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Issue:	*Rate of Return*
Witness:	*Stephen G. Hill*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*ER-2007-0002*
Date Testimony Prepared:	*January 31, 2007*

REBUTTAL TESTIMONY

OF

STEPHEN G. HILL

ON BEHALF OF

THE MISSOURI PUBLIC SERVICE COMMISSION

UNION ELECTRIC COMPANY,
d/b/a AmerenUE

CASE NO. ER-2007-0002

Jefferson City, Missouri
January 2007

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.	))))	Case No. ER-2007-0002

AFFIDAVIT OF STEPHEN G. HILL

STATE OF WEST VIRGINIA)
) ss.
COUNTY OF PUTNAM)

Stephen G. Hill, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, consisting of 60 pages to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Stephen G. Hill
Stephen G. Hill

Subscribed and sworn to before me this 27th day of January 2007.

Billy Jack Gregg
Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
BILLY JACK GREGG
P. O. Box 107
Hurricane, WV 25526
My Commission Expires Sept. 10, 2014

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Q. PLEASE STATE YOUR NAME, OCCUPATION AND ADDRESS.

A. My name is Stephen G. Hill. I am self-employed as a financial consultant, and principal of Hill Associates, a consulting firm specializing in financial and economic issues in regulated industries. My business address is P. O. Box 587, Hurricane, West Virginia, 25526 (e-mail: sghill@compuserve.com).

Q. ARE YOU THE SAME STEPHEN HILL WHO TESTIFIED PREVIOUSLY IN THIS PROCEEDING ON BEHALF OF THE COMMISSION STAFF REGARDING COST OF CAPITAL ISSUES?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. I will respond to the cost of capital testimonies provided by AmerenUE (the Company) witnesses Dr. James H. Vander Weide and Ms. Kathleen C. McShane.

Q. HOW IS YOUR REBUTTAL TESTIMONY ORGANIZED?

A. I will address each cost of capital analysis presented by Company witnesses Vander Weide and McShane, describing the shortcomings in each and underscoring the reasonableness of the Staff's position on that issue in this proceeding. I discuss Dr. Vander Weide's testimony first and then turn to the testimony of Ms. McShane in the few areas where it is different, methodologically, from that of Dr. Vander Weide. My Rebuttal Testimony will include discussions of: a) the selection of proxy companies, b) the application of the

Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM), and additional risk premium equity cost estimation techniques, and c) a flotation cost adjustment to the market-based cost of equity capital.

However, at the outset of my testimony I will discuss the Company's position regarding the appropriate capital structure to be used in determining the cost of capital in a rate base/rate of return rate proceeding such as this. Both Dr. Vander Weide and Ms. McShane have recently changed their testimony on this issue, and now recommend the use of market-value capital structures in setting utility rates. The result of their change in methodology is a higher equity cost estimate. Moreover, that new methodology is unorthodox in regulation and is based on an improper application of long-standing capital structure theory.

MARKET-VALUE CAPITAL STRUCTURES

Q. CAN YOU BRIEFLY SUMMARIZE THE ISSUE RELATED TO THE USE OF MARKET-VALUE CAPITAL STRUCTURES?

A. Both Company witnesses take the position in this proceeding that in determining the cost of capital to be applied to AmerenUE's original cost rate base, market-value capital structure percentages should be used to calculate the overall cost of capital. Because utility common equity market prices are currently well above book value, market-value capital structures have larger percentages of common equity (the most expensive form of capital) than book-value capital structures. Therefore, the overall cost of

capital derived in that manner is substantially higher than that derived using book-value capital structures—the traditional ratemaking method.[1]

While the Company witnesses cite theoretical rationale supporting the use of market-value capital structures, that theory has been in place for fifty years and standard regulatory practice during that time has been to set rates using book-value capital structures with market-based equity costs and embedded debt and preferred stock costs. The use of market-based equity costs and book-value capital structures remains virtually universal in regulation.

Both Dr. Vander Weide and Ms. McShane followed the standard ratemaking methodology (i.e., using book-value capital structures to determine overall capital costs) for many years, but have recently changed their position on that issue. The result of that change in methodology is a higher cost of equity for their utility clients. The equity returns generated by this new technique exceed the return investors require for utility stocks and, if the Company's market-based capital structure methodology is adopted, would allow an uneconomic transfer of wealth from ratepayers to stockholders, unfairly enriching stockholders at ratepayer expense. This Commission should not rely on market-value capital structures when setting rates in this proceeding.

Q. IF APPROVED BY THE COMMISSION, WHAT SORT OF RATE IMPACT WOULD RESULT FROM THE COMPANY'S MARKET-VALUE CAPITAL STRUCTURE ADJUSTMENT?

[1] When market prices were <u>below</u> book value (and the use of market-value capital structures would have resulted in allowing equity returns that were <u>below</u> market-based costs) this ratemaking methodology now advocated by the Company witnesses was nowhere to be found. In fact, when market prices were below book value, Dr. Vander Weide recommended that market-based equity returns be considered a "bare minimum" level—precisely the opposite result that would obtain from his newly adopted paradigm. (Vander Weide Direct Testimony, Docket #81-163-E, Carolina Power & Light, p. 35)

A. Company witness McShane increases her cost of equity estimate by 100 basis points because of a market-value capital structure adjustment (McShane Direct, p. 4, both testimonies). Using the Staff's recommended rate base of approximately $5.4 Billion for AmerenUE's gas and electric operations, and assuming a combined 40% tax rate, Ms. McShane's 100 basis point increase to the cost of equity due to her use of market-value capital structures would unnecessarily increase costs to the Company's Missouri ratepayers by $47 Million every year [1.0% x (1/(1-40%) x 52.49% equity ratio x $5.4 Billion = $47.2 Million].

Dr. Vander Weide increases his recommended return on common equity by 70 basis points because of a market-value capital structure adjustment (Vander Weide Direct, p. 43).[2] His adjustment, if approved by this Commission, would unnecessarily increase costs to AmerenUE's ratepayers by $33 Million annually [0.70% x (1/(1-40%) x 52.40% equity ratio x $5.4 Billion Rate Base = $33.1 Million].

As described in detail below, this type of adjustment is unwarranted for both practical and theoretical reasons. It is simply not an expense Missouri ratepayers should be required to bear. Moreover, prior to two years ago, neither of the Company's rate of return witnesses would have made the adjustment.

Q. JUST TO BE CLEAR, WHEN YOU USE THE TERMS "BOOK-VALUE CAPITAL STRUCTURES" AND "MARKET-VALUE CAPITAL STRUCTURES," WHAT DO YOU MEAN?

[2] Dr. Vander Weide's adjustment would be similar to that of Ms. McShane if he had relied on current market-value capital structures, as she did. However, because Dr. Vander Weide relied on a historical average of market-value capital structures with lower equity ratios, his "adjustment" to the cost of equity was slightly smaller than that of Company witness McShane.

A. Book-value capital structures represent the actual mix of capital used by the firm and are calculated based on the dollar amount of each form of capital (common equity, preferred stock, and long-term) appearing on the books (balance sheet) of the firm. The market-value capital structure is a percentage mix of capital in which the amounts of capital are measured based on their market value.

For common equity capital, the total dollar amount of equity, measured on a market basis, is the number of shares outstanding times the current market price. If the prevailing interest rates are lower (higher) than the coupon rate of a firm's debt, the market value of that debt will be higher (lower) than the face amount. That is, the market value of a thousand-dollar 7% bond will be higher than $1000 if the prevailing interest rate for that type of security is lower than 7%. However, unless current interest rates are very different from embedded debt costs, the fair value of a firm's debt will approximate its book value. It appears that both Company witnesses have assumed that the market value of the debt of their sample companies is equal to its book value, and the "market-value" capital structures they use to determine the overall cost of capital are actually a hybrid mix of market and book value.

Q. YOU NOTED PREVIOUSLY THAT THE USE OF MARKET-VALUE CAPITAL STRUCTURES INSTEAD OF BOOK-VALUE CAPITAL STRUCTURES RESULTS IN HIGHER COST OF CAPITAL ESTIMATES, CORRECT?

A. Yes. In today's market environment, with utility stock prices well in excess of book values, market-value capital structures will have common equity ratios that substantially exceed book-value capital structures. Because equity capital is about twice as expensive as

debt capital on a pre-tax (ratemaking) basis, the use of market-value capital structures substantially increases the estimate of utilities' cost of capital.

Of course, one reason that utility market prices are well above book value is that investors expect utilities to earn returns on book value that exceed the returns investors require (the cost of capital).[3] If the Company's new capital structure methodology were used to set utility rates, allowed returns would rise. Higher earned returns would cause utility market prices and market-to-book ratios to rise, even though the cost of capital (investors' required return) is unchanged. Higher earned returns and the resulting higher stock prices would also cause the equity ratio of market-value capital structures to increase; calling for still higher allowed returns for utilities (if market-value capital structures are used to set rates). Therefore, the result of using market-value capital structures in rate-setting is circular, and would lead, if adopted by regulators, to higher and higher allowed returns even if the cost of capital were constant.

Q. CAN YOU PROVIDE A SIMPLE EXAMPLE TO SHOW HOW THE USE OF MARKET-VALUE CAPITAL STRUCTURES WOULD RESULT IN HIGHER ALLOWED RETURNS THAN TRADITIONAL RATEMAKING METHODS?

A. Yes. Let's assume a regulated utility has a book-value capital structure consisting of 50% equity and 50% debt. Also assume that the equity cost is 10% and the debt cost is 6%. In that instance, under long-accepted standard ratemaking techniques, the overall cost of capital to be applied to the utility's rate base is 8.0%.

[3] Gordon, M.J., The Cost of Capital to a Public Utility, MSU Public Utilities Studies, East Lansing, Michigan, 1974, pp., 63-65.

Table I

Book-value Capital Structure

Capital	Percent	Cost Rate	Wt. Cost
Equity	50%	10%	5.00%
Debt	50%	6%	3.00%
Total	100%		8.00%

Let's also assume that the market price of our example utility is twice its book value. For simplicity of exposition, we will also assume that the market price of our utility's debt equals its book value. Given those assumptions, the market value of the equity of our utility is twice the market value of its debt, and the market-value capital structure would consist of 67% common equity and 33% debt. Using a market-value capital structure to determine the overall cost of capital, using the same capital costs, would produce an overall cost of capital of 8.68%.

Table II

Market-value Capital Structure

Capital	Percent	Cost Rate	Wt. Cost
Equity	67%	10%	6.70%
Debt	33%	6%	1.98%
Total	100%		8.68%

Company witnesses Vander Weide and McShane now would recommend that this Commission use an overall return of 8.68% to set rates in this proceeding. When the 8.68% overall cost of capital based on a market-value capital structure is used to set rates—

rather than the book-value capital structure—the allowed return on book equity (the equity return included in rates) increases from 10% (the cost of equity capital) to 11.36%.

Table III

Market-value Overall Return Applied to Book-value Capital Structure

Capital	Percent	Cost Rate	Wt. Cost
Equity	50%	11.36%	5.68%
Debt	50%	6.00%	3.00%
Total	100%		**8.68%**

As this example shows, the use of a market-value capital structure in rate base/rate of return regulation becomes a means by which utilities can be allowed equity returns (11.36%) that exceed cost of equity capital (10%).

Q. CAN YOU ELABORATE ON THAT POINT—THE USE OF MARKET-VALUE CAPITAL STRUCTURES IS A MEANS BY WHICH UTILITIES CAN BE ALLOWED EQUITY RETURNS THAT EXCEED THE COST OF CAPITAL?

A. Yes. The new ratemaking paradigm suggested by Company witnesses Vander Weide and McShane will result in regulated utilities being allowed equity returns which exceed the cost of capital, as shown in the numerical example above. Allowing equity returns that exceed the return investors require (the cost of capital) runs counter to ratemaking standards of Hope and Bluefield, will be economically inefficient, and will cause an unnecessary transfer of wealth from ratepayers to stockholders.

By basing a ratemaking mechanism on the market value of a utility rather than the depreciated original cost is a recipe for exacerbating, or at least perpetuating, the current difference between utility market price and book value. When a firm is allowed to earn a return higher than the return investors require for that risk-class of security (the cost of

capital), investors are drawn to that security and, through arbitrage, the price increases. Using a ratemaking methodology that codifies the allowance of equity returns that exceed investor requirements will cause higher market value-to-book value ratios. As I noted above, this would cause an untenable circular result of higher and higher allowed returns—absent any change in the actual cost of equity capital.

