*, 5th edition, McGraw-Hill, at pp. 216 – 217.

⁴ See, e.g., Morningstar, *Ibbotson Cost of Capital 2010 Yearbook*, at p. 10.

⁵ J. Randall Woolridge and Gary Gray, *Applied Principles of Finance*, Preliminary Edition, Penn State University, 2006, pp. 127-129.

⁶ See, e.g., Bernstein, Stan, Susan H. Seabury, and Jack F. Williams, 2008, "Squaring bankruptcy valuation practice with *Daubert* Demands," *ABI Law Review*, at p. 190.

1 To ensure credit worthiness, credit rating agencies rely upon accounting
2 information to calculate financial ratios to measure the financial health of a
3 company. Historically, accounting information is based primarily on
4 historical costs, *i.e.*, book value information. Accounting information is
5 used by the rating agencies partly because it follows the Generally
6 Accepted Accounting Principles ("GAAP") and is audited by third-party
7 auditors. This allows for consistency between companies when
8 comparing financial performance and to evaluate the credit worthiness of
9 a company. Another rationale for the rating agencies' use of accounting
10 information is the stability of accounting information, which is generally not
11 updated more frequently than quarterly. Only the annual statements are
12 fully audited. On the other hand, market value information changes daily.
13 Any credit report based upon market information would be out of date very
14 quickly. Use of accounting data avoids this problem.

15
16 Stability is both a virtue and a flaw (not timely) in historical-cost based
17 financial accounting and credit analysis. Since Statement of Financial
18 Accounting Standard No. 157 "Fair Value Measurements" took effect on
19 and after 2008,⁷ financial statements have incorporated more and more
20 market value information about a company's assets and liabilities.

21 Similarly, credit rating agencies such as Moody's also used market value
22 information in their assessment of credit risk. For example, Moody's

⁷ See <http://www.fasb.org/summary/stsum157.shtml>, last accessed October 29, 2011.

1 stated that some of its measures of corporate default risk are “updated
2 continuously” and “extracted from the equity markets.”⁸

3
4 Q. Can you explain why financial leverage is and should be measured on a
5 market value basis?

6 A. The impact of financial leverage on cost of equity has been developed
7 since the 1958 paper by Prof. Franco Modigliani and Merton Miller (“MM”),
8 two economists who eventually won Nobel Prizes in part for their body of
9 work on the effects of debt on firm value.⁹ One key corollary of the MM
10 theorems and their various extensions is that cost of equity increases as
11 financial leverage increases. Although the exact speed of increase in cost
12 of equity differs by models of capital structure, it is universally accepted
13 that as a firm adds debt, its cost of equity increases as a result.

14
15 Both Dr. Woolridge and Mr. Gorman acknowledge that the cost of equity
16 increases with financial leverage; however, they assert that financial risk is
17 measured on a book value basis. This belief is wrong for two reasons.
18 First, in MM’s classic paper and subsequent extensions of their original
19 paper, financial leverage has been consistently measured on a market
20 value basis. This is because MM’s basic insight is that, under perfect
21 market conditions, financial leverage does not increase the *market value*

⁸ See brochure of Moody Analytics, <http://www.moodyanalytics.com/~media/Brochures/Credit-Research-Risk-Measurement/Quantative-Insight/CreditEdge/CreditEdge-Plus-Brochure.ashx>, last accessed October 29, 2011.

⁹ Franco Modigliani and Merton H. Miller (1958), “The cost of capital, corporation finance and the theory of investment,” *American Economic Review*, 48, pp. 261-297. For a modern textbook exposition of the capital structure theories, see Brealey, Myers, and Allen, *op cit.*, Chapter 17.

1 to a firm as long as different combinations of debt and equity can be
2 selected by the investors themselves.¹⁰ To implement such a self-help
3 financial engineering, investors have to be able to buy and sell debt and
4 equity to achieve their desired combination. The prices at which they
5 transact are, by definition, *market prices*. Second, as a more practical
6 matter, economists generally prefer to use market values because they
7 convey timely information, rather than historical data, about the assets.
8 Business decisions on investment, capital budgeting, and financing are all
9 based on real time market value information.

10

11 Q. Could you provide a numerical example to illustrate the impact of debt on
12 cost of equity?

13 A. As a simple example, think of an investor who takes money out of her
14 savings and invests \$100,000 in real estate. The future value of the real
15 estate is uncertain. If the real estate market booms, she wins. If the real
16 estate market goes down, she loses. Figure 1 below illustrates this.

