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Issues:	*Rate of Return/Capital Structure*
Witness:	*David Murray*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case Nos.:	*GR-2004-0072*
Date Testimony Prepared:	*February 13, 2004*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

REBUTTAL TESTIMONY

OF

DAVID MURRAY

AQUILA, INC.
d/b/a AQUILA NETWORKS-MPS
and AQUILA NETWORKS-L&P

CASE NO. GR-2004-0072

Jefferson City, Missouri
February 2004

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks-L&P, Natural Gas General Rate Increase	)))	Case No. GR-2004-0072

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

David Murray, being of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of 29 pages to be presented in the above case; that the answers in the following 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.

David Murray

Subscribed and sworn to before me this 9th day of February 2004.

D SUZIE MANKIN
Notary Public - Notary Seal
STATE OF MISSOURI
COLE COUNTY
MY COMMISSION EXP. JUNE 21,2004

Notary

TABLE OF CONTENTS OF

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Q. Please state your name.

A. My name is David Murray.

Q. Are you the same David Murray who filed direct testimony in this proceeding for the Staff of the Missouri Public Service Commission (Staff)?

A. Yes, I am.

Q. In your direct testimony, did you recommend a fair and reasonable rate of return for the Missouri jurisdictional gas utility rate base for Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks-L&P (MPS and L&P)?

A. Yes, I did.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimony of Dr. Donald A. Murry. Dr. Murry sponsored rate-of-return testimony on behalf of Aquila, Inc. (Aquila). I will address the issues of appropriate capital structure, embedded cost of long-term debt, the cost of short-term debt, and the cost of common equity to be applied to MPS and L&P for ratemaking purposes in this proceeding.

Direct Testimony Revision

Q. Do you have a revision to make to your direct testimony?

A. Yes. The following revision needs to be made:

- The sentence on page 27, lines 6 through 7 should be revised as follows:

> Schedule 10 attached to this testimony, presents a list of market-traded natural gas distribution utility companies monitored by Edward Jones and Company, which also monitors Aquila.

Cost of Common Equity, Capital Structure, Embedded Cost of Long-Term Debt, and Average Cost of Short-Term Debt

Q. Is there agreement between Staff and Aquila on the embedded cost of long-term debt and the average cost of short-term debt?

A. No. Dr. Murry, Aquila's witness, recommended different embedded costs of long-term debt for MPS and L&P based on debt assignments that Aquila made to these divisions. Dr. Murry recommended an embedded cost of long-term debt of 7.23 percent for MPS and an embedded cost of long-term debt of 7.67 percent for L&P. I calculated an embedded cost of long-term debt of 7.633 percent based on all of Aquila's operations except for the Australian operations because those operations were sold as of June 24, 2003.

Dr. Murry did not utilize short-term debt in his recommended capital structure. The cost of short-term debt of 3.37 percent that I utilized was based on Aquila's response to Staff Data Request No. MPSC-224 in the electric and steam cases, Case Nos. ER-2004-0034 and HR-2004-0024 (consolidated).

Q. Is there an agreement between Staff and Aquila on capital structure and cost of common equity for MPS and L&P?

A. No. Dr. Murry recommended an allocated capital structure for MPS and L&P based on Aquila's internal allocated capital structure of 50 percent equity and 50 percent debt. Dr. Murry did not include any short-term debt. Because Dr. Murry's recommendation is an allocated capital structure, it would not change based on any update and/or true-up period. I am recommending Aquila's consolidated capital structure based on the test year. My recommended capital structure appropriately includes current maturities on long-term debt in the long-term debt amount and it also appropriately includes the amount of short-term debt in excess of construction work in progress (CWIP).

Dr. Murry recommends a cost of common equity of 12.00 to 12.50 percent. Staff recommends a cost of common equity of 8.72 to 9.72 percent.

Updated Capital Structure and Embedded Costs

Q. Have you updated the capital structure, embedded cost of long-term debt, and average cost of short-term debt?

A. No. As explained on page 22, lines 12 through 17 of my direct testimony, Aquila's capital structure as of the update period, September 30, 2003 is not consistent with how Aquila was financed in the past. I will discuss Aquila's historical common equity ratios when it had an investment grade credit rating later in my rebuttal testimony. The common equity ratio as of September 30, 2003 was 30.77 percent.

Q. Why didn't you update the embedded costs of debt?

A. It is important to match the capital structure components with their embedded costs as of the same date because they are closely related. Otherwise, there would be a mismatch of the costs and the capital structure components. Additionally, the weighted average cost of short-term debt had risen to 5.18 percent from 3.45 percent for United States short-term debt and to 5.85 percent from 3.02 percent for Canadian short-term debt from the test year to the update period. These higher costs are a result of Aquila's financial troubles related to non-regulated investments and should not be reflected in the recommended cost of capital for the regulated utility.

Dr. Murry's Recommended Capital Structure for MPS and L&P

Q. Please summarize Dr. Murry's capital structure recommendation for MPS and L&P.

A. Dr. Murry proposes the use of MPS's and L&P's book divisional capital structure for its gas operations, which he claims is composed of 50.0 percent long-term debt and 50.0 percent common equity.