Also, the use of market-value capital structures as a basis for ratemaking turns the concept of depreciated original cost ratemaking on its head. From an economic point of view, a market-value capital structure is more closely related to a "fair value" measure of the utility plant. A market-value capital structure is, by definition, the value the market puts on the capital invested in the firm, based on current market conditions and expectations. In that way, it can be said to represent the "fair value" of the company's utility investments in today's marketplace.

In response to a ratemaking proposal that considered market-value capital structures, the West Virginia Public Service Commission strongly rejected the use of market values to determine rates. That Commission saw a recommended adjustment to the cost of equity based on market values as an attempt to supplant original cost rate base regulation with fair value rate base regulation, which is illegal in that state.

> "Additional examples of the Company witness raising his sights above what a reasonable analysis produces can be found in the market value adjustments that he makes. His water group DCF analysis would be only 8.98%; however, he leverages this number up by 54 basis points, or .54%, to reflect the fact that stockholders pay market prices for stock and those market prices may exceed the book value of a utility's rate base. Thus, the Company asks us to effectively depart from our long-standing use of an original cost rate base. We could do this by simply applying the derived rate of return, before market price leveraging, to an inflated rate base that exceeds book value or, in the alternative chosen by the Company, we can continue to use original cost rate base and apply an inflated rate of return to

> that rate base." (W.V.P.S.C. Case No. 03-0353-W-42T, West Virginia-American Water Works, January 2, 2004, p. 18.)

The Company's use of a market-based capital structure to produce a ratemaking cost of equity, as noted by the West Virginia Commission, effectively asks this Commission to set rates for AmerenUE on something other than depreciated original cost.

Q. THE COMPANY WITNESSES CLAIM THAT WHEN MARKET-VALUE COMMON EQUITY RATIOS ARE GREATER THAN BOOK-VALUE COMMON EQUITY RATIOS, A FINANCIAL RISK DIFFERENCE EXISTS (i.e., THERE IS MORE LEVERAGE AND MORE FINANCIAL RISK IN THE BOOK-VALUE CAPITAL STRUCTURE), AND THAT FINANCIAL RISK DIFFERENCE MUST BE ADDRESSED IN THE ALLOWED RETURN. IS THERE MORE FINANCIAL RISK?

A. No. The Company is making a theoretically improper comparison between market-value capital structures and book-value capital structures in order to claim that a financial risk difference exists. When asked to provide support from the financial literature that specifically discusses financial risk differences between market-value capital structures and book-value capital structures, Company witnesses Vander Weide and McShane were unable to do so. They provided references to theoretical discussions of market-value capital structures, but were unable to provide finance literature to support their claim that differences between market-value and book-value capital structures connote differences in financial risk. (see Staff Data Request Nos. 194 and 213) There is no theoretical support for their position.

When utility common equity market prices are above book value, the capital structure measured with market values will have a higher equity percentage and a lower debt percentage than the capital structure measured with book value. That does not signify any difference whatsoever in financial risk, as the Company witnesses would have this Commission believe. In its use of market-value capital structures, the Company is claiming

that one firm or type of firm can have two levels of financial risk. This is not possible.

Q. WHY IS IT IMPOSSIBLE FOR ONE TYPE OF COMPANY TO HAVE TWO LEVELS OF FINANCIAL RISK?

A. There can be no "difference" in financial risk for one company or one type of company at one point in time, regardless of the relationship between market price and book value. Yet, that is a basis for the Company's market-value capital structure adjustment.

Financial risk is created by the impact of interest payments on the volatility of a firm's income stream. As the dollar amount of interest expense increases relative to the operating income available to pay debt service, the volatility of the income available to stockholders (a residual that flows to stockholders after interest payments are met) increases, thus creating more risk for the stockholders. It is the additional interest expense that causes the increase in the volatility of the income available to stockholders. This is a standard description of financial risk that is found in textbooks.[4]

In other words, financial risk is a function of the amount of fixed charges or debt expense incurred by the firm and the impact of those fixed charges on the variability of the income available to the stockholder. Therefore, when the actual amount of borrowed funds increases, causing the dollar amount of fixed charges to increase, financial risk increases. On that issue, all parties agree.

However, there is no change in fixed charges when one compares market-value capital structures and book-value capital structures. The genesis of financial risk—the actual interest payment—is constant. Because of that fact, one company (or group of companies) at one point in time cannot have two levels of financial risk, no matter how the capital structure

[4] See, for example, Brigham, E. F., Intermediate Financial Management, 5th Ed, 1996, Dryden Press, Fort Worth TX, pp. 361-364.

ratios are measured. That is because the amount of fixed charges (the debt costs) does not change.

Market-value capital structure and book-value capital structure are different ways to measure the capitalization of a company; they do not represent differences in the level of fixed charges incurred. Differences in market-value and book-value capital structure cannot, therefore, reflect differences in financial risk for one company or group of companies at any one point in time. Therefore, the Company's position that their recommended upward adjustment to the cost of equity capital is related to financial risk differences that exist between market-value and book-value capital structures is simply incorrect.

Q. CAN YOU PROVIDE AN EXAMPLE TO SHOW THAT THE FINANCIAL RISK DOES NOT CHANGE WHEN THERE IS A DIFFERENCE BETWEEN MARKET PRICE AND BOOK VALUE?

A. Yes. Relying on the same hypothetical utility example cited above: a utility with $100 of debt that has a 6% cost rate, and $100 of equity on its books, has a book-value capital structure of 50% equity/50% debt. Also, our utility's market price is double its book value. The market valuation would then be $200 equity and $100 debt (we assume here again that the market value of debt is equal to book value). The market-value capital structure is 67% equity and 33% debt.

There is no difference in financial risk because, no matter how one measures the capital structure, the income stream does not change (i.e., the volatility of the revenue stream is unchanged), and our utility company has the same fixed charges to pay—$6 (6% x $100 of debt capital). The fixed cost of the debt is what creates the financial risk and that factor *cannot* be different unless the company adds or deletes debt capital. Thus, one company (or one type of company) at one point in time cannot have two levels of financial risk. Yet,

that is the basis of the Company's market-value capital structure adjustment to the cost of equity.

The Company's position on the measurement of a firm's capital structure is tantamount to saying that 16 ounces is heavier than one pound because 16 is a larger number than 1. However, there is no difference in the factor being measured—one pound weighs the same no matter what units are used to measure it—ounces, grams, or tons. Similarly, there is one level of financial risk inherent in the capital structure of any firm at one point in time, no matter how that capital structure it is measured. The Company's claim that financial risk differences exist because of market-to-book ratio differences is simply incorrect.

Q. THE COMPANY WITNESSES TESTIFY THAT FINANCIAL THEORY SUPPORTS THE USE OF MARKET-VALUE CAPITAL STRUCTURES. IS THAT TRUE?

A. The Company's testimony regarding the existence of market-value capital structure theory is correct. However, that does not mean that market-value capital structures are appropriate in rate base rate of return regulation.

First, while there is certainly support in the financial literature for the use of market-based capital structures, there is also support for the use of book-value capital structures in the literature of corporate finance. For example, Michael Erhardt (The Search for Value: Measuring the Company's Cost of Capital, Harvard Business School Press, Boston, MA, 1994), himself a proponent of market-based capital structures, cites support by Elliot[5] and Beranek[6] for the use of book-value weights in calculating the overall cost of capital for capital budgeting purposes. Other financial authors who recommend the use of market-based

[5] Elliot, G. S., "Analyzing the Cost of Capital," *Management Accounting*, 62(6) (1980): 13-18.

[6] Beranek, W. "The Weighted Average Cost of Capital and Shareholder Wealth Maximization," *Journal of Financial and Quantitative Analysis*, 1977, 12(1), 17-31.

capital structure also recognize that book-value weights can be used to determine the overall cost of capital:

> "The weights [of the capital components] could be based on the accounting values shown on the firm's balance sheet (book values), on the market values of the different securities shown on the balance sheet, or on management's estimation of the firm's optimal capital structure." (Brigham, E. F., Gapenski, L. C., Intermediate Financial Management, 5th Ed., Dryden Press, Fort Worth, TX, 1996, p. 190).

Second, investors are exposed to book-value capital structure information, not market-value capital structures. Book-value capitalization data is predominant in financial reporting. In fact, in the financial data provided to investors, market-based capital structures are rarely reported. In its reports to the Securities and Exchange Commission and the financial community, Ameren provides book-value capital structures, not market-value capital structures. Investor services such as Value Line and Standard & Poor's report book-value capitalization figures for the companies they follow, they do not report market-value capital structures. Bond rating agencies publish ratings benchmarks based on book-value debt/equity ratios, not market-value debt/equity ratios.

Therefore, it is almost exclusively book-value capital structure information to which investors are exposed during their assessment of equity investment opportunities, and, if markets are informationally efficient (a fundamental assumption in cost of equity estimation and modern financial economic theory), book-value capital structure data, not market-value capital structures, are incorporated into the stock prices that investors are willing to provide.

Third, even if the Company were able to prove conclusively that market-value capital structures were the only capital ratios considered by investors, the use of book-value capital structures with original cost ratemaking is a long-standing paradigm of regulation. Impounded in the market price investors are willing to provide for utility stocks is investors'

expectation that the regulatory construct that has existed for many decades (based on book-value capital structures) will continue. Investors understand that when rates are set for utilities the overall cost of capital will be determined using book values, and they base their investment decisions (the price they are willing to provide for utility stock) on that basis—not on the basis of market-value capital structures.

Fourth, and most damaging for both Dr. Vander Weide and Ms. McShane, the theories regarding the use of market-value capital structures have been in place for roughly 50 years. Both witnesses have, until recently, ignored those theories and have based their return recommendations in sworn testimony on book-value capital structures—the standard regulatory procedure. Their insistence that regulators should, now, pay attention to theories that they, themselves, have ignored until recently diminishes the credibility of their position.

Q. HAS DR. VANDER WEIDE ADMITTED THAT HE HAS RECENTLY CHANGED HIS COST OF CAPITAL ESTIMATION METHODOLOGY?

A. Yes. In a deposition of Dr. Vander Weide in the 2004 Empire District Electric proceeding, the following colloquy took place:

> "Q. Now, we also asked you a data request to indicate when you began doing this particular calculation and what cases, and you gave us four cases all in '04. Do you recall that, the Dominion Resources, the PG&E Company, Empire and Mid-America Energy?
> A. Right. Yes, I do recall that.
> Q. And prior to your filing testimony with this method in those cases, did you use another method?
> A. I didn't -- I did everything up to the fair rate of return the same. That is, I would do a DCF and a risk premium study, by I did not take the final step of saying that cost of equity determines why those risk -- why those DCF risk and premium studies be sufficient to allow the company to earn returns that are comparable to the returns investors expect of other companies of comparable risk, and, thus, be able to attract capital.