¹⁰ In developing the theory, MM assume that investors can adjust the capital structures of their portfolios at no cost.

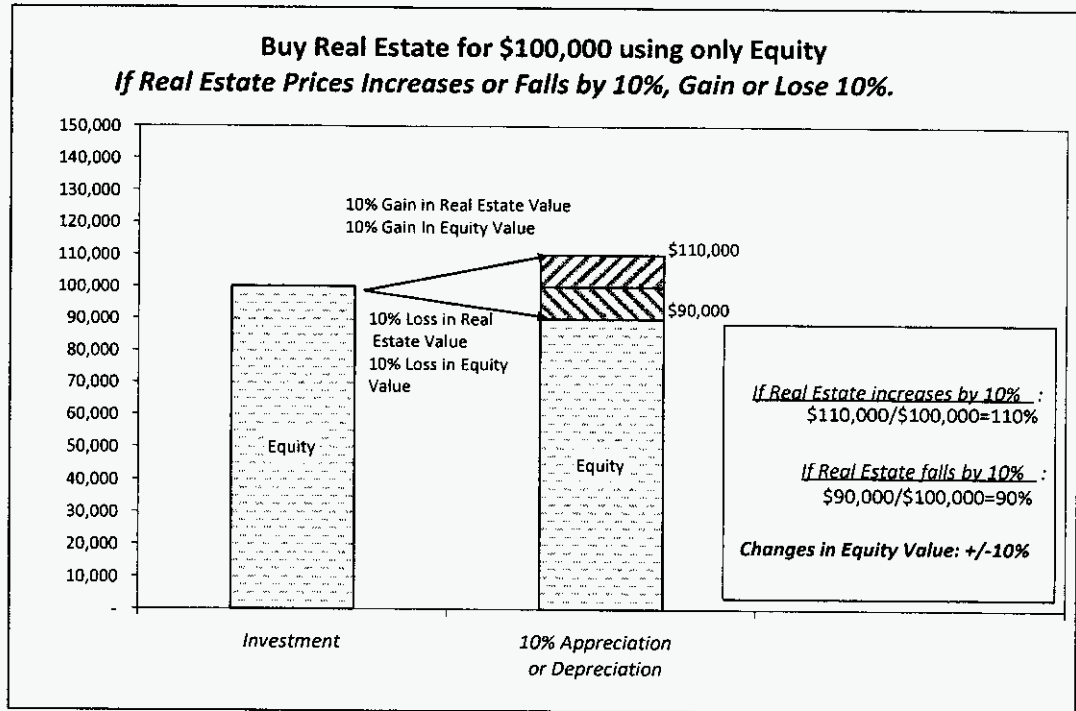


Figure 1

- 1 In Figure 2 where the investor financed the purchase using 50 percent equity
- 2 and 50 percent mortgage, the variability in the investor's equity return is two
- 3 times greater than that of Figure 1. The entire fluctuation of 10 percent from
- 4 rising or falling real estate prices falls on the investor's \$50,000 equity
- 5 investment. The lesson from the example is obvious, debt adds risk to equity.

