*Exhibit No.:*
*Issues:* *Rate of Return*
*Witness:* *David Murray*
*Sponsoring Party:* *MoPSC Staff*
*Type of Exhibit:* *Direct Testimony*
*Case No.:* *HR-2005-0450*
***Date** Testimony Prepared:* *October 14, 2005*

# MISSOURI PUBLIC SERVICE COMMISSION

## UTILITY SERVICES DIVISION



## DIRECT TESTIMONY

## OF

## DAVID MURRAY

## AQUILA, INC.
## d/b/a AQUILA NETWORKS-L&P-STEAM

## CASE NO. HR-2005-0450



**Jefferson City, Missouri**
***October 2005***

** **Denotes Highly Confidential Information** **

**NP**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| In the Matter of the Tariff Filing of Aquila, Inc., to Implement a General Rate Increase for Retail SteamHeat Service Provided to Customers in Its L&P Missouri Service Area. | ) ) ) ) | Case No. HR-2005-0450 Tariff No. YH-2005-1066 |

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 Direct Testimony in question and answer form, consisting of 48 pages to be presented in the above case; that the answers in the following Direct 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 13th day of October 2005.

Notary

TONI M. CHARLTON
NOTARY SEAL
NOTARY PUBLIC
STATE OF MISSOURI

TONI M. CHARLTON
Notary Public - State of Missouri
My Commission Expires December 28, 2008
Cole County
Commission #04474301

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**DAVID MURRAY**

**AQUILA, INC.**

**d/b/a AQUILA NETWORKS L&P-STEAM**

**CASE NO. HR-2005-0450**

**DIRECT TESTIMONY**

**OF**

**DAVID MURRAY**

**AQUILA, INC.**

**d/b/a AQUILA NETWORKS L&P-STEAM**

**CASE NO. HR-2005-0450**

Q. Please state your name.

A. My name is David Murray.

Q. Please state your business address.

A. My business address is P.O. Box 360, Jefferson City, Missouri, 65102.

Q. What is your present occupation?

A. I am employed as a Utility Regulatory Auditor III for the Missouri Public Service Commission (Commission). I accepted the position of Public Utility Financial Analyst in June 2000 and have since had my position reclassified to my current title.

Q. Were you employed before you joined the Commission's Staff (Staff)?

A. Yes, I was employed by the Missouri Department of Insurance in a regulatory position.

Q. What is your educational background?

A. In May 1995, I earned a Bachelor of Science degree in Business Administration with an emphasis in Finance and Banking, and Real Estate from the University of Missouri-Columbia. I earned a Masters in Business Administration from Lincoln University in December 2003.

Q. Are you currently pursuing any professional designations that would enhance your credibility as a financial analyst, and, consequently, a rate-of-return witness?

A. Yes. I am pursuing the Chartered Financial Analyst (CFA) charter. I recently passed the examination for Level I of the CFA Program. In order to receive the charter, I must pass the examinations for the next two levels of the program and also have four years of relevant professional work experience. I am currently enrolled to take the examination for Level II of the CFA program in June 2006. The earliest I could complete the program would be by June 2007 because the next two examinations are only offered once a year.

Q. What percentage of candidates that took the Level I examination in June 2005 passed the examination?

A. 36 percent.

Q. Please provide some background on the CFA Program.

A. According to the CFA Institute's website, the CFA Program is a self-study program that is internationally recognized and considered by many employers and investors as the "definitive standard for measuring competence and integrity in the fields of portfolio management and investment analysis." The program's "professional conduct requirements demand that both CFA candidates and charterholders adhere to the highest standards of ethical responsibility."

Q. In your experience with the Missouri Public Service Commission, what individuals in your field tend to hold the CFA charter?

A. During my tenure with the Missouri Public Service Commission I have found the CFA charter to be most prevalent with individuals that work in the fixed-income industry and the equity research industry.

Q. Are these the instruments that you analyze when making recommendations to the Commission on the cost of capital?

A. Yes.

Q. Have you filed testimony in other cases before this Commission?

A. Yes. Please see Attachment A for a list of these cases.

Q. Have you made recommendations in any other cases before this Commission?

A. Yes, I have made recommendations on finance, merger and acquisition cases before this Commission.

Q. Have you attended any schools, conferences and/or seminars specific to utility finance and utility regulation?

A. Yes. I attended the Annual Eastern Utility Rate School in October 2000, the Fundamentals of Utility Finance seminar in January 2001 and the National Association of Regulatory Utility Commissioners' Annual Regulatory Studies Program in August 2001.

Q. What is the purpose of your testimony in this case?

A. My testimony is presented to recommend to the Commission a fair and reasonable rate of return for Aquila, Inc. d/b/a Aquila Networks L&P's steam (L&P-Steam) rate base.

Q. Have you prepared any schedules to your analysis of the cost of capital for L&P-Steam?

A. Yes. I am sponsoring a study entitled "An Analysis of the Cost of Capital for Aquila, Inc. d/b/a Aquila Networks L&P-Steam Case No. HR-2005-0450" consisting of 21 schedules, which are attached to this direct testimony (see Schedule 1).

## EXECUTIVE SUMMARY

Q. Please provide an executive summary of your testimony.

A. I am recommending that the Commission authorize and overall rate of return of 7.72 percent to 8.08 percent. My rate-of-return recommendation is based on a recommended return on common equity of 8.50 percent to 9.50 percent applied to Aquila's June 30, 2005 common equity ratio of 36.16 percent. Although my recommendation is driven mainly by my continued use of the discounted cash flow (DCF) model, this recommendation is based on a comparable company analysis using this model. I continue to believe that the DCF model is the most reliable model to use when estimating a utility company's cost of common equity.