> And so it's only recently that I took the final step of asking, well, what is required in order to attract capital in the marketplace?
> Q. And could you explain to me why you recently changed your methodology for determining ROE and you just recently started performing this leverage adjustment that you just described?
> A. Yes. Because I didn't believe that just looking at the results of DCF and CAP-M and risk premium model would allow the companies to attract capital in the marketplace, because the marketplace looks at current interest rates and market value capital structures. Applying cost of DCF models and risk premium models and CAP-M models to the company's book value capital structures will be insufficient to allow the companies to attract capital in the marketplace.
> Q. So for the previous 30 years when you weren't utilizing this leverage adjustment, you were doing it incorrectly?
> A. I was doing it partially. I was correctly applying the DCF. I was correctly applying the risk premium and CAP-M. I did not take the final test, which I believe is necessary to allow the company to attract capital in the marketplace. I don't believe it's incorrect. It just wasn't complete.
> Q. So for 30 years you thought it was appropriate to recommend an incomplete DCF recommendation to public utility commissions?
> A. I viewed my assignment in those -- during that time as providing the results of cost-of-equity models, such as the DCF and the CAP-M and risk premium. I did not view my assignment as taking the further step of recommending the rate of return that would allow a company to truly attract capital in the marketplace. I knew that it was incomplete, but I didn't view my assignment as taking that additional step.
> Q. And when did your assignment change?
> A. In the testimonies that I cited.
> Q. And why did your assignment change?
> A. Because I informed the companies that I was working with that if we did things in the way we always have, they would not be able to attract capital in the marketplace, and they agreed that I ought to take the additional step to make sure they could attract capital in the marketplace." (Deposition of James Vander Weide, Case No. ER-2004-0570, Empire District Electric Company, November 12, 2004, pp. 79-81)

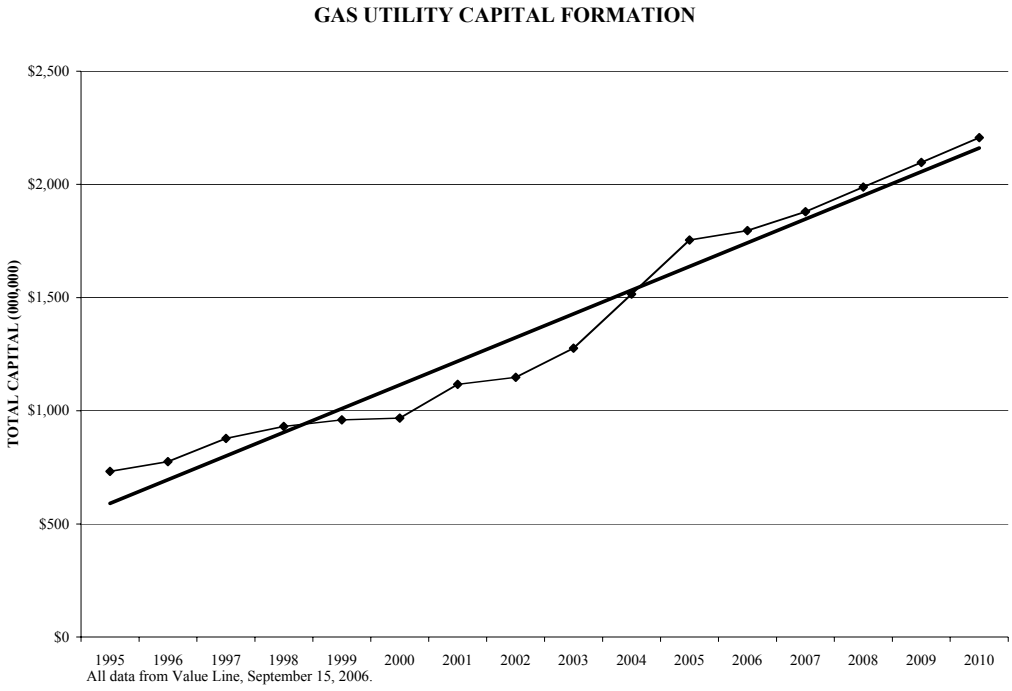
In the Deposition cited above, Dr. Vander Weide admits that he has recently changed his cost of capital methodology, giving up on the method he used for many, many

years.[7] His term for it is "changing his assignment." However, Dr. Vander Weide changed his assignment on his own accord and then informed his clients the change would be appropriate. Dr. Vander Weide claims he "knew that if we did things the way we always have" (i.e., applying equity cost estimates to book-value capital structures) his clients "would not be able to attract capital in the marketplace." However, Dr. Vander Weide has provided no evidence that utilities have been unable to attract capital when their rates are set using book-value capital structures.

If setting utility rates on book-value capital structures had not been providing investors the returns they require, investors would not provide capital for that type of investment, and the amount of capital invested in utilities would stagnate or decline. However, the available evidence indicates that both the electric and gas utility industries have been increasing their capital base at steady and substantial rates. For example, recently available data regarding total capital for a group of gas distributors over the past ten years and projected five years into the future is shown in the chart below.[8]

[7] When the questioner in the Deposition references a "leverage adjustment," what he is referring to is Dr. Vander Weide's use of a market-value capital structure. It is the use of a market-value capital structure to determine the rate-making overall cost of capital that Dr. Vander Weide refers to as the "additional step" in his cost of equity analysis.

[8] Data from Value Line *Ratings & Reports*, September 15, 2006, companies included: AGL Resources, Atmos Energy Corporation, Laclede Group, Nicor, Inc., Northwest Natural Gas, Piedmont Natural Gas Company, South Jersey Industries, Southwest Gas, and WGL Holdings.



This chart shows that gas distributors over the past ten years have, on average, added capital at a very strong and steady rate and are expected to continue to do so in the future. In 1995 the average amount of total capital per company in a sample of gas distributors was about $700 Million.[9] In 2005, that figure was about $1.5 Billion per company, more than double the amount ten years earlier; and by 2010 (the mid-point of Value Line's 2009-2011 projection period), the average gas distribution company is expected to have about $2.07 Billion of total capital. This has happened under regulatory regimes that use book-value capital structures to set rates, and clearly those utilities have been able to attract substantial amounts of capital.

[9] The gas distributors are those included in Mr. Hill's gas distribution sample group.

Q. HOW DOES DR. VANDER WEIDE RATIONALIZE HIS USE OF MARKET-VALUE CAPITAL STRUCTURES IN THIS PROCEEDING?

A. At page 9 of his Direct Testimony in this proceeding Dr. Vander Weide testifies that "[e]conomists measure the percentages of debt and equity in a firm's capital structure by first calculating the market value of the firm's debt and the market value of its equity." However, the economic theory on which he now elects to rely is one that was in existence during the previous 30 years when he "did things the way we always have"—i.e., applying equity cost estimates to book-value capital structures and embedded cost rates. Dr. Vander Weide cannot reliably claim that theory now requires the use of market-value capital structures, when the same theory (in place since the 1950s) did not require the use of market-value capital structures in his testimony during the thirty-year period prior to 2004.

Dr. Vander Weide has attempted to deflect scrutiny regarding his fundamental change in methodology by claiming that he either didn't know or didn't pay attention to the type of capital structure used by his client utilities over the past thirty years. In a recent telephone utility rate case in Maine in which Dr. Vander Weide and I were participants, when he was asked how many of his prior rate case testimonies had used book-value capital structures for rate-setting purposes, Dr. Vander Weide answered as follows:

> "In traditional rates cases, Dr. Vander Weide has generally only been asked to estimate a company's cost of equity, not its capital structure. Hence, Dr. Vander Weide does not keep track of what capital structure has been used to set rates. In some instances, Dr. Vander Weide has provided a calculation of the overall rate of return implied by his testimony of the cost of equity and the company's recommended capital structure. In those cases, Dr. Vander Weide does not provide a justification for the company's recommended capital structure. Rather, he has used the company's recommended capital structure for the purpose of performing the required calculation."(Verizon Maine, Docket No. 2005-155, OPA Data Request 19-5a)

This response is simply obfuscation. A cost of capital witness does not make his or her recommendation in a vacuum. In order to know if any adjustments must be made to the equity cost estimate, a financial analyst must first know the capital structure of the applicant utility as well as the average capital structure of the sample group of similar-risk utilities used to estimate the cost of equity. Dr. Vander Weide's attempt to deflect scrutiny regarding the change in his capital structure methodology and his long history of recommending that equity cost estimates be applied to book-value capital structures, by claiming that the capital structures were supplied by others and, thus, his responsibility is limited in the matter, is not credible.

The fact that, in the past, Dr. Vander Weide has based his cost of capital estimates on book-value capital structures for rate-setting purposes is also confirmed in the following recent cross-examination of Dr. Vander Weide in the State of Washington.

> "Q. Well, let's go back to my original question, Dr. Vander Weide, and that is that during a period from 1975 up through 2004, your cost of capital and capital structure testimony relied on the use of book value capital structures, didn't it, through 2004?
> A. I'm not entirely sure what you mean by the word relies. I've just testified, I normally did not recommend a capital structure; I recommend a cost of equity.
> Q. All right. When – were the capital structures that were used in those cases based on book value?
> A. Yes." (Cross-examination of James Vander Weide, Washington Utilities and Transportation Commission, Docket No. UE-050684, PacifiCorp, Transcript Vol. XIII, February, 3, 2006, p. 1631, 1632)

Although he claimed that the use of market-value capital structures is appropriate for rate-setting purposes, Dr. Vander Weide admitted in the Washington rate proceeding cited above that the application of equity cost estimate to book-value capital structures is a universal practice in regulation and utilities appropriately file their rate requests based on book-value capital structures.

> "Q. Isn't it true that standard regulatory practice with electric utilities is to use book value capital structures for rate-setting purposes?
> A. Yes, it is, and that's why I suggest that when one is going to use the parent's – make an adjustment to the parent's cost of equity using a capital structure, one ought to also use a book value capital structure there to be consistent.
> Q. Okay. Now, PacifiCorp has filed its rate request based on its book value capital structure in this case haven't they?
> A. Yes.
> Q. The company wasn't wrong to do that, were they?
> A. No."(Cross-examination of James Vander Weide, Washington Utilities and Transportation Commission, Docket No. UE-050684, PacifiCorp, Transcript Vol. XIII, February 3, 2006, p. 1629)

Q. DO YOU HAVE SPECIFIC EVIDENCE THAT DR. VANDER WEIDE FOLLOWED STANDARD REGULATORY PRACTICE AND UTILIZED BOOK-VALUE CAPITAL STRUCTURES IN PRIOR TESTIMONY?

A. Yes. In response to Staff Data Request No. 200, Dr. Vander Weide provided copies of his prior testimonies, which show that he made no mention of the manner in which "economists measure the percentages of debt and equity," and relied on book-value capital structures in recommending overall returns.

For example, in a 2003 testimony at the Federal Energy Regulatory Commission on behalf of San Diego Gas & Electric (Docket No. ER03-601-000), Dr. Vander Weide presents an "Economic and Legal Principles" section which is, verbatim, the same as that presented in his testimony in this case from page 7, line 9 through page 9, line 8. That section of his testimony in this case diverges from what he provided in 2003 at the point where he inserts the question, "[h]ow do economists measure the percentages of debt and equity in a firm's capital structure?" That portion of his testimony in this case discussing market-value capital structures, which begins at page 9, line 9, and goes through page 10, line 20, does not exist in his 2003 FERC testimony. However, following that new section of

testimony, Dr. Vander Weide's testimony in this case, again, tracks verbatim with that he filed at FERC in 2003, all the way through his discussion of the ratemaking principles in Bluefield.[10]

In addition, in prior testimony on behalf of Southern Company in determining the appropriate return to use in determining the price to be included in a unit power sale agreement, Dr. Vander Weide relied on book-value capital structures, and confirms that a determination of the cost of equity is inextricable from the determination of the capital structure to which the equity cost is to be applied:

> "…there is a fundamental relationship between the development of a recommended return on equity and the capital structure to which that return would be applied."(Vander Weide Direct, Southern Company, FERC Docket No. ER-98-1096. p. 42, ll. 7-9)

In other testimonies, such as his testimony in Virginia Natural Gas, V.C.C. Case No. PUE940054 (pp. 36-41), Dr. Vander Weide relies on Value Line's published capital structure ratios in determining the appropriate overall cost of capital. Value Line's published capital structure ratios for utilities are book value ratios.

Finally in another testimony provided in response to Staff Data Request No. 200, Dr. Vander Weide makes clear that, for rate base, rate-of-return regulation, the use of book-value capital structures is appropriate.

> "Book values are appropriate for regulatory purposes because regulators measure the return on investments in terms of accounting or book values of assets rather than the market value of assets." (Vander Weide testimony, Public Service Electric & Gas, Docket Nos. PUC-7347-97, PUC–7348-97, EO-07070461, EO-97070462, p. 59, l. 23, through p. 60, l. 3)

[10] The same is true for Dr. Vander Weide's testimony in the following cases: Northern Natural Gas, FERC Docket No. RP03-398-000; Pacific Gas & Electric Company, California PUC Docket No. A-02-05-022; Pacific Gas & Electric, FERC Docket No. 03-660-000; Florida Power Corporation, F.P.S.C. Docket No. 000824-EI; North Carolina Natural Gas Corporation, N.C.P.U.C. Docket No. G-21, Sub 424; Mid-American Energy Company, I.U.B. Docket No. RPU-02-10.

Q. HAS THERE BEEN ANY SORT OF REGULATORY SETTING WHERE THE CONSIDERATION OF MARKET-VALUE CAPITAL STRUCTURES MIGHT HAVE BEEN CONSIDERED?