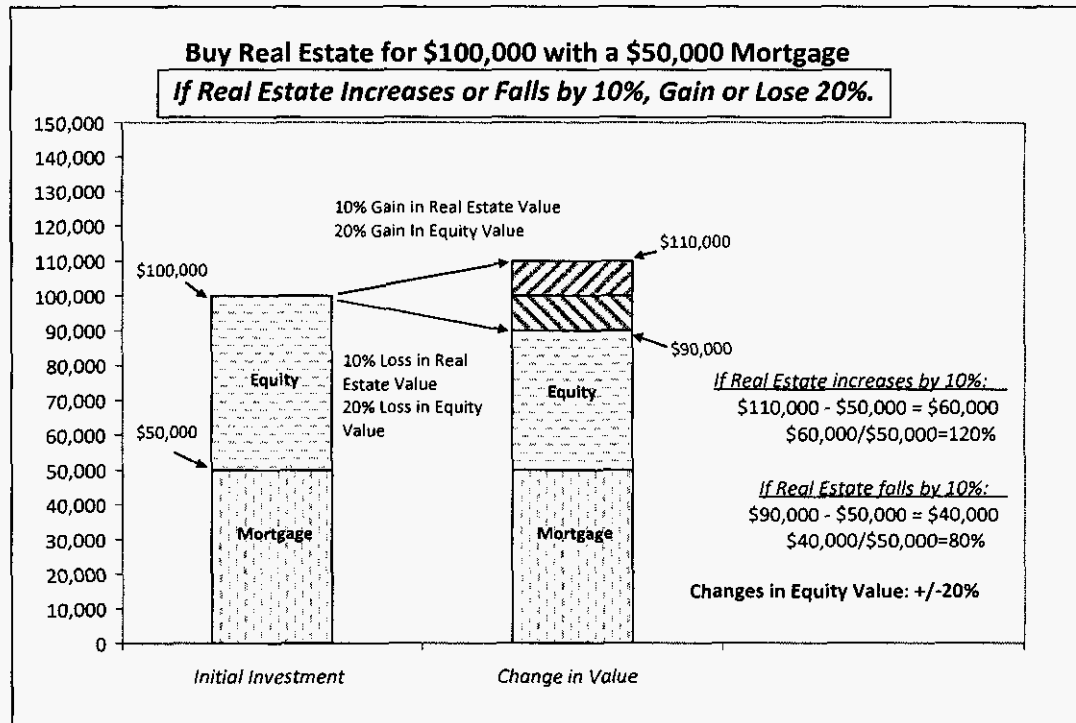


Figure 2

- 1 Q. Please provide an example that illustrates why market values are relevant.
- 2 A. Suppose in the above example that the investor has invested in real
- 3 estate 10 years ago. Further assume that accounting depreciation has
- 4 reduced the book value of the real estate from \$100,000 to \$75,000, and
- 5 assume the investor has paid off 40 percent of his \$50,000 mortgage.
- 6 Thus, the investor has a remaining mortgage of \$30,000
- 7 (= 60% X \$50,000). The *book value* of the investor's equity investment is
- 8 therefore \$45,000 (= \$75,000 - \$30,000). To calculate the return on equity
- 9 if real estate prices rise or fall 20 percent, one needs to know how real
- 10 estate prices have developed over the past 10 years. For example, if the
- 11 market value of the real estate now is \$200,000, then a 20 percent
- 12 decrease in the price of real estate (\$40,000) is almost equal to the
- 13 investor's book value equity. However, his *market value* equity (or net

1 worth) is equal to the value of the real estate minus what he owes on the
2 mortgage. If we assume that the market value of the mortgage equals the
3 unpaid balance of \$30,000, then the investor's net worth is \$170,000 (= $\$200,000 - \$30,000$). Therefore, the market return on equity due to a 20
4 percent decline in real estate prices is -23.5% (= $-40,000 / 170,000$).
5

6
7 Q. How do you respond to Mr. Gorman's claim that financial leverage is
8 measured by the sufficiency of the firm's operating cash flows to meet the
9 contractual book value obligations?

10 A. While it is true that a firm's debt obligations are typically defined in book
11 value terms, and a firm's internally-generated operating cash flows are the
12 primary source of debt repayment, market value of the firm is also a key
13 determinant of a firm's debt capacity and borrowing cost. Anyone with
14 mortgage borrowing experience knows that, in financing a purchase or
15 refinance an existing mortgage, the amount of mortgage relative to a
16 house's market value ("loan-to-value ratios") is critical for the lenders. The
17 same observation applies to corporate lending and borrowing as well.

18
19 Q. Dr. Woolridge argues that "the reason that market values exceed book
20 values is that the company is earning a return on equity in excess of its
21 cost of equity," and presents evidence demonstrating that "there is a
22 strong positive relationship between expected returns on common equity
23 and market-to-book ratios for public utilities." Do you agree?

24 A. I do not. Mathematically, all else equal, a higher return on equity gives
25 rise to a higher market value of equity, and a higher market to book ratio.