Q. How does Aquila determine the allocated capital structure for MPS and L&P?

A. Dr. Murry provided the following explanation of Aquila's capital allocation system on page 9, lines 7 through 17 of his direct testimony:

> The factors used to determine an appropriate capital structure for all of the Aquila operating divisions include the line of business being financed, comparative industry norms, contemporary business and regulatory practices, and accepted financial theory. Originally, the capital ratios applied to the gas utilities were developed using a proxy group of gas utility companies, taking into account the appropriateness of the capital ratios analyzed in light of relevant risk, industry standards, and rating agency guidelines. It is my understanding that Aquila has

> subsequently evaluated these ratios to assure their continued relevance. Through capital budgeting and cash management processes, Aquila updates the level of capital ratios.

Q. Does Dr. Murry provide any further alleged support for the reasons why he believes that Aquila's capital allocation system is reasonable?

A. Yes, on page 10, lines 1 through 3 of his direct testimony, Dr. Murry indicated that he independently verified that the "divisional" capital structure was appropriate for setting an allowed return for the gas operations of MPS and L&P by comparing it to a group of comparable gas utilities.

On page 11, lines 17 through 20 of his direct testimony, Dr. Murry indicates that because his comparable group of companies averaged an estimated 49.1 percent common equity ratio for 2003, this verifies the reasonableness of Aquila's common equity allocation of 50.0 percent to the gas operations of MPS and L&P. I am not sure why Dr. Murry used a 2003 estimated average common equity for this case because in Aquila's electric and steam rate cases, Case Nos. ER-2004-0034 and HR-2004-0024, he used a 5-year historical average common equity ratio of his comparable companies to verify the reasonableness of the allocated common equity ratio for the electric operations.

Q. Is there a reason that Dr. Murry's comparable group of companies' average common equity ratio is quite similar to that of the allocated common equity ratio that Aquila uses for the gas operations of MPS and L&P?

A. Yes. The fact that the comparable companies that Dr. Murry selected have a similar average equity ratio to the one used by Aquila for the gas operations of MPS and L&P for ratemaking purposes is self-fulfilling: it is the result of using a capital

structure similar to MPS and L&P's capital structure as a criterion in selecting comparable companies. On page 11, lines 6 through 12 of his direct testimony, Dr. Murry explains part of the criteria he used to select his comparable group of companies. The criterion explained in this part of his testimony is financial risk. Dr. Murry indicated that it was important to select companies that have comparable capital structures to that which is allocated to the gas operations of MPS and L&P. Specifically, Dr. Murry stated: "I selected gas utilities that had common equity ratios similar to the equity ratio of the gas operating divisions of Aquila." Therefore, it is no surprise that Dr. Murry's comparable group has a similar equity ratio to that which is "allocated" to the gas operations of MPS and L&P by Aquila for ratemaking purposes. Because this allocated equity ratio drove Dr. Murry's selection of his comparable companies, this biases his results. If one wishes to verify if an equity ratio is appropriate for ratemaking purposes based on the common equity ratios of comparable companies, then it should be obvious that a criterion based on a specific desired equity ratio is not appropriate.

Q. What are your concerns with the use of an allocated capital structure for ratemaking purposes, such as the one Aquila uses for the gas operations of MPS and L&P?

A. The "capital allocation" process is determined by internal forces, management and accountants and, therefore, cannot be relied upon as accurate for costing capital. Management determines the appropriate amount of capital, currently 50 percent equity and 50 percent debt for its gas operations, to allocate to its divisions through the process quoted above from Dr. Murry's direct testimony. It appears that Aquila intends

to continue to utilize this allocated capital structure process for ratemaking purposes even though it does not actually have enough equity capital to allocate to its divisions at the ratios Aquila proposes for ratemaking purposes in this case. This became apparent from the transcribed interview on July 16, 2003 in Case No. EF-2003-0465, *In the Matter of the Application by Aquila, Inc. for the Authority to Assign, Transfer, Mortgage or Encumber its Franchise, Works or System*. In that interview the following exchange occurred between Mr. David Murray and Mr. Ron Bible of the Missouri Public Service Commission Staff; Ms. Beth Armstrong and Mr. Rick Dobson of Aquila; and Mr. Paul Boudreau of Brydon, Swearengen and England, P.C. (attorney representing Aquila):

> MR. MURRAY: Don't you allocate more equity to your regulated than your non-regulated or at least in the past used to do it that way?
>
> MS. ARMSTRONG: I don't believe so.
>
> MR. BOUDREAU: This is Paul Boudreau. Who is asking the questions now?
>
> MR. MURRAY: This is David Murray.
>
> MR. DOBSON: This is Rick Dobson. I can't say for sure because I'm trying to recall from memory, but I actually recall that we allocated from a theoretical standpoint in our hypothetical on our non-regulated side quite a bit of equity to that entity because it did have a higher risk profile.
>
> MR. MURRAY: So you allocated more equity to the non-regulated than the regulated in the past?
>
> MR. DOBSON: I believe that's true, based on my recollection.
>
> MR. MURRAY: Well, is it correct – I looked at the DR that Bob had asked about earlier, that you allocated right around 50 percent equity to a lot of your divisions, your regulated divisions?
>
> MR. DOBSON: That's right.