A. Yes. When the Federal Communications Commission created proceedings designed to determine a cost for leasing local exchange telecommunications network loop elements to competitors in order to promote competition, it did so under a framework called Total Elemental Long Run Incremental Cost (TELRIC) pricing. Under that scenario, leasing costs were estimated based on the costs of a telephone system projected into the future (as opposed to rate base rate of return regulation which focuses on the depreciated original cost of utility plant). The concept, I believe, was that network costs in the future would be lower than current costs. Therefore, focusing on costs of future plant would provide competitors lower loop leasing costs, allowing easier entry.

I have testified in TELRIC proceedings in the past and have, in those cases, supported the consideration of both book-value capital structures as well as market-value capital structures for the purpose of determining an overall cost of capital. The rationale for the consideration of market-value capital structures in that special type of regulatory proceeding was that the capital structure was supposed to represent the manner in which the telephone company would most likely capitalize its plant in the future. The capital structure represented by market values represented one possible means of capitalizing future telecom loop operations. Of course, so did book-value capital structure, because there was no reason to believe that the phone company would finance its future investments in a fundamentally different manner than it had in the past. Also considered in the selection of an appropriate future network capitalization was the incremental utilization of debt and equity financing evidenced in telephone company cash flow statements. Nevertheless, in that specialized

regulatory framework—i.e., the pricing of unbundled network elements—the consideration of market-value capital structures was reasonable as one of several capital structure options.

The other instance in which market-value capital structures are used is in the quantification of financial risk, i.e., when comparing one market-value capital structure to another market-value capital structure. The econometric analyses used to estimate the impact of financial risk differences on the cost of equity rely on the original capital structure theory work of Miller and Modigliani.[11] That theoretical work is based solely on market-value capital structures. Therefore, the equity cost adjustment formulas extracted from that work are applied using only market-value capitalization.

However, in this proceeding, neither one of those special cases exist. We are charged here with the task of estimating what AmerenUE's rates should be under a standard rate base/rate-of-return regulatory regime. The use of market-based capital structures in the context of this rate case, or in the context of any base rate case, is simply not appropriate.

Q. HAS DR. VANDER WEIDE RECOMMENDED THE USE OF MARKET-VALUE CAPITAL STRUCTURES IN TELECOMMUNICATIONS PROCEEDINGS?

A. Yes. More than half of Dr. Vander Weide's cost of capital testimonies have been prepared on behalf of telephone companies, and he has, for several years, recommended the use of market-value capital structures in those proceedings.

Q. DOES THE FACT THAT DR. VANDER WEIDE RECOMMENDED MARKET-VALUE CAPITAL STRUCTURES FOR TELECOMMUNICATIONS COMPANIES FOR SEVERAL YEARS, DIMINISH IN ANY WAY THE FUNDAMENTAL INCONSISTENCY OF HIS POSITION REGARDING THE APPROPRIATE COST OF CAPITAL IN RATE BASE-RATE OF RETURN CASES SUCH AS THIS?

A. No. It is reasonable to believe that, because there has been very little rate case activity in the telecommunications industry, the substantial portion of Dr. Vander Weide's testimony in telecommunications cases in recent years has been in UNE-loop cost proceedings or some other alternative regulation format. As I noted above, the consideration of market-value capital structures in that specialized regulatory construct was one option. However, it was not reasonable, even in that special setting, to rely solely on market-value capitalization. Hence, the fundamental inconsistency in Dr. Vander Weide's testimony regarding capital structure in this proceeding remains.

For a very long period of time, Dr. Vander Weide testified that utility rates should be determined through the application of equity costs to book-value capital structures. He took that position despite the fact that concurrent capital structure theory "required" the use of market-value capital structures. At some point in the more recent past, Dr. Vander Weide abandoned that position with regard only to telephone utilities, but continued to testify that the appropriate cost of capital for energy utilities was based on book value. Then, a couple of years ago, Dr. Vander Weide decided to "view his assignment differently," and now insists that the use of market-value capital structures is appropriate in regulation of all types of utilities.

Regardless of the fact that Dr. Vander Weide may have relied on market-value capital structures in some telephone proceedings, his position regarding the proper capital structure to use in base rate cases has been fundamentally inconsistent; and, in the current environment of low capital costs and high market prices, his position has the result of inflating his equity return recommendations. This Commission should not rely on Dr. Vander Weide's testimony regarding the capital structure to be used in determining what

[11] Modigliani, F., Miller, M., "The Cost of Capital, Corporation Finance and the Theory of Investments,"

AmerenUE's rates would be under a standard rate base/rate-of-return regulatory regime, it should use a reasonable book value proxy for the Company's capital structure.

Q. HAS COMPANY WITNESS McSHANE ALSO RECENTLY CHANGED HER POSITION ON THE APPROPRIATE CAPTIAL STRUCTURE TO USE IN SETTING UTILITY RATES?

A. Yes. Ms. McShane's response to Staff Data Request No. 177 indicates that all the cases in which she utilized market-based capital structure occurred in 2005 and 2006. In response to Staff Data Request No. 177.1, Ms. McShane indicates in all prior testimony in Missouri prior to the instant case, she utilized book-value capital structures. As shown by her testimony in AmerenUE's last rate case (provided in response to Staff Data Request No. 163, Case No. EC-2002-1, Cross-Rebuttal Testimony, pp. 20-29), Ms. McShane testified that rates should be based on AmerenUE's actual book-value capital structure.

Also, in a recent testimony filed in Canada, drawing a distinction between the regulation of utilities and the regulation of automobile insurance companies, Ms. McShane informed the Board of Public Utilities Commissioners of Newfoundland and Labrador that book value capital structures were appropriate for setting utility rates, and rate base is predicated on original costs.

> "Rate base, as defined by the Board, consists of 'the amount of investment on which a regulated utility is allowed to earn a fair return. Rate base comprises primarily depreciated investment in plant and equipment plus working capital as well as certain deferred assets/costs attributable to future operations." The public utility's rate base in Newfoundland and Labrador, as in the preponderance of regulatory jurisdictions in Canada, is measured on the basis of original (accounting) costs.
>
> The Board also defines a just and reasonable allowed rate of return on rate base as 'equivalent to the cost of capital

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American Economic Review. June 1958, 261-297.

> representing the sum of the weighted costs of both debt and equity in the capital structure.'
>
> The capital structure ratios, like the rate base, as also measured on the basis of the book values (as contrasted with market values) of debt, preferred stock and common equity." (Kathleen McShane Testimony on behalf of the Insurance Bureau of Canada, before the Board of Commissioners of Public Utilities, Newfoundland and Labrador, November 8, 2004, p. 5)

Finally, as a point of reference, in the testimony cited above, Ms. McShane also notes that the average equity return allowed investor-owned Canadian utilities in 2002 through 2004 was 9.5%, on an average common equity ratio of 37% (op cit, p. 7).

Q. DO YOU HAVE ANY FINAL COMMENTS ON THE USE OF BOOK-VALUE CAPITAL STRUCTURES FOR THE PURPOSE OF DETERMINING THE COST OF CAPITAL AND RATES IN RATE BASE REGULATION?

A. The use of a book-value capital structure to determine overall capital costs in traditional utility rate proceedings does not have to be justified; it is a long-standing universal practice—a fact which even Dr. Vander Wide acknowledges. Book-value capital structure has long been used to determine the capital costs associated with a depreciated original-cost rate base. Investors are aware of that regulatory practice and, through efficient markets, incorporate it into the stock prices they provide for utility equities. Investors are also aware that capital structure data—whether obtained through the Securities and Exchange Commission, regulatory bodies such as FERC or the FCC, company annual reports, bond rating agencies, or investor services available in hardcopy or on the internet—is universally presented as book value, i.e., the capital values that appear on the books of the company.

While it is certainly true that the capital structure theory in textbooks refers to market values, this has been the case since the 1950s. In the ensuing fifty years, regulated utility rates have been based on book-value capital structures and during that time utilities

have been able to attract the capital necessary to provide the service required by the public. The determination of AmerenUE's revenue requirement under traditional regulation in this proceeding should be based on well-established, traditional regulatory methods. The use of book-value capital structures to determine the overall cost of capital is the rate-making methodology that should be used in this proceeding.

COMPANY COST OF EQUITY ANALYSES

Q. HOW WILL THIS PORTION OF YOUR TESTIMONY BE STRUCTURED?

A. Although Dr. Vander Weide offers one testimony in this proceeding and Ms. McShane offers two testimonies, they both analyze electric and gas utilities. Also, both witnesses use the same two types of analyses—the DCF, and risk premium analyses—although they differ in some respects. In general, I will discuss Dr. Vander Weide's analysis initially and then, to the extent that Ms. McShane's analysis is different from that of Dr. Vander Weide, I will discuss that portion of her analysis. My analysis reveals that the Company witnesses DCF cost of equity estimates are somewhat overstated, but their risk premium analyses produce results that are substantially in excess of the current cost of equity capital for utilities. Moreover, the Company witnesses' heavy reliance on less reliable risk premium analyses causes their equity return recommendations in this proceeding to overstate the Company's current cost of equity capital.

Prior to discussing the details of the Company's cost of capital analyses, however, I will address another topic. Although both Company witnesses undertake Discounted Cash Flow (DCF), they both tend to de-emphasize those results as "unreliable" and, instead, rely more heavily on risk premium-type results. The rationale provided by the Company against the DCF is not persuasive, and actually underscores the shortcomings of the

particular type of DCF analysis undertaken by the Company witnesses, not the DCF itself. Moreover, I will show in the discussion below that it is the Company's risk-premium analyses that are unreliable and deserve to have their results de-emphasized, not the DCF.

Evidence of the DCF's reliability is found in the fact that the DCF results of all of the cost of capital witnesses in this proceeding are remarkably similar. For example, Ms. McShane's Schedules KCM-E4, E5 and E6, show median (middle value) DCF results for her electric sample group of 10.4%, 9.2%, and 9.4%.[12] The average of which is 9.7%. For her gas companies, Schedules KCM-G4, G5, and G6, show median DCF results of 8.8%, 10.2% and 9.4% (average = 9.5%). Dr. Vander Weide's Schedule JVW-1 indicates a median cost of equity for his electric utilities of 9.43%, and his Schedule JVW-2 indicates a median cost of equity for his gas companies of 9.68%.[13] My own Schedule 7, attached to my Direct Testimony in this proceeding, shows median DCF equity cost estimates for the electric and gas sample groups of 9.13% and 9.18%, respectively.

Therefore, the DCF results of the witnesses in this proceeding prescribe a cost of capital for AmerenUE ranging between 9.1% and 9.7%. My equity return recommendation in this proceeding, 9.25%, falls within that range. Therefore, while there is a substantial difference in the ultimate recommendations of the cost of capital witnesses in this proceeding, that difference is due to the Company witnesses' heavy reliance on over-stated, unreliable risk premium results, while the more-reliable DCF equity cost estimates before the Commission in

[12] The median is used to describe the centrality of the witnesses' results here because the average can be skewed by an outlier (a result that is very different from the others). For example, Ms. McShane's Schedule KCM-E5-1 shows a DCF result for TXU of 34%--nearly three times higher that any of the other results. Including that unrealistic result in the average results in an average DCF of 11%. However, the median value of those results (reported by Ms. McShane on Schedule KCM-E5-1) is 9.2%, which more accurately respresents the central nature of those results.

[13] Dr. Vander Weide uses a market-value average of his results, giving more weight to the DCF result of very large companies (some of which have significant unregulated operations), and reports a higher average value for his DCF results. The average of a set of values can be skewed by outliers, therefore, the median value is used as a means of comparison here.

this proceeding uniformly indicate a cost of equity capital well below 10%. As I noted in my Direct Testimony, a cost of equity capital below 10% is supported by many indications in the capital marketplace today—not the least of which is the Company's own retirement portfolio return expectation.

Q. WHAT RATIONALE HAS THE COMPANY PROVIDED FOR NOT RELYING ON THE DCF COST OF EQUITY ESTIMATES IN THIS PROCEEDING?

A. At page 26 of his Direct Testimony, Dr. Vander Weide testifies that the DCF is unreliable because cost of equity results from that model have, "displayed considerable volatility over the last several years." There are several reasons why Dr. Vander Weide's rationale does not support his position that DCF results should be de-emphasized.