1 However, all else is not equal in real life. Dr. Woolridge provides very little
2 information on how Exhibit JRW-6 is created, but if Dr. Woolridge intends
3 for Exhibit JRW-6, which graphically shows positive correlation between a
4 utility's estimated returns on equity ("ROE") and its market-to-book ratio, to
5 support his contention, the empirical evidence falls short. From basic
6 statistics, correlation does not mean a cause-and-effect relationship.
7 There are a number of economic issues with Dr. Woolridge's graphical
8 demonstration. First, Dr. Woolridge's estimated ROEs do not measure the
9 cost of capital. They appear to be accounting returns on book value of
10 equity, which reflect accounting convention. In addition, accounting ROEs
11 do not measure the change in stock value, which is also part of economic
12 returns in owning a stock. Second, lack of time dimension in the graphs
13 does not permit one to interpret the relationship between the two variables
14 as to whether higher ROEs lead to higher market-to-book ratios, or higher
15 market-to-book ratios imply higher business risks and hence higher
16 returns on equity. Third, even if economic causality could be established,
17 the bilateral correlation in Exhibit JRW-6 fails to control for other reasons
18 that could contribute to a positive relationship between high ROEs and
19 high market-to-book ratios. Lastly, due to the flaws identified above, the
20 positive correlation simply shows that the price/earnings ("P/E") ratio is
21 positive for the utility companies. To see this, one can multiply book value
22 of equity by the market-to-book ratios and estimated ROEs (which are the
23 ratio of earnings to book value) to obtain the market value of the stock and
24 the company's accounting earnings. In other words, the slope of the
25 scatterplot is an estimate of the sample average P/E ratio. A positive P/E

1 is not a surprising result, nor does it provide support to Dr. Woolridge's
2 contention that above-market returns on equity, and no other factors,
3 contribute to the utilities' market value exceeding book value.
4

5 Q. What are the other factors that could contribute to higher market-to-book
6 ratios?

7 A. A careful study of the causal relationship between allowed return on equity
8 and market-to-book ratios requires better specification of the regression
9 form, and measurement of the relevant variables. Here I offer a few
10 factors that Dr. Woolridge failed to consider. First, although all the
11 companies in Dr. Woolridge's samples have regulated utility operations,
12 some of the companies have lines of business not subject to regulation.
13 Non-regulated operations could be riskier and have growth options that
14 are typically not present in utilities. Second, utilities are only allowed a fair
15 opportunity to earn their cost of capital. Actual returns on and of capital
16 depend on the factors outside utilities' control, such as fluctuation in
17 consumer demand, supply shocks, weather, regulatory environment, *etc.*
18 Third, investor demand for safe haven investment during the financial
19 crisis and economic downturn could also boost the market-to-book ratios
20 of utilities. (JRW-6 does not specify the time frame of the data.) Fourth,
21 except for accounting artifacts, estimated accounting returns on equity
22 could also be affected by rate freezes, regulatory lags in adjusting the
23 rates or deviation of other rate components (such as depreciation) from
24 economic reality. All these factors could affect a utility's accounting ROE,
25 but they have nothing to do with the utility's cost of capital.

1

2 Q. What other comments do you have on Dr. Woolridge's Exhibit JRW-6?

3 A. Data presented in Exhibit JRW-6 show a number of companies with
4 estimated ROEs below 10 percent, yet with market-to-book ratios above
5 one, some approaching two. If Dr. Woolridge is right, the return on equity
6 on these utilities should be adjusted downward. However, this is
7 inconsistent with Dr. Woolridge's recommended 9.25 percent reasonable
8 cost of equity. Estimated ROEs in excess of 12 percent in the exhibit also
9 raise the red flag that these ROEs are not the correct proxy for utilities'
10 allowed returns on equity. If Dr. Woolridge's hypothesis is correct, the
11 cost of equity for an all equity utility would be in the range of 5 percent or
12 so based upon projecting the intercept of the regression line, which is less
13 than the cost of debt.

14

15 Q. How do you respond to Mr. Gorman's comments on disparity in equity
16 returns between a stock repurchase and a utility investment project?

17 A. Mr. Gorman is mistaken. The objective of Dr. Vander Weide's leverage
18 adjustment is to allow a higher return on equity for a capital structure with
19 higher financial leverage, *i.e.*, 11.7 percent at 53.74 percent debt ratio for
20 ratemaking purposes, as opposed to the financial leverage at a market
21 value debt ratio of 44.92 percent. At 11.7 percent cost of equity and book
22 value capital structure ratios, Gulf Power's ATWACC will be the same as
23 the market value after-tax weighted-average cost of capital from the
24 sample companies. In other words, Dr. Vander Weide is recommending a
25 higher ROE for an investment with 53.74 percent debt than he would for

1 one with 44.92 percent debt, so Gulf Power is allowed the opportunity to
2 earn its cost of capital. It is not true that the utility would be encouraged to
3 “gold-plate utility plant investment” because it would not be earning an
4 “above-market” return.