> MR. MURRAY: What is your parent, the consolidated structure been like the last five years?
>
> MR. DOBSON: It hovered around 50-50 also. Sometimes a little bit more than that, sometimes a little bit less than that.
>
> MR. MURRAY: If you allocated more equity to the non-regulated than the regulated, did you have that equity to allocate?
>
> MR. DOBSON: No. Sometimes we didn't. Sometimes it was an intercompany type transaction that would be eliminated in consolidation. It would be a signal, though, that at some point in time we probably do need to issue more equity to balance the Company's risk profile.
>
> MR. BIBLE: This is Ron Bible. Do you have that -- I mean, it sounds like your stated intention going forward is to allocate capital in those proportions. Do you have the equity that exists now to do that?
>
> MR. DOBSON: No. It doesn't. The significant amount of impairments we took in 2002 have eroded a lot of book equity, and so we don't have that.

Consequently, it is inappropriate to utilize Aquila's allocated capital structure for ratemaking purposes in this case because quite simply, Aquila does not have the equity to allocate to its divisions to maintain its target equity ratios. Even when Aquila was in better financial condition, based on the answer above, it was not able to allocate the amount of equity indicated in its allocated capital structure. Based on Mr. Dobson's (Aquila's Chief Financial Officer) claim that Aquila allocated more equity to its non-regulated operations than its regulated operations, it would have been impossible for Aquila to allocate up to 50 percent equity to its regulated operations. Contrary to Mr. Dobson's belief that Aquila's consolidated capital structure had hovered around 50 percent equity and 50 percent debt over the past five years, according to Schedule 7 attached to my direct testimony, Aquila's common equity ratio had only

averaged 39.13 percent from 1998 through 2001. I excluded 2002 because this was when Aquila's equity ratio began to erode due to the effect of Aquila's failed non-regulated investments. Additionally, Schedule 1, attached to this rebuttal testimony, indicates that Aquila's average common equity ratio for 1990 through 2001 was 38.41 percent with a range of 34.65 percent in 1995 to 44.17 percent in 2001. Aquila's highest consolidated common equity ratio during this twelve year period is below the 50.0 percent common equity ratio that Dr. Murry proposes for ratemaking purposes in this case. My recommended common equity ratio of 35.31 percent is above the low for this twelve year period and is near the average for this twelve year period, during which Aquila had investment grade credit ratings.

Mr. Dobson's statement that Aquila allocated more common equity to its non-regulated operations than its regulated operations makes it clear that even when Aquila was in better financial condition, it could not have allocated more common equity to its regulated operations than Aquila's consolidated common equity ratio because Aquila was allocating more equity to its non-regulated operations. It is only logical to conclude that the amount of common equity allocated to the non-regulated operations would be at a ratio somewhere above Aquila's consolidated common equity ratio and the common equity allocated to the regulated operations would be at a ratio somewhere below the consolidated common equity ratio.

Q. Based on Mr. Dobson's statements and your knowledge about the amount of equity that Aquila has in its capital structure now and has had in its capital structure in the past, what do you conclude about Aquila's capital allocation system?

A. It is a system that does not reflect the reality of the type of capital that Aquila's divisions receive from the corporate treasury. It does not reflect the reality of Aquila's financing sources now and it did not reflect the reality of Aquila's financing sources in the past. Although Aquila may have internal accounts that indicate a certain amount of equity and debt for its divisions, quite simply, the amount of equity it would like to claim it allocated to its divisions is not available.

Q. Are investors, which includes creditors, concerned with Aquila's allocation system for its divisions?

A. No. MPS and L&P are divisions of the corporate entity Aquila. These divisions are kept separate for internal management and regulatory purposes, but as far as investors, which includes creditors, are concerned, they have no interest in how Aquila "allocates" its capital to its divisions other than the fact that a certain allocated capital structure may allow the company to generate a larger revenue requirement in a rate case.

Aquila issues the debt and equity for the capital needs of its divisions. Therefore, investors are only interested in Aquila's consolidated operations. Aquila's divisions receive capital from the corporate treasury and this corporate treasury can have various mixes of capital in it at any given point in time when the divisions draw down capital from the treasury. Therefore, it is appropriate to utilize the consolidated capital structure of Aquila, if it is reasonable, because it is verifiable and represents how Aquila's divisions are capitalized. Aquila's consolidated capital structure, as of the test year, is reasonable considering how Aquila has historically been financed.

Q. If Aquila's capital structure as of the test year was not reasonable, what would you have proposed to do to recommend a reasonable rate of return to apply to MPS and L&P?

A. I would have proposed to use a hypothetical capital structure. I would not accept the allocated capital structure proposed by Aquila because, as I have demonstrated, it is a fictitious capital structure. Aquila's current financial condition does not allow it to allocate the common equity that it targets for its divisions. Even in prior years when Aquila was in better financial condition, it did not have the equity to allocate to its regulated divisions because it was supposedly allocating more equity to its non-regulated operations. Aquila's current financial condition has magnified the tenuousness of an allocated capital structure process. The only types of capital structures that this Commission should consider in a ratemaking proceeding are actual capital structures or hypothetical capital structures. In fact, in previous fully litigated MPS electric rate cases, Case No. ER-97-394 and Case No. ER-90-101, the Commission adopted the consolidated capital structure of Aquila (previously UtiliCorp). It should be noted that the Commission did accept Aquila's allocated capital structure in the partially settled MPS rate case in 1993, Case No. ER-93-37. However, because this was a partially settled case, the Commission did not have the luxury of weighing all of the evidence as it was able to in the fully litigated cases.