First, and most obvious, Dr. Vander Weide's study period (September, 1999-April, 2006), encompasses the California/Enron/energy trading debacle that created one of the biggest electric industry upheavals in recent memory. In addition, some of the companies in Dr. Vander Weide's sample group (e.g., Duke Energy) were directly involved in the mess; some companies had created energy trading operations or unregulated generation arms during that time—all of which were affected by the demise of Enron (AEP, Reliant, Southern Company) and which they have now shed; and some of the companies were not in existence during the entire study period (Pepco Holdings, Exelon Corp.). Therefore, any conclusions drawn about the volatility of DCF results during that period with those companies are simply not reliable enough to be the basis for a generalized rejection of the DCF model.

Second, Dr. Vander Weide's DCF analysis is mechanistic, which can lead to volatile results. In calculating a DCF cost of capital, Dr. Vander Weide simply plugs in the average I/B/E/S projected 5-year earnings growth rate as the long-term sustainable growth. If three analysts surveyed by I/B/E/S think that company XYZ will produce earnings growth of

5% over the next five years, then that is Dr. Vander Weide's DCF growth rate. If, in the next month, a merger is announced and the analysts expect the earnings growth to be 10% over the next five years, Dr. Vander Weide's DCF estimate for XYZ increases 500 basis points for that month. Although DCF theory indicates that, over the long term, earnings, dividends and book value will grow at the same rate—indicating that there is valuable information for investors in projected dividend and book value growth—Dr. Vander Weide ignores any such data that might temper changes in investors' long-term growth expectations. He simply assumes that the only growth rate investors consider is the 5-year earnings growth rate published by I/B/E/S. This mechanistic DCF calculation increases the volatility of Dr. Vander Weide's DCF results and, therefore, the volatility that he measures in his own results is due in part to his own analytical technique, not to any inherent shortcomings of the DCF model itself.

Third, Dr. Vander Weide's position on the reliability of the DCF in this case is different from his position in other, recently filed, testimony. In his cost of capital testimony before the Public Utilities Commission of Maine in Docket No. 2005-155 (Verizon Maine), Dr. Vander Weide estimated the cost of equity using only a DCF model—no risk premium, no CAPM, only the DCF. It is not reasonable to believe that the DCF can be so reliable as to be the only method of estimating the cost of equity in one case and, then, be "too volatile" to be accurate in another.

Q. WHAT RATIONALE DOES COMPANY WITNESS McSHANE OFFER FOR DE-EMPHASIZING DCF RESULTS?

A. At pages 24 and 25 of her Direct Testimony, Company witness McShane sets out two reasons for de-emphasizing DCF results: 1) her DCF estimates are "widely dispersed," and 2) her DCF estimates have been volatile over time. Ms. McShane also notes that her DCF results disagree with risk indications evident in published beta coefficients.

Ms. McShane's rationale is very similar to that of Dr. Vander Weide and fails to support her thesis that the DCF is unreliable for similar reasons.

First, like Dr. Vander Weide, Ms. McShane performs a mechanistic DCF analysis in which she inserts earnings growth projections as the long-term sustainable growth expected by investors—without any examination of other published projected growth rates available to investors. That mechanistic approach causes her to post a nonsensical DCF result for TXU of 34% (Schedule KCM-E5-1). With untenable results like that, of course her DCF results will be "widely dispersed," but that is a fault of her particular brand of DCF methodology, not the model itself.

Second, in assessing volatility, like Dr. Vander Weide, Ms. McShane chooses to rely on her mechanistic-method DCF results from 1998 through 2006—a time of turmoil in the industry—turmoil that no longer exists. Again, any equity cost results gleaned from that period of time cannot be generalized and attributed to "flaws" in the DCF model.

Third, Ms. McShane's reference to perceived differences in beta risk indications also fails to support the Company's DCF unreliability thesis. It is beta that is an unreliable risk indicator, not the DCF. As I noted in my Direct Testimony, beta has been shown in the financial literature to be a poor indicator of relative risk and return, showing very little difference between low-risk and high-risk stocks over time.[14] Also, beta coefficients have very low correlation coefficients, indicating that, to the extent they are able to explain any relationship between risk and return for individual stocks, they explain very little of it.

The unreliability of beta is also shown in Ms. McShane's own Schedule KCM-E3-2, which displays average Value Line betas for her electric utility sample group

from 1996 through 2005. Those data show that as risks increased when electric utilities diversified, created energy trading desks, and became involved in the western energy crisis, beta coefficients declined. Then, when utility investment risk declines as the California/Enron crisis fades, the move toward de-regulation grinds to a halt, and utilities return to a back-to-basics strategy by shedding unprofitable unregulated operations, betas increase. Here, the Company offers evidence that beta has moved in the opposite direction from the investment risk in the electric industry. The unreliability of beta is one reason why the CAPM (one of the risk premium methods preferred by the Company witnesses) does not provide a reliable estimate of the cost of equity capital.

Finally, it is important to understand that Value Line betas (the risk benchmark Ms. McShane uses to "test" the DCF), are based on relative stock price volatility between a particular stock and the market. In theory, that's all investors need to know to assess relative risk. However, in reality that measure can lead to counter-intuitive results. As I show in my Direct Testimony, at page 45, over the past five years (including California/Enron and the "dot-com" stock market pull-back) utility stock prices have been more volatile than those of the general stock market. However, that really is a result of the relatively low-risk, safe-haven aspect of utilities in an uncertain market. Utility stock prices have increased more rapidly than those of the general market because investors have sought the lower-risk utility investment. However, the manner in which beta is measured shows an increase, not a decrease in the relative risk of utilities over the past five years. Ms. McShane's reference to beta as a means to support her contention that the DCF produces unreliable results does not provide any indication whatsoever with regard to the veracity of the DCF and, instead, calls into question the reliability of beta and, thus, CAPM cost of equity estimates.

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[14] Fama, French, "The Cross-Section of Expected Stock Returns," *Journal of Finance*, Vol. 47, No. 2 (June

In summary, the Company witnesses' attempts to cast doubt on the reliability of DCF equity cost estimates are not based on sound rationale, and ultimately fail to support their position. Moreover, the similarity of the DCF results presented by three independent experts in this proceeding also shows that DCF results are less volatile and less subject to manipulation than risk premium-type equity cost estimates and, therefore, more reliable.

DISCOUNTED CASH FLOW

Q. WHAT SPECIFIC COMMENTS DO YOU HAVE REGARDING THE DETAILS OF THE COMPANY'S DCF ANALYSES?

A. Dr. Vander Weide uses the following DCF formulation to estimate equity capital costs:

$$k = [d_1(1+k)^{.75} + d_2(1+k)^{.50} + d_3(1+k)^{.25} + d_4]/P_0 + g \qquad (1)$$

This particular version of the DCF model produces cost of equity results that are higher than the standard DCF model. Aside from the obvious mathematical complexity of this model, which requires an iterative solution and makes it doubtful that the average investor actually uses it, this version of the DCF model implicitly assumes that dividends increase every quarter. However, that is not the manner in which dividends are actually paid out by utilities. Usually, after dividends are raised, they are kept at a constant level for several quarters. It would be very unusual if any of the companies analyzed by the Company witness raised their dividend every quarter.

The rationale supporting a constantly increasing dividend is grounded on the ability of investors to reinvest those dividends every quarter in equivalent risk/return investments to earn the incremental "time value of money". That rationale may, or may not,

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represent the actual actions of investors. Regardless, it is not the ratepayers' responsibility to provide the investor the additional return he or she might receive by reinvesting the quarterly dividend.

In addition, the Company's logic is circular. If, for example, this Commission allowed a higher equity return based on that reinvestment logic, and the higher return translated into a larger dividend, the investor could then take the higher return (in the form of a larger dividend) and reinvest it — expecting a still higher return. Then, would it not be that higher return — drawn from reinvesting those larger dividends — that he or she really expects? Should rates not, therefore, be based on the expectation of compounding the new, larger dividend? The Company's compounding treatment, if taken literally, would have investors expecting, and regulators awarding, higher and higher rates of return to account for larger and larger dividends. The logic is circular, would lead to over-earning, and is without merit.

The Federal Energy Regulatory Commission (FERC), in its Generic Rate of Return rulemaking proceedings held during the 1980s and early 1990s, considered and rejected the use of a DCF model that compounds the quarterly dividend. The FERC held in Order 461 (37 FERC ¶61,287) that if the allowed return were determined using a DCF model that included the dividend compounding recommended by Dr. Vander Weide, the investors would be compensated twice, "--once by the utility [through the allowed rate of return] and once through the investors' reinvestment of the dividends in some other alterative investment."

Company witness McShane does not include a quarterly compounding adjustment in the DCF analysis.

Q. WHAT GROWTH RATE DOES DR. VANDER WEIDE USE IN HIS DCF ANALYSES?

A. Dr. Vander Weide relies exclusively on earnings growth forecasts.

Q. WHAT ARE YOUR COMMENTS ON THE EXCLUSIVE USE OF PROJECTED EARNINGS GROWTH RATES IN A DCF ESTIMATE OF THE COST OF EQUITY?

A. In my view, earnings growth rate projections are widely available, are used by investors and therefore deserve consideration in an informed, accurate assessment of the investor expected growth rate to be included in a DCF model. I do not believe, however, that projected earnings growth rates should be used as the *only* source of a DCF growth estimate as witness Vander Weide has done in this case. In other words, projected earnings growth rates are influential in, but not determinative of, investor expectations.

Q. PLEASE EXPLAIN WHY EXCLUSIVE RELIANCE ON ANALYSTS' PROJECTED EARNINGS GROWTH RATES CAN PRODUCE UNRELIABLE RESULTS.

A. First, it is important to realize that, as I have previously noted in my Direct Testimony in Appendix B, projected growth rates may over- or understate the growth that can be sustained over time by the companies under review. This is important because sustainable growth is required in an accurate DCF assessment of the cost of equity capital. The efficacy of projected earnings growth rates in any specific DCF analysis can only be determined through a study of the underlying fundamentals of growth—something that Dr. Vander Weide fails to do by relying exclusively on analysts' earnings growth rate projections.

Second, there is often associated with the exclusive use of analysts' projected earnings growth rates an erroneous notion of "consensus," i.e., that projected earnings growth rates are what investors are using to estimate return requirements and that those estimates

closely agree. However, what is often called a "consensus" earnings growth expectation are, in reality, quite divergent with earnings growth rate expectations showing wide variation. A simple average of those projected growth estimates may or may not represent investors' consensus expectations regarding the long-term growth. Nevertheless that is the assumption that Dr. Vander Weide makes in his testimony.

Finally, as evidenced in headlines in the financial media in recent years, the sell-side institutional analysts that are polled by I/B/E/S and similar services offer relatively "rosy" expectations for the stock they follow—even when the analyst's actual expectations for the stock are not so sanguine. Simply put, some analysts overstate growth expectations to make the stocks look better. Although claims are often made that the opinions of sell-side analysts are not affected by the profits made by the other parts of the business that actually trade those securities, the recent events in the marketplace underscore that concern. Therefore, while what is known as the "Cinderella effect" (analysts' overstating stock expectations) is not a new phenomenon, the recent concern in the financial markets regarding this issue underscores the need for caution in the use of earnings growth expectations in estimating the cost of equity capital.

This concern regarding investors' use of analysts' growth estimates is underscored by an investor's advisory service sponsored by the *Wall Street Journal*:

> "You should be careful when looking at analyst recommendations for several reasons. First of all, many analysts suffer from a conflict of interest between the firm that employs them and the company whose stock they track. Often times, an analyst will be responsible for issuing reports on a company that is a current or potential client of their employer (usually an investment bank). Since they know that their employer would like to keep the client's business, the analyst may be tempted to issue a rosier outlook for the stock than what it really deserves." (Investorguide.com, "University," Analysts and Earnings Estimates, www.investorguide.com/igustockanalyst.html)

Ms. McShane, to her credit, recognizes the tendency of the sell-side analysts polled by I/B/E/S to overstate earnings expectations (McShane Direct, p. 22), and elects to rely on Value Line earnings growth projections in addition to those published by I/B/E/S. However, while Ms. McShane relies on projected earnings growth published by Value Line, she chooses to ignore Value Line's dividend and book value growth projections, which are published right next to its earnings growth projections and are equally available to investors. As shown on Schedule 5, pages 2 and 4, attached to my Direct Testimony in this proceeding, the average of Value Line's earnings, dividend and book value growth rate projections for electric and gas utilities is 4.38% and 4.52%, respectively. Value Line's earnings growth rate projections for those companies are higher—5.53% and 5.67%, respectively. These data show that by focusing only on earnings (only part of the projected growth rate data available to investors), Ms. McShane has likely overstated investor expectations regarding long-term sustainable growth and the DCF cost of equity capital.