5

6 Q. Does this conclude your rebuttal testimony?

7 A. Yes, it does.

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AFFIDAVIT

STATE OF CALIFORNIA)
)
COUNTY OF SAN FRANCISCO)

Docket No. 110138-EI

Before me the undersigned authority, personally appeared Michael J. Vilbert, who being first duly sworn, deposes, and says that he is Michael J. Vilbert, and that the foregoing is true and correct to the best of his knowledge, information, and belief. He is personally known to me.

The signed original affidavit is attached to the original testimony on file with the FPSC.

s/_____

Michael J. Vilbert

Sworn to and subscribed before me this _____ day of _____, 2011.

Notary Public, State of California at Large

Commission No. _____

My Commission Expires _____

APPENDIX A:

QUALIFICATIONS OF MICHAEL J. VILBERT

Michael Vilbert is an expert in cost of capital, financial planning and valuation who has advised clients on these matters in the context of a wide variety of investment and regulatory decisions. He has testified or submitted testimony on cost of capital, economic damages, the business purpose and economic substance of tax related transactions, valuation of assets in arbitration and the effect of regulatory policy changes on the cost of capital.

He received his Ph.D. in Financial Economics from the Wharton School of the University of Pennsylvania, an MBA from the University of Utah, an M.S. from the Fletcher School of Law and Diplomacy, Tufts University, and a B.S. degree from the United States Air Force Academy. He joined The Brattle Group in 1994 after a career as an Air Force officer, where he served as a fighter pilot, intelligence officer, and professor of finance at the Air Force Academy.

REPRESENTATIVE CONSULTING EXPERIENCE

- Dr. Vilbert served as the consulting expert in several cases for the U.S. Department of Justice and the Internal Revenue Service regarding the business purpose and economic substance of a series of tax related transactions. These projects required the analysis of a complex series of financial transactions including the review of voluminous documentary evidence and required expertise in financial theory, financial market as well as accounting and financial statement analysis.
- In a securities fraud case, Dr. Vilbert designed and created a model to value the private placement stock of a drug store chain as if there had been full disclosure of the actual financial condition of the firm. He analyzed key financial data and security analysts' reports regarding the future of the industry in order to recreate pro forma balance sheet and income statements under a variety of scenarios designed to establish the value of the firm.
- For pharmaceutical companies rebutting price-fixing claims in antitrust litigation, Dr. Vilbert was a member of a team that prepared a comprehensive analysis of industry profitability. The analysis replicated, tested and critiqued the major recent analyses of drug costs, risks and returns. The analyses helped develop expert witness testimony to rebut allegations of excess profits.
- For an independent electric power producer, Dr. Vilbert created a model that analyzed the reasonableness of rates and costs filed by a natural gas pipeline. The model not only duplicated the pipeline's rates, but it also allowed simulation of a variety of "what if" scenarios associated with cost recovery under alternative time patterns and joint cost allocations. Results of the analysis were adopted by the intervenor group for negotiation with the pipeline.

Appendix A to the Rebuttal Testimony of Michael J. Vilbert

- For the CFO of an electric utility, Dr. Vilbert developed the valuation model used to support a stranded cost estimation filing. The case involved a conflict between two utilities over the responsibility for out-of-market costs associated with a power purchase contract between them. In addition, he advised and analyzed cost recovery mechanisms that would allow full recovery of the stranded costs while providing a rate reduction for the company's rate payers.
- Dr. Vilbert has testified as well as assisted in the preparation of testimony and the development of estimation models in numerous cost of capital cases for natural gas pipeline, water utility and electric utility clients before the Federal Energy Regulatory Commission ("FERC") and state regulatory commissions. These have spanned standard estimation techniques (e.g., Discounted Cash Flow and Risk Positioning models). He has also developed and applied more advanced models specific to the industries or lines of business in question, e.g., based on the structure and risk characteristics of cash flows, or based on multi-factor models that better characterize regulated industries.
- Dr. Vilbert has valued several large, residual oil-fired generating stations to evaluate the possible conversion to natural gas or other fuels. In these analyses, the expected pre- and post-conversion station values were computed using a range of market electricity and fuel cost conditions.
- For a major western electric utility, Dr. Vilbert helped prepare testimony that analyzed the prudence of QF contract enforcement. The testimony demonstrated that the utility had not been compensated in its allowed cost of capital for major disallowances stemming from QF contract management.
- Dr. Vilbert analyzed the economic need for a major natural gas pipeline expansion to the Midwest. This involved evaluating forecasts of natural gas use in various regions of the United States and the effect of additional supplies on the pattern of natural gas pipeline use. The analysis was used to justify the expansion before the FERC and the National Energy Board of Canada.
- For a Public Utility Commission in the Northeast, Dr. Vilbert analyzed the auction of an electric utility's purchase power agreements to determine whether the outcome of the auction was in the ratepayers' interest. The work involved the analysis of the auction procedures as well as the benefits to ratepayers of transferring risk of the PPA payments to the buyer.
- Dr. Vilbert led a team tasked to determine whether bridge tolls were "just and reasonable" for a non-profit port authority. Determination of the cost of service for the authority required estimation of the value of the authority's assets using the trended original cost methodology as well as evaluation of the operations and maintenance budgets. Investment costs, bridge traffic information and inflation indices covering a 75 year period were utilized to estimate the value of four bridges