An allocated capital structure should not be accepted for ratemaking purposes in this case. The use of an allocated capital structure gives the false impression that a division of a company in financial distress can be insulated from this financial distress. This Commission should not give validity to such a claim.

Q. Has the Commission decided an appropriate capital structure in any recent gas cases involving Aquila?

A. Not to my knowledge. The most recent rate case that I am aware of that involved Aquila's gas operations was Case No. GR-93-172. In this case, Staff used Aquila's consolidated capital structure in determining its recommended rate of return for Aquila's gas operations.

Q. What are the average common equity ratios for a representative sample of the natural gas industry?

A. The January 2003 C.A. Turner Utility Reports indicates an average common equity ratio of 40 percent for the 31 natural gas companies that it analyzes. The average common equity ratio for the eight BBB-rated natural gas companies that it analyzes is 37.88 percent. It is important to review BBB-rated utilities because this is what Aquila was rated before it encountered financial difficulties and this is the credit rating that Aquila said it will utilize when determining the cost of new debt that it issues for purposes of ratemaking. Therefore, the capital structure used for ratemaking purposes in this case should be consistent with that of a BBB-rated utility. The C.A. Turner Utility Reports also indicate an average common equity ratio of 38 percent for the 42 combination electric and gas companies that it analyzes. The average common equity ratio for the fourteen BBB-rated combination electric and gas companies that it analyzes is 33.21 percent.

Additionally, according to the September 19, 2003 Value Line Summary and Index on the natural gas distribution utility industry, the average common equity ratio for the natural gas distribution utility companies it analyzes was 41.6 percent for 2002.

Q. What was the average common equity ratio for your comparable group of natural gas utility companies?

A. The average common equity ratio for my comparable group of companies was 49.68 percent. However, my comparable group of companies had an average credit rating of A versus Aquila's previous BBB credit rating when it was "healthy" and the BBB credit rating that Aquila intends to use when assigning debt costs to its regulated utilities in rate cases.

Q. What do the above common equity ratios indicate about the appropriateness of the capital structure that Dr. Murry utilized for ratemaking purposes in this case?

A. The above common equity ratios indicate that a 50 percent common equity ratio may be consistent with an A-rated gas utility, but it is not consistent with a BBB-rated gas utility nor the broader gas utility averages as indicated by Value Line and C.A. Turner.

Q. Did Dr. Murry make any downward adjustments to his recommended cost of debt to take this into consideration?

A. No. If Dr. Murry is recommending a capital structure that is more typical for an A-rated natural gas utility, then it is only logical that he should have made a downward adjustment to his embedded cost of debt recommendation in order to take into consideration the fact that cost of debt assigned MPS and L&P would be lower if it had less debt and more equity it its capital structure.

Q. Did you make any adjustments to your cost of debt to take into consideration the fact that your comparable group of natural gas utility companies had an average credit rating of an A versus Aquila's BBB credit rating?

A. No, because I used Aquila's capital structure as of the test year, which was consistent with how Aquila was financed when it was a BBB-rated utility company. If I had used a capital structure that was less leveraged than Aquila's typical capital structure in the past, as Dr. Murry did, then I would have made an adjustment downwards to my recommended embedded cost of long-term debt.

Q. Did you make any adjustments to your cost of common equity recommendation to take into consideration that your proxy group had a better credit rating than Aquila typically had in the past?

A. Yes. I made an upward adjustment of 32 basis points to my cost of common equity recommendation for MPS and L&P to take into consideration the risk differential between the risks that were typically associated with Aquila and its leveraged capital structure versus the comparable group that I used.

Q. What do all of the common equity ratios that you reviewed indicate about the reasonableness of your recommended rate of return, which includes your capital structure recommendation?

A. All of the common equity ratios that I reviewed to evaluate the reasonableness of my recommendation, including Aquila's when it was an investment grade utility, confirm that as long as I adjust my recommended cost of common equity to take into consideration the increased leverage associated with a BBB-rated utility, it is appropriate.

If the actual capital structure of the parent or subsidiary is reasonable, verifiable and consistent with how the Company has been financed in the past under "normal" circumstances, then this capital structure should be used because it more accurately reflects the cost of capital to MPS and L&P.

Q. Do you have any final concerns about Dr. Murry's capital structure recommendation?

A. Yes, because he is recommending an allocated capital structure, this capital structure doesn't reflect any short-term debt that Aquila is using to fund its operations. As of December 31, 2002, Aquila had $300,963,000 of short-term debt outstanding with $283,431,000 of Construction Work In Progress (CWIP) outstanding. Therefore, it is appropriate to include a short-term debt balance of $17,532,000 in the capital structure, which is the difference between the amount of short-term debt outstanding and the CWIP outstanding. The difference between actual short-term debt outstanding and CWIP was used for the short-term debt balance because it is assumed that CWIP will eventually be funded by long-term debt.

Dr. Murry's Comparable Companies

Q. Do you have any concerns about the companies Dr. Murry selected for his proxy group that would make the application of his proxy group cost of common equity to MPS and L&P questionable?