Q. DON'T COST OF CAPITAL EXPERTS THAT RELY EXCLUSIVELY ON EARNINGS GROWTH PROJECTIONS REFER TO ACADEMIC STUDIES THAT SHOW ANALYSTS' GROWTH RATE ESTIMATES TO BE "SUPERIOR" TO HISTORICAL GROWTH RATES?

A. Yes, and Dr. Vander Weide is the author of one of those studies. However, while such studies do show that projected growth rates are superior to simple, mechanical averages of historical growth rates, they do not suggest that projected earnings growth rates are determinative of investor expectations. What those studies actually do is make a good case for the consideration of analysts' growth rate forecasts in a reasoned examination of investor growth rate expectations. I quite agree with that premise, and that is how I have elected to use analysts forecasts in my DCF analysis, i.e., as part of a thorough analysis of growth rate

expectations. However, those studies do not provide a rationale for an *exclusive* reliance on earnings growth rate projections. Certainly analysts' growth rate projections can influence investor expectations, but it is unreasonable to conclude that they determine those expectations exclusively.

On this point, both Dr. Vander Weide and Ms. McShane also cite a paper published by Professor Myron Gordon (widely regarded as the "father" of the DCF), regarding the usefulness of analysts' projected earnings growth rates. The Company witnesses give the impression that Professor Gordon is an advocate of relying solely on that type of growth. This is not the case.

It is true that, in the article cited, Professor Gordon opines that analysts' projections are better DCF growth rate measures than earnings growth rates derived solely from financial statements. A review of the entire article, however, reveals that the financial statement data to which Professor Gordon refers is historical data over the past five years. That is essentially the same result reached by Dr. Vander Weide's study. However, the fact that analysts' growth rate projections outperform simple historical averages, again, is unsurprising, and does not mean that analysts' earnings growth projections are the sole determinant of investor expectations.

Finally, Professor Gordon, in the article cited by Dr. Vander Weide and Ms. McShane, published his opinion regarding the rather unsurprising fact that analysts' earnings growth rate estimates outperform simple historical growth rate averages, as well as his opinion regarding the reliability of sustainable (retention) growth rates.

> "…the superior performance by KFRG [analysts forecasts] should come as no surprise. All four estimates of growth rely upon past data, but in the case of KFRG [analysts forecasts] a larger body of past data is used, filtered through a group of security analysts who adjust for abnormalities that are not considered relevant for future growth. We assume this is done

> by any analyst who develops retention growth estimates of yield for a firm. If we had done this for all seventy-five firms in our utility sample, it is likely that the correlations would have been as good or better than those obtained with the analyst forecasts of growth." (Gordon, Gordon, Gould, "Choice among methods of estimating share yield," *The Journal of Portfolio Management,* Spring 1989, pp. 50-55)

The "retention growth" referenced in the above quote is the sustainable growth rate (br + sv) that I use in my testimony as a starting point in determining investors' long-term sustainable growth rate expectations. Therefore, Professor Gordon's actual conclusion in the article cited by the Company witnesses is <u>not</u> that earnings growth is always superior in the DCF. Rather, his conclusion is that a thorough sustainable growth rate analysis (the type of growth rate analysis I employ) will produce results that are as good or better than those obtained with the analyst forecasts of growth.

Q. ARE THERE OTHER ISSUES RELATED TO THE COMPANY'S DCF ANALYSES THAT YOU WISH TO BRING TO THE ATTENTION OF THE COMMISSION?

A. Yes. As I noted previously, in reporting the results of his DCF analysis, Dr. Vander Weide has elected to weight those results based on the market valuation of the companies in his sample group. For his electric companies, he reports a market value-weighted average result of 10.6%. However, the simple arithmetic average of those results is 10.06% and, as I discussed previously the middle value or median of his electric utility DCF results is 9.43%.

If we look more closely at Dr. Vander Weide's sample group, we see that his decision to weight his results based on market value causes the weighted average result to overstate the actual central nature of those results. That is because the two largest companies have DCF results that are more than two standard deviations higher than the arithmetic

average. Dr. Vander Weide's DCF methodology produces equity cost estimates of 14.81% and 14.15% for Dominion Resources and TXU Corp., respectively, two of the largest companies in his sample group.

In addition, Dr. Vander Weide did not screen the companies in his sample group to determine how much of the firm's revenue was derived through utility operations. The December 2006 edition of AUS Utility Reports indicates that regulated electric operations accounted for 31% and 22% of Dominion Resources and TXU's revenues. Therefore, unregulated operations account for the vast majority of those firm's revenues, indicating that those companies would not provide reasonable proxies for AmerenUE, which realizes all of its revenues from lower-risk regulated utility operations.

Removing Dominion Resources and TXU Corp. from Dr. Vander Weide's sample group would result in a simple average DCF cost of equity of 9.75%. Even retaining Dr. Vander Weide's market-value weighting methodology, removing those two largest utilities, would result in a market-weighted average DCF cost of equity of 9.70%. In sum, the DCF result Dr. Vander Weide reports in his testimony, 10.6%, even assuming the accuracy of projected earnings growth rates, actually overstates the true central nature of those results, which range from about 9.5% to 9.7%.

Unlike Dr. Vander Weide, Company witness McShane includes a sample selection screening criterion related to percentage of utility operations (80% of assets devoted to utility operations). However, that screening process does not recognize that unregulated operations, like energy trading operations, can have relatively small capital investment and relatively large revenues (with concomitantly high operating risk). As a result, TXU, Corp., with only 22% of revenues from regulated electric utility operations passed Ms. McShane's screening process. In my view, TXU is not similar in risk to AmerenUE and should be

excluded from her sample group—just as it should be excluded from Dr. Vander Weide's sample group. Eliminating TXU from Ms. McShane's electric sample would cause her DCF results to average between 9.7% to 9.8% as shown in Table I, below. Again, that result assumes the veracity of sole reliance on projected earnings growth, which as I noted above, would tend to overstate investor-expected long-term growth.

Table I.
McShane DCF Results Without TXU

Company	DCF I/B/E/S Earn.	DCF V.L. Earns.	DCF 2-stage	
AEP	7.5%	7.1%	9.4%	
Ameren	10.4%	7.7%	10.5%	
Edison	10.4%	9.9%	8.1%	
Entergy	11.8%	8.3%	8.8%	
Exelon	13.3%	9.1%	8.9%	
FirstEnergy	8.3%	12.3%	8.7%	
FPL	10.6%	13.7%	9.4%	
Gt Plains	8.7%	5.9%	10.7%	
PG&E	11.3%	9.0%	9.0%	
Pinnacle W	11.5%	11.3%	10.7%	
PNM	13.8%	9.2%	9.6%	
PPL	13.2%	12.0%	9.8%	
Sempra	8.7%	8.3%	7.8%	
Southern	9.8%	10.1%	10.2%	
Wisconsin E	10.1%	7.4%	7.6%	
Xcel	9.1%	10.9%	9.8%	
				OVERALL
Average	10.5%	9.5%	9.3%	9.8%
Median	10.4%	9.2%	9.4%	9.7%

Q. DOES THIS CONCLUDE YOUR COMMENTS REGARDING THE COMPANY'S DCF ANALYSES?

A. Yes, except to say that while there are aspects of the Company's DCF analyses that cause them to be overstated to some degree, the central nature of the DCF results of both

Dr. Vander Weide and Ms. McShane indicate that the cost of common equity for AmerenUE is below 10%.

RISK PREMIUM METHODS

A. BOND YIELD-PLUS-RISK PREMIUM

Q. HOW HAVE THE COMPANY WITNESSES USED THE BOND YIELD PLUS RISK PREMIUM METHODOLOGY TO ESTIMATE THE COST OF EQUITY IN THIS PROCEEDING?

A. Dr. Vander Weide has performed two bond yield plus risk premium methods: 1) the ex ante (forward-looking) method and 2) the ex post (historical) method. Dr. Vander Weide's ex ante risk premium analyzes the monthly DCF cost of equity for a group of utilities over a period of time and subtracts from that value the then-current yield on A-rated utility bonds to estimate an average risk premium. In the ex post risk premium, Dr. Vander Weide averages the historical differences in earned returns on utility stocks and bonds over time to determine a risk premium. In both cases the risk premium estimates are added to projected bond yields to provide estimates of the cost of equity.

In her testimony, Ms McShane also utilizes an historical risk premium based on differences in annual earned stock and bond returns and a forward-looking risk premium, which is based on a DCF estimate of the cost of equity for a group of utilities over a recent period of time.

Q. PRIOR TO DISCUSSING THE DETAILS OF EACH OF THOSE RISK PREMIUM ANALYSES, DO YOU HAVE ANY COMMENTS OF A GENERAL NATURE REGARDING RISK PREMIUM-TYPE ANALYSES?

A. Yes. A fundamental precept on which the risk premium methodology is based is that the higher risk of stocks over bonds requires an incrementally higher return for those stocks in order for investors to be compensated for assuming the higher risk. Although that is generally true, it is most important to realize that, given a current bond yield of about 6% for BBB-rated utilities[15], an equity return of 8%, 10%, 13% or even 50% would fulfill the requirement of providing a "premium" over debt costs. The real issue with a risk premium analysis is determining that premium with any precision. It is not a directly observable phenomenon.

There are two other fundamental tenets upon which historical risk premium-type analyses are grounded which, when examined, indicate that that type of equity cost estimation methodology should not be given primary consideration in setting allowed rates of return. First, since risk premium analyses look backward in time, they assume "past is prologue." In other words, the investors' expectations for the future are assumed to mirror exactly the average results they have experienced in the past. As I have noted, current research indicates that such is not the case—investors' current return expectations are lower than what was achieved in the past. Second, implicit in the use of an average historical return premium of equities over debt is the assumption that the risk premium is constant over time. Neither of these assumptions upon which the risk premium analysis rests is true.

The fact that the risk premium varies significantly from period to period is shown quite clearly in Dr. Vander Weide's Schedule JVW-6, which shows the data on which his historical risk premium results are based. The utility common stock annual returns on which Company witness Vander Weide relies have ranged from +58% to -37%, while utility bond annual returns have ranged from +36% to –13%. Therefore, the assumption in the Risk

[15] Value Line *Selection and Opinion*, January 12, 2007, p. 4927.

Premium analysis that historical average results are constant, is not true and does not provide a sound basis on which to estimate current equity capital cost rates.

The practical impact of the volatility of historical risk premium data is that, with the selection of any particular period over which to average the historical data, virtually any risk premium result can be produced.[16] In addition, the use of historical earned return data to estimate current equity capital costs has been questioned in the financial literature:

> There are both conceptual and measurement problems with using I&S [Ibbotson and Sinquefield] data for purposes of estimating the cost of capital. Conceptually, there is no compelling reason to think that investors expect the same relative returns that were earned in the past. Indeed, evidence presented in the following sections indicates that relative expected returns should, and do, vary significantly over time. Empirically, the measured historic premium is sensitive both to the choice of estimation horizon and to the end points. These choices are essentially arbitrary, yet they can result in significant differences in the final outcome. ("The Risk Premium Approach to Measuring a Utility's Cost of Equity," Brigham, Shome and Vinson, Financial Management, Spring 1985, p. 34)
>
> **Other Methods**. Several other approaches have been used to estimate the cost of common equity. Two of these should be noted. First there is the risk premium method, which is based upon the premise that common equity carries a higher risk than debt. This approach is relatively straightforward: (1) determine the historic spread between the return on debt and the return on common equity, and (2) add this risk premium to the current debt yield to derive an approximation of current equity return requirements….
> Like other methods, however, there are a number of specific problems. Over what historic period of time should the spread be established? Does the spread between the return on debt and the return on equity remain constant over time and at all interest levels? Should the spread be expressed on a before- or after-tax basis to the investor? What debt instruments should be used

[16] Dr. Vander Weide recognizes, at page 34 of his Direct Testimony, that his risk premium results would be different if he used a different time period for the study.