and a passenger transit line valued in excess of \$1 billion.

- Dr. Vilbert helped a recently privatized railroad in Brazil develop an estimate of its revenue requirements, including a determination of the railroad's cost of capital. He also helped evaluate alternative rate structures designed to provide economic incentives to shippers as well as to the railroad for improved service. This involved the explanation and analysis of the contribution margin of numerous shipper products, improved cost analysis and evaluation of bottlenecks in the system.
- For a utility in the Southeast, Dr. Vilbert quantified the company's stranded costs under several legislative electric restructuring scenarios. This involved the evaluation of all of the company's fossil and nuclear generating units, its contracts with Qualifying Facilities and the prudence of those QF contracts. He provided analysis concerning the impact of securitizing the company's stranded costs as a means of reducing the cost to the ratepayers and several alternative designs for recovering stranded costs.
- For a recently privatized electric utility in Australia, Dr. Vilbert evaluated the proposed regulatory scheme of the Australian Competition and Consumer Commission for the company's electric transmission system. The evaluation highlighted the elements of the proposed regulation which would impose uncompensated asymmetric risks on the company and the need to either eliminate the asymmetry in risk or provide additional compensation so that the company could expect to earn its cost of capital.
- For an electric utility in the Southwest, Dr. Vilbert helped design and create a model to estimate the stranded costs of the company's portfolio of Qualifying Facilities and Power Purchase contracts. This exercise was complicated by the many variations in the provisions of the contracts that required modeling in order to capture the effect of changes in either the performance of the plants or in the estimated market price of electricity.
- Dr. Vilbert helped prepare the testimony responding to a FERC request for further comments on the appropriate return on equity for electric transmission facilities. In addition, Dr. Vilbert was a member of the team that made a presentation to the FERC staff on the expected risks of the unbundled electric transmission line of business.
- Dr. Vilbert and Mr. Frank C. Graves, also of The Brattle Group, prepared testimony evaluating an innovative Canadian stranded cost recovery procedure involving the auctioning of the output of the province's electric generation plants instead of the plants themselves. The evaluation required the analysis of the terms and conditions of the long-term contracts specifying the revenue requirements of the plants for their entire forecasted remaining economic life and required an estimate of the cost of capital for the plant owners under this new stranded cost recovery concept.
- Dr. Vilbert served as the neutral arbitrator for the valuation of a petroleum products

Appendix A to the Rebuttal Testimony of Michael J. Vilbert

tanker. The valuation required analysis of the Jones Act tanker market and the supply and demand balance of the available U.S. constructed tanker fleet.

- Dr. Vilbert evaluated the appropriate "bareboat" charter rate for an oil drilling platform for the renewal period following the end of a long-term lease. The evaluation required analysis of the market for oil drilling platforms around the world including trends in construction and labor costs and the demand for platforms in varying geographical environments.

PRESENTATIONS

"Utility Distribution Cost of Capital," *EEI Electric Rates Advanced Course*, Bloomington, IN, 2002, 2003.

"Issues for Cost of Capital Estimation," with Bente Villadsen, *Edison Electric Institute Cost of Capital Conference*, Chicago, IL, February 2004.

"Not Your Father's Rate of Return Methodology," *Utility Commissioners/Wall Street Dialogue*, NY, May 2004.

"Utility Distribution Cost of Capital," *EEI Electric Rates Advanced Course*, Madison, WI, July 2004.

"Cost of Capital Estimation: Issues and Answers," *MidAmerican Regulatory Finance Conference*, Des Moines, IA, April 7, 2005.

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