A. Yes. Three of his eight "comparable" companies are not considered natural gas distribution companies by Edward Jones in its September 30, 2003 publication, *Natural Gas Industry Summary: Quarterly Financial and Common Stock Information*. According to this publication, NICOR, Southwest Gas and UGI are all

considered to be diversified natural gas companies. According to Edward Jones a "diversified" natural gas company is a company that receives at least 20 percent but less than 90 percent of its net operating revenues from distribution operations. In contrast, a "distribution" natural gas company is a company that receives at least 90 percent of its net operating revenues from distribution operations, which is the type of operations that MPS and L&P have. Therefore, they are not "comparable" and not appropriate to use in a proxy group cost of common equity analysis.

Dr. Murry's Recommended Cost of Common Equity for MPS and L&P

Q. Please summarize Dr. Murry's recommended cost of common equity for the gas operations of MPS and L&P.

A. Dr. Murry utilized both the Discounted Cash Flow (DCF) model and the Capital Asset Pricing Model (CAPM) to estimate the cost of common equity for the gas operations of MPS and L&P. Dr. Murry applied these models to his group of "comparable" companies. Dr. Murry made several calculations of the comparable companies' cost of common equity with both models on Schedules DAM-8 through DAM-16. These calculations resulted in a wide range of results. On pages 24, line 19, through page 28, line 2 of his direct testimony, Dr. Murry discussed a variety of additional issues that he felt were important to consider in his recommendation for the cost of common equity. He discussed the current interest rate environment, the equity market environment in general and in specific to natural gas utilities and his view that a "cushion" should be allowed in the recommended return on equity in order to allow the company to earn its cost of common equity. He then made his final recommendation for a return on common equity of 12.0 to 12.5 percent.

Q. Does Dr. Murry appear to give primary consideration to the results in Schedules DAM-12 and DAM-13?

A. Yes, but this isn't entirely clear based on some of his comments in his direct testimony. Dr. Murry produces a summary schedule, Schedule DAM-14, that summarizes the results that he calculated in Schedules DAM-12 and DAM-13. Dr. Murry misquoted the sources for Schedule DAM-14 as Schedules DAM-15 and DAM-16. These schedules contain his CAPM analysis. However, On page 22, line 15 through line 21 of his direct testimony, Dr. Murry indicates that:

> …the most significant results for the purpose of ratemaking are the DCF calculations relying on forecasted growth in earnings per share. In this analysis, I looked at the prices of common stock over the past year and in a recent period. As shown in Schedule DAM-14, they range from 9.76 percent to a high of 12.66 percent using current prices. The average DCF calculation using the past year's stock prices is a range of 9.21 percent to 14.42 percent.

Therefore, although he summarizes the schedules that use recent stock prices and two different types of projected growth rates on his Schedule DAM-14, Dr. Murry indicates that the most significant results are only those that use forecasted growth in earnings per share, which he identifies as the results of Schedules DAM-10 and DAM-13.

Q. Regardless, do you have any concerns if Dr. Murry is giving exclusive consideration to the DCF results that only rely on EPS growth estimates from analysts?

A. Yes. It is important to consider historical growth rates because, as stated on pages 8-32 in David C. Parcell's book, The Cost of Capital - A Practitioner's Guide, 1997 "investors, as a group, do not utilize a single growth estimate when they price a utility's stock. Thus, rate of return analysts should consider multiple growth estimates in

order to better capture the growth embodied in a utility's stock price." It is important to note that Mr. Parcell emphasizes that analysts should consider multiple growth estimates. This applies to projected as well as historical growth rates. Additionally, Mr. Parcell states: "Analysts should recognize that individual investors have different expectations regarding growth and therefore no single indicator captures the growth expectations of all investors." Therefore, it is important to not only give weight to multiple projected growth rates, but to also give weight to historical growth rates because that is, in fact, what investors as a group will do.

Q. Is it important for a rate of return witness to evaluate other financial information in order to estimate the future growth rate to utilize in the DCF model?

A. Yes. The historical growth in dividends per share, earnings per share and book value per share are all financial growth indicators that investors may use to estimate future growth. This is precisely why the historical growth rates of these items are published in the Value Line tear sheets that investors use to evaluate companies for possible investment. These are all items that an investor (and consequently, a rate of return witness) should consider when estimating expected growth rates to be utilized in the DCF model.

Q. Is there any authoritative support for evaluating these other financial indicators in addition to the growth in earnings per share?

A. Yes. In The Cost of Capital – A Practitioner's Guide, by David C. Parcell, pages 8-18 through 8-20 indicate the following:

> *Financial Indicators of Growth*
>
> There are a wide variety of acceptable methods for using historical growth to estimate future growth in the DCF

model (Gordon, Gordon and Gould, 1989 50). The three most commonly-used financial indicators of growth are dividends per share (DPS), earnings per share (EPS), and book value per share (BVPS) (Howe & Rasmussen, 1982, 1333). Actually, DPS, EPS and BVPS can be defined in terms of each other, as DPS = EPS - ΔBVPS (Patterson, 1971). Viewed this way, any of the three terms is dependent upon the others and each can be viewed as the investors' perceived growth rate.

Dividends Per Share

Past growth of DPS is the most direct link between historic dividend growth and projected dividend growth. However, in the long-run, dividends can grow at a rate no greater than that of earnings. If the dividends out-paced earnings for an extended period of time the company would deplete its equity capital. In the short-run, the two growth rates can diverge without causing financial harm to the company. The average of these growth rates may provide a better forecast of the long-run dividend growth rate than any of the individual forecasts, because in the long-run the dividend growth rate should equal the growth rate of the earnings since it is primarily earnings that are used to support the dividends.