> (e.g., government securities versus corporate or utility bonds)? What equity securities should be used? How should the resulting return requirement be adjusted for the risk that corresponds to a given utility? In light of these problems, many use the risk premium approach as a subsidiary method to test the results of other approaches." (Phillips, C. F., The Regulation of Public Utilities, Public Utilities Reports, Arlington, VA, 1993, p. 399)

The type of data described in the quote above as both conceptually and empirically problematic forms the basis of Dr. Vander Weide's historical Bond Yield-Plus Risk Premium methodology.

Q. WHAT ARE YOUR COMMENTS REGARDING THE HISTORICAL RISK PREMIUM ANALYSES PRESENTED BY THE COMPANY WITNESSES?

A. This form of the risk premium analysis measures the earned return on common stocks and subtracts from that the yield on long-term bonds to produce a risk premium.

There have been fundamental changes in the nature of the relationship between stock returns and bond returns over the past sixty or seventy years. The data in Dr. Vander Weide's Schedule JVW-6, indicate that from 1937 through 2006 the standard deviation of utility stock and bond returns was 17.0% and 11.2%, respectively. However, in more recent years (since 1967), stocks have actually become less volatile while bonds have become more volatile, showing wider swings in returns. Dr. Vander Weide's Schedule JVW-6 data show that the standard deviation of utility stock and bond returns from 1967 forward was 15.6% and 13.8%, respectively. Those data indicate that the current relationship between the returns of bonds and stock is different than it has been over the longer time frame.

The table below, also taken from Dr. Vander Weide's Schedule JVW-6-1 data, confirms that the return difference between bonds and stocks has declined from the long-term average levels reported by Dr. Vander Weide.

Years	Risk Premium
37-06	4.45%
67-06	2.26%
77-06	2.86%
87-06	1.54%

These data indicate that over the most recent 30 years, risk premiums between electric utility stock and bond returns have averaged about 2%-3% rather than the 4.45% Dr. Vander Weide reports in his testimony. If current A-rated utility bond yields are 5.8%, these more recent data indicate that an appropriate return on common equity for electric utilities would be 8.8% (5.8% + 3% = 8.8%), rather than the 11.4% result produced in the Dr. Vander Weide's analysis of the same data.

Also, Dr. Vander Weide provides other evidence in his testimony that underscores the shrinking nature of risk premiums. His Schedule JVW-5 contains his analysis of the return difference between the S&P 500 Industrial stock index and A-rated bonds. That also begins in 1937. If we look at the total time period as well as the twenty, thirty and forty-year time periods cited above, the results confirm that more current risk premium are smaller. The table below shows the values for gas utility returns and bond returns extracted from Dr. Vander Weide's Schedule JVW-5:

Years	Risk Premium
37-06	5.10%
67-06	2.52%
77-06	2.31%
87-06	1.89%

Finally, turning to the topic of reliability of the risk premium estimate, as I noted above, the average risk premium between utility stocks and bonds shown in Dr. Vander Weide's ex-post risk premium is 4.45%. The highest risk premium in any one year was almost 49% and the lowest was –37.5%. The standard deviation of Dr. Vander Weide's ex-post risk premium, therefore, is 14.9%. Establishing a two standard-deviation range around the 4.45% risk premium, indicates that the Commission can be assured (with 95% confidence) that the real risk premium used by investors (assuming investors' expectations are based exactly on past averages) will lie somewhere in between –25.53% and 33.43% [4.45%±(2 x 14.9%)]. Given the extreme volatility of the historical information, this average risk premium is simply not helpful information in determining with any accuracy the current cost of equity capital.

The January 12, 2007 edition of Value Line's *Selection & Opinion*, p. 4927, indicates that the current yield of A-rated utility bonds is 5.8%. Given a reliable range of risk premiums from Dr. Vander Weide's historical return data (-25.53% to +33.43%), we can say (again with 95% confidence) that the cost of equity for AmerenUE lies somewhere in the range of –19.53% to 39.23%. While the 10.25% result produced by adding the Dr. Vander Weide's historical average risk premium (4.45%) to the current A-rated bond yield (5.8%) certainly falls within that range, that result should not be considered reliable and it should not be given the same weight in determining the cost of equity as the DCF, as the Company witnesses suggest.

Q. MR. HILL, IN YOUR ESTIMATE OF THE CURRENT COST OF EQUITY USING DR. VANDER WEIDE'S HISTORICAL RISK PREMIUM ANALYSIS, YOU USED A COST RATE FOR A-RATED UTILITY BONDS OF 5.8%. DR. VANDER WEIDE

USES 6.64%—80 BASIS POINTS HIGHER. WHY IS THERE A DIFFERENCE IN THAT PARAMETER?

A. Dr. Vander Weide has elected to use projected bond yields instead of the current yield. (Ms. McShane follows that methodology as well.) That methodological choice tends to overstate a risk premium estimate of the current cost of equity capital. In Dr. Vander Weide's analysis, the difference between current bond yields and the projected yields he uses inflates his result by 80 basis points. The overstatement in Ms. McShane's historical bond yield-plus risk premium analysis due to the use of projected rather than current bond yields is approximately 70 basis points.[17]

Investors are aware of current projections regarding the expectations for the economy and the level of interest rates and incorporate those expectations into the price they are willing to provide for bonds, which determine the bond yield. One of the most widely accepted tenets of modern finance—the efficient market hypothesis—holds that all publicly available information is included in security prices. That includes interest rate forecasts. Therefore, the current yield does not need to be adjusted again for the same expectations that are already included by investors.

Basing risk premium estimates on projected bond yields would be similar to basing DCF equity cost estimates on projected stock prices. Neither Company cost of capital witness has attempted to base their DCF estimates on projected market prices, and Dr. Vander Weide admits, in response to Staff Data Request No. 208, that using projected stock prices in the DCF would constitute a miss-match between the stock price and current

[17] Ms. McShane uses a projected 10-year Treasury bond yield of 5.25% as the basis for her historical bond yield-plus risk premium analysis. The Federal Reserve Statistical Release H.15 (January 8, 2007) reports an average 10-year T-Bond yield of 4.56% in December, 2006. The difference between the current T-Bond yield and that used in Ms. McShane's analysis is 69 basis points.

available information. So, too would the use of projected bond yields in a risk premium analysis. The Commission should not rely on equity cost estimates that rely on projected bond yields.

Q. WHAT COMMENTS DO YOU HAVE REGARDING COMPANY WITNESS McSHANE'S HISTORICAL BOND YIELD-PLUS RISK PREMIUM ANALYSIS?

A. There are three points to note with regard to Company witness McShane's historical risk premium analysis—all of which cause her results to be overstated. First, Ms. McShane has elected to base her historical risk premium on a risk-free bond yield (a practice usually reserved for the CAPM). She selects a 10-year T-bond as the risk free rate, although the historical data she uses is based on a 20-year T-bond. Ms. McShane adjusts her risk premiums upward by 50 basis points to "account" for an average historical yield difference between the two series, however that adjustment is unnecessary because 20-year T-Bond yields are readily available and published daily by the Federal Reserve. With her adjustment, the effective "risk-free" yield she uses is 5.75% (5.25% for the 10-year T-bond and a 50 basis point "adjustment"). In December 2006, the average 20-year T-Bond yield was 4.78%, according to the Federal Reserve (Statistical Release H.15, January 8, 2007). In the risk-free bond yield base portion of the analysis, Ms. McShane is overstating her cost of capital estimate by almost 100 basis points. [5.75% effective yield of 20-year T-Bond – 4.78% actual yield of 20-year T-bond = 0.97%] On that basis alone, Ms. McShane's historical bond yield-plus risk premium analysis indicates a cost of equity for AmerenUE of 9.75%-10.75%, 100 basis points below the equity cost range she reports at page 38 of her Direct Testimony (in the electric case).

Second, Ms. McShane utilizes the Ibbotson historical database to determine her risk premiums between utilities and T-Bonds, and cites Ibbotson as authority on other issues (e.g., McShane Direct, p. 32 (electric case)). However, she ignores Ibbotson's advice to use the longest time period available when studying historical risk premiums, and elects, instead, to focus on a period beginning in 1947. While, at first glance, this may seem reasonable, it is important to recall that following World War II, the U.S. economy comprised an enormous portion of the world economy (the other industrialized nations had been devastated by the war). Therefore, from that point through the 1960s this country had an unprecedented opportunity for economic growth, which is not likely to be repeated in the future. This fact is confirmed in the financial literature:

> "The large risk premia achieved during the second half of the 20th Century are attributable to two factors. First, there was unprecedented growth in productivity and efficiency, as well as improvements in management and corporate governance, and there was also extensive technological change. As Europe, North America and the Asia-Pacific region emerged from the turmoil of World War II, expectations for improvement were limited to what could be imagined. Reality exceeded investors' expectations. Corporate cash flows grew faster than investors had anticipated. This higher growth is now known to the market, and build into today's higher stock prices.
>
> Second, stock prices have almost certainly also risen because of a fall in the required rate of return, due to diminished investment risk. The economic and political lessons of the 20th century have surely been learned, international trade and investment flows have increased, and the Cold War has ended, leading to a more secure business environment. A further factor that may have lowered required returns is that investors now have much more opportunity to diversify, both domestically and internationally, than they had a century ago. Diversification allows investors to lower their risk exposure without detriment to expected return. Transaction costs are also lower now than a century ago. Factors such as these, which have led to a reduction in the required risk premium, have contributed further to the upward re-rating of share prices.
> …

> The above arguments all lean in one direction, namely that the historical risk premium is likely to exaggerate investors' current required equity risk premium." (Dimson, March, Staunton, "Risk and Return in the 20th and 21st Centuries," *Business Strategy Review*, 2000, Volume 11, Issue 2, pp. 1-18)

Third, in her historical risk premium analysis, Ms. McShane elects to rely on the difference between the earned return of stocks and the yields of bonds (rather than the historical earned return of bonds). The rationale for her methodology is that there have been unanticipated gains with bond investments and the historical yields (which are lower) better represent investor expectations. However, there is no analogue for stocks (i.e., there is no readily available stock "yield" parameter that can be said to measure investor expectations). The metric used by Ms. McShane for stock returns is the historical earned return on the S&P utility index. Therefore, her analysis assumes that earned returns are representative of investor expectations for stocks, but not for bonds. If bonds have achieved higher returns than expected and risk premiums are constant (an assumption of this type of analysis), then it stands to reason that stock returns might also have been higher than expected. However, Ms. McShane's analysis does not attempt to measure that factor.

The historical return series is better matched and has more meaning for determining investor expectations if earned returns are used for both series. As Ms. McShane notes in Schedule KCM-E7-1 of her Direct Testimony, the difference between the earned return of stocks and the yield on T-Bonds is 7.1%, as reported by Ibbotson. However, the same Ibbotson publication shows that the difference between the earned returns of stock and the earned returns of bonds (similar bases of measurement) is 6.5%—60 basis points lower. Therefore, Ms. McShane's use of historical bond yields rather than bond returns also causes her historical risk premium result to be overstated.

In sum, even Ms. McShane's historical risk premium range based on current yields, 9.75%—10.75%, overstates current investor expectations. The lower end of that range, 9.75%, again points to a cost of equity capital for AmerenUE below 10%.

Q. WHAT ARE YOUR COMMENTS REGARDING DR. VANDER WEIDE'S OTHER RISK PREMIUM ANALYSIS—THE EX ANTE OR FORWARD-LOOKING RISK PREMIUM?

A. Dr. Vander Weide's other bond yield-plus risk premium analysis is one that compares DCF equity cost estimates equity returns to annual average bond yields, examines the statistical relationship between bond yields and the risk premium and, using projected bond yields relies on that statistical relationship to estimate the cost of equity. There are also several problems with this analysis, some of which I have discussed previously and some of which I have not.

With regard to the aspects of this type of risk premium analysis discussed previously, Dr. Vander Weide's ex-ante risk premium relies on projected rather than current bond yields. According to the regression formula shown on Dr. Vander Weide's Appendix JVW-2-3, a current A-rated bond yield of 5.8% would produce an ex-ante risk premium of 4.66%. Adding that risk premium to the current A-rated bond yield (5.8%) produces a cost of capital indication of 10.46%. Dr. Vander Weide's use of a projected bond yield results in an equity cost estimate from this method of 11%. However, there are other reasons to question the reliability of even the lower, current-yield estimate.

Dr. Vander Weide's ex-ante risk premium analysis is based on a DCF analysis of Moody's electric companies from 1999 through early 2006. As I've noted previously, that was a particularly volatile time for the utility industry, centered around perhaps one of the biggest corporate/energy trading frauds of all time. Using cost of equity estimates from that

period (even assuming they were accurate) is of questionable value when those results are supposed to represent investors' current expectations. Also, I have previously discussed the problems with Dr. Vander Weide's DCF analyses such as dividend compounding and the mechanistic use of analysts' earnings growth rate projections—both of which tend to overstate the cost of equity capital. In this type of risk premium analysis, an overstated DCF estimate results in a risk premium and a cost of equity estimate that is too high to represent investors' current return expectations.

Dr. Vander Weide's use of a regression analysis between risk premiums and interest rates over his relatively short "ex-ante" study period (1999-2006), is logically inconsistent with other regression evidence provided in his testimony. At page 35 of his Direct Testimony, Dr. Vander Weide examines the historical data in his ex-post risk premium analysis to determine if there has been any trend in the equity risk premium (purportedly to support the position that the long-term historical average is a reasonable representation of current expectations). He finds no trends in the risk premium, according to a statistical regression. However, in the much shorter period studied in his ex-ante risk premium he produces the opposite finding—a statistical relationship or trend that must be recognized. That logical inconsistence casts doubt on the reliability of Dr. Vander Weide's risk premium results.

Also, Dr. Vander Weide's electronic workpapers indicate that his original, simple linear regression of the A-rated bond yield on the ex-ante risk premium from his study period produced the following equation for the risk premium: 1.5% + 0.363(A-rated Bond Yield). A 5.8% A-rated bond yield, with that equation, would produce a risk premium of 3.61% [1.5% + 0.363(5.8%) = 3.61%], and a cost of equity estimate of 9.41% [3.61% + 5.8% = 9.41%].

However, Dr. Vander Weide adjusted his simple regression results using a multiple regression with a "lag risk premium" (the risk premium from the prior month), the actual bond yield, and a "lag bond yield" (the bond yield from the previous month) as independent variables. From that multiple regression, Dr. Vander Weide produces "adjusted" values for risk premium and bond yield and then undertakes another regression of those adjusted values. This process provides the equation that appears on page 2 of his Appendix JVW-2 and that produces his 11% ex-ante equity cost estimate (or 10.5% with a current bond yield).

While Dr. Vander Weide's manipulation of his data is not unusual in statistical time-series analysis, of concern is the "r-squared" value, or the proportion of explained variation in the ultimate adjusted-value regression. The r-squared values with Dr. Vander Weide's regression of adjusted bond yield onto adjusted risk premium (the last step in his analysis) is only 8% for his electric sample and 2% for his gas sample. That means that the current bond yield explains only a very small percent of the fluctuation in the risk premium. Therefore, Dr. Vander Weide's statistical adjustments to account for changes in interest rates appear to be of little explanatory value in estimating the current cost of equity capital.

Q. HAS COMPANY WITNESS McSHANE ALSO PRESENTED A FORWARD-LOOKING BOND YIELD-PLUS RISK PREMIUM ANALYSIS?

A. Yes. While Ms. McShane refrained from the statistical analysis contained in Dr. Vander Weide's analysis, her ex-ante risk premium analysis is very similar and suffers from the same flaws. She calculates a DCF analysis for a group of electric utilities from 1998 through 2006, virtually the same period studied by Dr. Vander Weide. Ms. McShane also relies only on sell-side analysts' earnings growth projections in her DCF calculations, despite the fact that she recognizes that those estimates are often overstated (McShane Direct, p. 22

(electric testimony)). Those elements in her analysis cause Ms. McShane's ex-ante risk premium result of 5.3% to be somewhat overstated. Nevertheless, adding that risk premium to the current 4.6% yield on 10-year T-Bonds (her selected bond yield), Ms. McShane's ex-ante risk premium result indicates a current cost of equity for AmerenUE of 9.9% [4.6% + 5.3%].

B. CAPITAL ASSET PRICING MODEL

Q. DR. VANDER WEIDE PRESENTS A CAPITAL ASSET PRICING MODEL (CAPM) ANALYSIS IN THIS PROCEEDING, HAS HE CONSISTENTLY USED THAT MODEL IN ESTIMATING THE COST OF EQUITY?

A. No. My review of the prior testimonies provided by Dr. Vander Weide in response to Staff Data Request No. 200 indicates that he provided CAPM analyses in only 3 of those 17 testimonies. Dr. Vander Weide's CAPM analysis produces his highest equity cost estimates in this proceeding. Without his CAPM results, Dr. Vander Weide's average cost of equity estimate would be 11%, rather than the 11.5% he reports including the CAPM results.

In addition, the testimonies provided in response to Staff Data Request No. 200 show that Dr. Vander Weide utilized CAPM equity cost estimates in 1996, 1998 and 1999, but Dr. Vander Weide's later electric utility cost of capital testimonies (through 2003) do not include CAPM analyses. Interestingly, before the Federal Energy Regulatory Commission in 2003 (Pacific Gas & Electric, Docket ER-03-660-000), Dr. Vander Weide testified that although he had previously applied the CAPM it was, at that time, "difficult to apply" and he elected not to use that methodology. However, the CAPM is probably the least difficult cost of equity estimation method to apply with the necessary factors being: 1) a long-term T-Bond yield, 2) average betas and 3) a market risk premium.

The Federal Reserve on-line database indicates that the average 20-year T-Bond yield in 2003 was 4.96%.[18] Ms. McShane's Schedule KCM-E3 indicates that a median beta coefficient for electrics in 2003 was 0.70, and Ibbotson's arithmetic risk premium was about 7.2% in 2003.[19] The CAPM combination of those 2003 parameters is a cost of equity estimate of 10% [4.96% + 0.70 x 7.2% = 10.0%]—not a "difficult" calculation. Dr. Vander Weide recommended a cost of equity of 12.6% for his proxy group of electric companies in his 2003 testimony before FERC, substantially above the result a CAPM analysis would have produced.

Q. ARE THERE DIFFERENCES IN THE MANNER IN WHICH DR. VANDER WEIDE CALCULATED A CAPM COST OF EQUITY IN THE PAST AND THE MANNER IN WHICH HE APPLIES THE MODEL IN THIS CASE?

A. Yes, and those differences in methodology work to increase the results of his CAPM in this proceeding. In prior testimonies, when he did present a CAPM analysis, Dr. Vander Weide used the then-current average long-term Treasury bond yield—a practice I also utilize. Whereas, in this proceeding, Dr. Vander Weide elects to use a projected bond yield, which overstates the cost of capital by approximately 60 basis points.[20]

Also, in prior applications of the CAPM, Dr. Vander Weide used only the Ibbotson historical database as a source for his estimate of the market risk premium. He did not use a DCF of unregulated companies, as he does in this case, to provide a larger market risk premium estimate. In the instant proceeding, Dr. Vander Weide's DCF-based CAPM estimate is 110 basis points higher than his estimate based on the historical Ibbotson data set.

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[18] http://www.federalreserve.gov/releases/h15/update/

[19] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation, 2004 Yearbook*, p. 28.

[20] Dr. Vander Weide uses a projected 20-year T-Bond yield of 5.39%. According to the Federal Reserve Statistical Release H.15 (January 8, 2007), the average 20-year T-Bond yield in December 2006 was 4.78%, 61 basis points lower.

Finally, when using the CAPM in his prior testimony, in response to the question "Are the Value Line betas good estimates of expected future risk for the electric energy companies," Dr. Vander Weide provided a succinct, "No."[21] He then proceeded to explain that Value Line betas, based on five years of historical data, did not anticipate the move toward deregulation underway at the time (1998). He was right. One of the fundamental problems with beta and the CAPM is that betas are measured using five years of historical data and are decidedly not forward-looking.

In the very same way, the current Value Line betas do a fine job of capturing the past five years of relative confusion in the energy industry, but do not represent a reasonable picture of a back-to-basics utility industry that investors expect going forward. As a result, current beta coefficients are unusually high, leading to CAPM results that significantly overstate the cost of common equity and do not reflect investors' expectations (I discuss this issue at pages 44 and 45 of my Direct Testimony). However, in his testimony in this proceeding, with beta coefficients at unusually high levels, producing unusually high equity cost estimates, Dr. Vander Weide is silent regarding the reliability of Value Line betas.

Q. IS THE CAPM ANALYSIS OFFERED BY MS. McSHANE SUBSTANTIALLY DIFFERENT FROM THAT PROVIDED BY DR. VANDER WEIDE?

A. No. Ms. McShane's CAPM analysis is overstated due to her reliance on projected bond yields (and her election to use 10-year T-Bond yields and adjust them to 20-year T-Bond equivalents when 20-year T-Bond yields are readily available and published every day by the Federal Reserve), and her use of a earnings-only DCF analysis of the S&P 500 Index as a basis for estimating a market risk premium. Ms. McShane's CAPM, indeed, all

[21] Company response to Staff Data Request No. 200, Vander Weide Direct Testimony before the New Jersey Board of Public Utilities on Behalf of Public Service Electric and Gas Company, Docket Nos. PUC 7347-97N and PUC-7348-97N, p. 49.

CAPM analyses in this proceeding, are also overstated because the unusually high betas represent the past five years of stock price movements, not investors' current expectations.

As I noted in my discussion of her other risk premium studies (which also relied on 10-year T-Bond yields), Ms. McShane overstates the current cost of equity capital by almost 100 basis points due to her use of a projected bond yield and her adjustment to 10-year Bonds to estimate the 20-year T-Bond yield.

Q. YOU NOTED PREVIOUSLY THAT THE DCF-BASED CAPM ANALYSIS PRODUCED THE HIGHEST EQUITY COST ESTIMATE FOR DR. VANDER WEIDE, IS THE SAME TRUE FOR WITNESS McSHANE?

A. Yes. Ms. McShane's method of calculating a forward-looking market risk premium involves estimating the DCF cost of equity of the S&P 500 Index. As before in the DCF analyses of both Ms. McShane and Dr. Vander Weide, the only parameter considered in determining long-term sustainable growth required in the DCF is projected earnings growth. I have previously discussed the flaws in this approach, have noted that it causes the results to be overstated and will not repeat that discussion here.

It is important to note that, using an earnings-only DCF analysis of the S&P 500, Ms. McShane is able to estimate a market risk premium of 7.35% (mid-point), and Dr. Vander Weide estimates a market risk premium of 8.36%. Both of those market risk premium estimates are well above the long-term historical average market risk premium (differences in stock and bond earned return) of 6.5% published by Ibbotson associates. Moreover, as I noted in detail in my Direct Testimony, there has been considerable recent research published regarding the historical market risk premium and whether or not historical average returns provide reasonable return expectations for the future. The nearly universal conclusion is that current return expectations are lower, and maybe much lower, than they

have been in the past.

That research shows, then, that if Ibbotson indicates that the return difference between stocks and bonds (the market risk premium) since 1926 has been about 6.5%, the market risk premium investors expect in the future will be below 6.5%. Both Ms. McShane and Dr. Vander Weide utilize market risk premiums (derived from their earnings-only DCF analyses of the S&P 500) that are substantially higher than historical averages. Those higher risk premium results are simply not representative of investors' forward-looking expectations and run counter to the current expectation for smaller market risk premiums in the future.

Finally, as an additional measure of the overstatement of the Company's DCF-based CAPM it is worth noting that the Company cost of capital witnesses indicate that investor-expected return for the market proxied by the S&P 500 ranges from 12.7% (McShane) to 13.75% (Vander Weide). However, the Company-as-investor expects to earn a return on the equity portion of its retirement portfolio ranging from 8.4% to 10.6% (Staff Data Request No. 158).

Q. DO YOU HAVE ANY SUMMARY COMMENTS REGARDING THE COMPANY'S COST OF EQUTIY ESTIMATION METHODS, MR. HILL?

A. Yes. The Company has over-emphasized its risk premium methodologies, which are unreliable and have many flaws, are based on volatile data and include unnecessary overstatements of current capital costs. While the Company's DCF analyses are also somewhat overstated, they provide much more accurate estimates of AmerenUE's current cost of common equity capital and indicate, unanimously, that cost rate is currently below 10%.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY, MR. HILL?

A. Yes, it does.