Earnings Per Share

An investor's expectations concerning a company's cash flows include both dividends plus the eventual proceeds from the sale of the stock. Earnings provide the source of both the dividends paid to stockholders and the retained earnings, which increase the book value and ultimately the market price of the stock. As a result, EPS is often used as a substitute for DPS.

Book Value Per Share

The growth of BVPS is used as a proxy for DPS growth since BVPS growth principally reflects (in the absence of large stock sales at prices well above or below book value) the retention (i.e., not paying out all of earnings as dividends) of earnings. The purpose of earnings retention is to enhance the level of future EPS and DPS. In addition, a company's EPS is equal to the BVPS times return on equity (ROE). As a result, any factor that causes the BVPS

> to increase (decrease) will tend to cause the EPS to increase (decrease).
>
> *Relationship Among Growth Rates*
>
> Even though the DCF model assumes that EPS, DPS, BVPS and the market price all grow at the same rate, it is generally recognized that in practice this does not normally occur. However, what is important to recognize in using the simplified version of the DCF model is that the analyst has no basis to forecast different future rates of growth for each of these items.

Therefore, it is appropriate for the rate of return witness to evaluate a variety of possible indicators of future growth.

Q. Besides his exclusive reliance on projected growth rates in Schedule DAM-10, do you have any other concerns with this Schedule?

A. Yes. The range of DCF results in this schedule is based on the 52-week high/low stock price of Dr. Murry's comparable companies. All of the low share prices in this schedule date back to the summer of 2002. Clearly these stock prices should not be relied upon in estimating the cost of capital for MPS and L&P because they are not reflective of recent stock prices. The objective in estimating the cost of capital for a utility is to estimate the current cost of capital as indicated by the current capital and economic environment. Dr. Murry should have calculated stock price averages for a recent period for his comparable companies in order to arrive at a reliable estimate of the current cost of common equity capital for his comparable companies. If he had included more recent stock price data with older stock price data in his averages, then this would have minimized the effect on the dividend yield from the volatility of the stock prices from day-to-day or even month-to-month.

Q. Should a rate of return witness utilize a spot stock price in estimating the cost of capital for a utility?

A. No. The strict interpretation of the application of the DCF model requires the use of a spot price for stock. This assumption is quite often relaxed at the judgment of the analyst in utility rate case settings, and rightfully so. It is interesting to note that the original intent of the DCF model (sometimes referred to as the "dividend growth model" in college finance textbooks) was to determine a reasonable price to pay for a stock at a specific point in time. Based on the original intent of the DCF model, the use of a spot price is appropriate. But when setting rates for a utility, which may be applied over an extended period, it is appropriate to determine the cost of common equity based on a company's stock prices over some longer period. This would lend support to my use of a four month average of high/low stock prices, instead of determining the cost of common equity based on spot stock prices from over a year ago as Dr. Murry did on his Schedule DAM-10. These low stock prices from over a year ago reflect a temporary increased cost of common equity and are not reflective of the current cost of common equity capital for Dr. Murry's comparable companies. If one were to look at the 52-week high/low stock prices for NICOR and UGI, neither of which should be used as comparable companies, one would realize the inherent problem with using 52-week high/low stock prices. In the case of NICOR, its high stock price is 171 percent higher than its low stock price. In the case of UGI, its high stock price is 90 percent higher than its low stock price. Obviously, an analyst will come up with a wide range of cost of common equity estimates by using these two extremes. Furthermore, statistically speaking, it is better to have a larger sample size, such as my four month average of

high/low stock prices for my comparable companies, when calculating an average stock price, not just a single high and a low stock price for a 52-week period.

Q. Do you have any concerns with the other schedule, Schedule DAM-13, that Dr. Murry primarily relies upon for his recommended cost of common equity in this case?

A. Yes. Although he is using more recent stock prices, they are only for a two-week period. Again, they are single spot high and low prices for this two-week period, not an average of several high and low stock prices for some longer period. The rates that result from this rate case will be in effect for MPS and L&P for an extended period of time. It is inappropriate to use only a two-week period for the cost of capital recommendation because a short period may reflect a temporary increase or decrease in the cost of common equity to the company that may not be reflective of the cost of common equity over the longer period that these rates will be in effect.

Q. What other concern do you have with Dr. Murry's Schedule DAM-13?

A. Once again, he relies solely on projected growth rates for earnings per share (EPS). I have already discussed some of my concerns with his sole reliance on projected EPS growth, but it is also important to consider publications that investors rely upon to make investment decisions.

Dr. Murry chooses to blindly accept the EPS estimates from Value Line and S&P without being critical of the possibility that some of these estimates may be overly optimistic. It is common knowledge that many analysts' projections of EPS estimates for companies tend to be overly optimistic. I addressed this in my surrebuttal testimony in the last Missouri Public Service case, Case Nos. ER-2001-672 and

EC-2002-265 (consolidated) and in the most recent Empire District Electric (Empire) case, Case No. ER-2002-424 in which Dr. Murry was Empire's witness. In Case Nos. ER-2001-672 and EC-2002-265 on page 7, line 16 through page 9, line 7 of my surrebuttal testimony I discussed a December 31, 2001 *Business Week* article, "Some Races Are Not To The Swift: *Many dividend-payers offer rising income streams*." The article discussed some of the advantages of dividend paying stocks in a low interest rate environment, such as we are currently experiencing. The analysis done in this article makes several assumptions about dividend growth, earnings growth, and stock appreciation. The most important assumption, for purposes of this case, is the assumption about earnings growth. In this article, the author used the five-year EPS growth projected by Wall Street analysts, which was then "sliced by a third, since they're always too high." Although this article simplifies the adjustment that needs to be made to the projections of Wall Street analysts, its message is clear that many investors do not accept the estimates of Wall Street blindly when evaluating investment alternatives. Therefore, rate-of-return witnesses should not blindly accept these estimates.

Q. What would be the average DCF result in Schedule DAM-13 if you followed the procedure concerning EPS estimates presented in the *Business Week* article?

A. If you followed the logic from the *Business Week* article, the EPS growth rate that an analyst should use would be 4.40 percent, which is based on slicing by a third the 6.60 percent average of the two projected growth rates (7.81% and 5.38%) indicated in Dr. Murry's Schedule DAM-13. If this projected growth rate is added to Dr. Murry's average dividend yield of 4.62 percent ((4.58% + 4.66%)/2), then the DCF result would

be 9.02 percent, which is 20 basis points below my recommended cost of common equity of 9.22 percent.

Q. On page 22, line 4 through 6 of his direct testimony, Dr. Murry classifies the growth rates in his Schedule DAM-12 as combined historical and forecasted growth rates. Do you agree with this classification?

A. No. Dr. Murry uses a three-year (1997-1999) average historical EPS figure as his present value and Value Line's estimated EPS for 2006 through 2008 as the future value. A historical growth rate would be based on actual results for a given time period, such as the ten-year compound growth rates from 1992 through 2002 that I calculated on Schedule 13-1 attached to my direct testimony. If Dr. Murry had averaged the ten-year historical growth rate that I calculated with his projected compound growth rate, then I would agree with his characterization that the growth rates are "combined historical and forecasted growth rates in earnings per share" as he indicated on page 21, line 4 of his direct testimony. Any time an analyst uses an estimated future figure to calculate a compound growth rate, this compound growth rate is a projected growth rate because it is based on an estimate in the future. Therefore, the results indicated in this schedule do not take into consideration historical growth rates because in order for historical growth rates to be taken into consideration, the ending EPS value would have to be a figure that has actually occurred, not one that is projected to occur.

Q. Is this the method that Dr. Murry used to calculate all of his growth rates except for those on Schedules DAM-10 and DAM-13?

A. Yes.

Q. If Dr. Murry clarifies in his surrebuttal testimony that he relied primarily on Schedules DAM-10 and DAM-13 rather than DAM-12 and DAM-13, is it still important to clarify the appropriate characterization of the growth rates he calculated in his other schedules?

A. It is important to clarify that the results in these other schedules are based on projected growth rates and not a combination of historical and projected growth rates because readers may review these schedules as a test of reasonableness for Schedules DAM-10 and DAM-13. If these other schedules did contain historical growth rates, then they could have been a test of the reasonableness of the projected growth rates, but this is not the case.

Q. Is there a schedule in which Dr. Murry provides historical growth rates?

A. Yes. He provides 5-year historical growth rates from Value Line on Schedule DAM-5 attached to his direct testimony, but he discounted these historical growth rates because of a "structural shift" (Murry Direct, p. 18, line 14) in the equity markets and because of a "sharp division between prospective and historical data" (*Id.* p. 18, ll. 6-7).

Q. Do you have any concerns with Dr. Murry's application of the CAPM on Schedule DAM-15?

A. Yes. Dr. Murry chose to use the yield on corporate bonds as the risk-free rate in his application of the CAPM. The generally recognized CAPM equation is as follows: $k = R_f + \beta (R_m - R_f)$, where k = the cost of common equity, R_f = the risk-free rate, β = beta coefficient and $R_m - R_f$ = the market risk premium. Therefore, it is clear that the model generally contemplates the use of a risk-free rate.

Q. What is the definition of a risk-free rate?

A. According to Eugene F. Brigham and Joel F. Houston's textbook, Fundamentals of Financial Management, 1998, page 128, the definition of the nominal risk-free rate, which contemplates inflation, is "[t]he rate of interest on a security that is free of all risk; k_{RF} is proxied by the T-bill rate or the T-bond rate. k_{RF} includes an inflation premium." Therefore, it is quite clear that the interest rate on corporate bonds, which includes the risk of default, is not a risk-free rate.

Q. Does Dr. Murry perform a different calculation of the CAPM on Schedule DAM-16?

A. Yes. On Schedule DAM-16, Dr. Murry performs a calculation of the CAPM where he eventually uses the U.S. Treasury yield as the risk-free rate.

Q. What is the effect on Dr. Murry's CAPM results when he uses a corporate bond yield versus a U.S. Treasury yield as the risk-free rate?

A. A comparison of the results of the application of the CAPM on Schedule DAM-16 with the results on Schedule DAM-15 indicates that the use of the corporate bond yield causes the results to increase.

Q. Does Dr. Murry make any questionable adjustments on his Schedule DAM-16 that increase his CAPM cost of common equity results?

A. Yes, he makes a size premium adjustment.

Q. Is there clear evidence to suggest that a size premium adjustment should be made to the CAPM analysis for utility companies?

A. No. The adjustment for size premium that Dr. Murry advocates is based on a study of all of the stocks in the New York Stock Exchange, the American Stock

Exchange and the Nasdaq National Market. The study did not apply specifically to regulated utilities. Annie Wong, associate professor at Western Connecticut State University, performed a study that was published in the Journal of the Midwest Finance Association, Volume 22, that refutes the need for an adjustment based upon the smaller size of public utilities. She indicates:

> First, given firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size but utility betas do not. These findings may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power and regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their size. Therefore, utility betas would not necessarily be expected to be related to firm size.

Because smaller utilities operate in a regulated environment, just as large utilities do, making an adjustment for firm size is not appropriate.

Q. Is there anything in Dr. Murry's direct testimony that leads you to believe that he does not believe that his recommended 12.25 percent ROE is the cost of common equity for his comparable companies and consequently the cost of common equity for the gas operations of MPS and L&P?

A. Yes, on page 27, lines 12 through 19 of his direct testimony, Dr. Murry discusses his position that the DCF model:

> . . . estimates the marginal cost of common equity to the comparable companies. In that way, it is an estimate of the minimal return necessary to attract marginal, or incremental, investment in the common stock equities. However, the method does not account for any other factors that may affect the ability of the company to earn that return. There is no cushion in this estimate of the cost of common stock to assure that a regulated company will earn its allowed return.

Q. Does Dr. Murry contradict any other part of his direct testimony when he argues for a "cushion" to assure that the regulated company will earn its allowed return?

A. Yes, I believe he does. On page 5, lines 8 through 15 of his direct testimony, Dr. Murry discusses the principal objective in setting the allowed return in a regulatory proceeding. Dr. Murry maintains that the objective is "[s]etting an allowed return that is sufficient, **but not larger than necessary**, to allow a utility to recover the costs of providing service" (emphasis added). This is consistent with the cost of service principle in setting the rates for a utility company. Dr. Murry's proposition that a cushion should be added to the cost of common equity violates this principle.

Summary and Conclusions

Q. Please summarize the conclusions of your rebuttal testimony.

A. My conclusions regarding the capital structure and cost of common equity are listed below.

1. The use of the capital structure proposed by Aquila is inappropriate. Dr. Murry did not recognize any short-term debt in his capital structure recommendation. The calculation of the cost of capital for MPS and L&P should be based on Aquila's actual consolidated capital structure as of December 31, 2002, as shown on Schedule 9 attached to my direct testimony;
2. My cost of common equity stated in Schedule 23 attached to my direct testimony, which is 8.72 percent to 9.72 percent, would produce a fair and reasonable rate of return of 8.00 percent to

8.35 percent for the Missouri jurisdictional natural gas utility rate base for MPS and L&P.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

AQUILA, INC.
CASE NO. GR-2004-0072

Historical Consolidated Capital Structures for Aquila, Inc.

(*Dollars in millions)*

Capital Components	1990	1991	1992	1993	1994	1995
Common Equity	$477.5	$660.7	$661.1	$851.7	$906.8	$946.3
Preferred Stock	97.2	97.1	95.1	83.9	25.4	125.4 *
Long-Term Debt	679.3 **	931.6 **	896.7 **	1,011.5 **	1,115.7 **	1,370.5 **
Short-Term Debt	48.7	111.0	230.9	70.0	182.4	288.6
	$1,302.7	$1,800.4	$1,883.8	$2,017.1	$2,230.3	$2,730.8

Capital Components	1996	1997	1998	1999	2000	2001
Common Equity	$1,158.0	$1,163.6	$1,446.3	$1,525.4	$1,799.6	$2,551.6
Preferred Stock	125.0 *	100.0 *	100.0 *	350.0 *	450.0 *	250.0 *
Long-Term Debt	1,496.4 **	1,508.9 **	1,625.4 **	2,245.1 **	2,397.6 **	2,427.0 **
Short-Term Debt	252.0	113.8	235.6	248.9	501.0	548.6
	$3,031.4	$2,886.3	$3,407.3	$4,369.4	$5,148.2	$5,777.2

Historical Consolidated Capital Structures for Aquila, Inc.

(I*n Percentages)*

Capital Structure	1990	1991	1992	1993	1994	1995
Common Equity	36.65%	36.70%	35.09%	42.22%	40.66%	34.65%
Preferred Stock	7.46%	5.39%	5.05%	4.16%	1.14%	4.59% *
Long-Term Debt	52.15% **	51.74% **	47.60% **	50.15% **	50.02% **	50.19% **
Short-Term Debt	3.74%	6.17%	12.26%	3.47%	8.18%	10.57%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Capital Structure	1996	1997	1998	1999	2000	2001	**Average**
Common Equity	38.20%	40.31%	42.45%	34.91%	34.96%	44.17%	**38.41%**
Preferred Stock	4.12% *	3.46% *	2.93% *	8.01% *	8.74% *	4.33% *	**4.95%**
Long-Term Debt	49.36% **	52.28% **	47.70% **	51.38% **	46.57% **	42.01% **	**49.26%**
Short-Term Debt	8.31%	3.94%	6.91%	5.70%	9.73%	9.50%	**7.37%**
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	**100.00%**

Notes: * Preferred Stock includes Company-obligated preferred securities.
**Includes current maturities on long-term debt.

Sources: Aquila, Inc.'s 2000 and 2002 Annual Reports.

Schedule 1