My embedded cost of debt recommendation of 7.281 percent is based on all of Aquila's outstanding debt issuances. However, I made downward adjustments to two of these debt issuances because the actual cost of these debt issuances were very high as a result of Aquila's financial uncertainty stemming from its nonregulated businesses.

My capital structure recommendation is based on Aquila's actual capital structure on June 30, 2005. This capital structure is reasonable because it is within the range of capital structures that Aquila had when it had a corporate credit rating that was at least investment grade.

Q. Please explain how you estimated your recommended cost of common equity?

A. I determined my recommended cost of common equity by applying the Discounted Cash Flow model to a comparable group of vertically integrated electric utility companies. I then evaluated a number of factors to test the reasonableness of this

recommendation. A complete and detailed explanation of my recommended cost of common equity starts on page 25, line 5 of this testimony.

Q. Are there any other components in your rate-of-return recommendation that the Commission should pay particular attention to when reviewing your testimony?

A. Yes. First, I had to make several adjustments to Aquila's embedded cost of debt in order to adjust the costs of recent debt issuances to a level that is reasonable for a company that has at least an investment grade credit rating. Please see page 21, line 11 for the beginning of my discussion about adjustments that needed to be made to Aquila's embedded cost of long-term debt.

Second, Aquila has consistently recommended what it refers to as a "divisional" capital structure in rate case proceedings before this Commission. Staff views this capital structure as nothing more than a use of internal accounting methodology to "assign" capital to its various divisions. The divisional capital structure that Aquila has consistently recommended since the late 1980s is a fictitious capital structure. It does not have any relation to the capital mix that MPS and L&P have available for investments. If the Commission were inclined to accept this capital structure, then the Commission should rightfully label this capital structure as a "hypothetical" capital structure.

Staff has recommended Aquila's consolidated capital structure for rate making purposes because the common equity in this capital structure is consistent with the amount of common equity that Aquila, (then known as UtiliCorp), had in its capital structure when it had an investment grade credit rating. Please see page 19, line 14 for a more detailed discussion of this topic.

Q. Did you use the same study that you performed for the Aquila Networks L&P-Electric rate case for your recommendation in this case?

A. Yes.

Q. Why?

A. I am not aware of a steam proxy group that I could use to estimate L&P-Steam's cost of common equity. I believe the next best alternative is to use L&P-Electric's cost of common equity estimate as a proxy for L&P-Steam.

## LEGAL PRINCIPLES

Q. Please explain the main legal principles which form the basis for the assessment of the justness and reasonableness of rate of return recommendations.

A. The *Bluefield Water Works and Improvement Company* (1923) (*Bluefield*) and the *Hope Natural Gas Company* (1944) (*Hope*) cases have been cited as the two most influential cases for the legal framework to determine a fair and reasonable rate of return.

Q. Please provide the main points surrounding the *Bluefield* case.

A. In the *Bluefield* the Supreme Court ruled that a fair return would be:

1. A return "generally being made at the same time" in that "general part of the country";

2. A return achieved by other companies with "corresponding risks and uncertainties"; and

3. A return "sufficient to assure confidence in the financial soundness of the utility."

The Court specifically stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.

Q. Please provide the main points surrounding the *Hope* case.

A. In the *Hope* case, the Court stated that:

> The rate-making process . . . , i.e., the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests. Thus we stated . . . that "regulation does not insure that the business shall produce net revenues" . . . it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock . . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

The *Hope* case restates the concept of comparable returns to include those achieved by any other enterprises that have "corresponding risks." The Supreme Court also noted in this case that regulation does not guarantee profits to a utility company.

Q. On a technical level, has the methodology of determining rate of return changed since the *Hope* and *Bluefield* decisions were written?

A. Yes. While I believe the objective of authorizing a fair rate of return is still to allow the company the ability to attract capital so it can pay its capital costs, the discipline of

rate of return analysis has evolved since the decisions were made in *Hope* and *Bluefield*. In fact, two of the most commonly used models in making rate-of-return recommendations did not even become a part of main stream finance until the 1960s. Of course, the courts in *Hope* and *Bluefield* could not possibly have considered methodologies that had not yet been developed at the time those courts made their analysis.

Q. What are these models?

A. The DCF Model and the Capital Asset Pricing Model (CAPM).

Q. When was the DCF Model introduced as a tool to estimate the required return on common equity?

A. The DCF Model, or the dividend growth, Gordon growth and/or dividend discount model, as it is most often called in college finance textbooks, was introduced by Myron J. Gordon for cost-of-common equity determinations in 1962. The use of this model for stock valuation purposes had been introduced before this time.

Q. When was the CAPM introduced?

A. Much of the basis for this model was provided in 1964 by William F. Sharpe who received the Nobel Prize in 1990 for much of his work in producing this model.

Q. Have there been any court cases that have specifically dealt with the legality of the use of cost of common equity models to estimate a fair rate of return?

A. Not that I am aware of.

Q. Have these models been used and accepted in the past to determine a fair authorized return on common equity in Missouri?

A. Yes.

Q. Do you have any further comments on the use of cost of capital models to determine a fair rate of return?

A. Yes. See Schedule A.

## HISTORICAL ECONOMIC CONDITIONS

Q. Please discuss the main points of the current capital and economic environment that the Commission should consider in determining a reasonable authorized ROE for L&P-Steam. (For a more detailed discussion of historical economic conditions, please see Schedule B).

A. The Federal Reserve (Fed) has been steadily raising the Fed Funds rate by 25 basis points at every Federal Open Market Committee (FOMC) meeting since June 30, 2004. This began after the Federal Reserve had kept the Fed Funds Rate at a 46-year low of 1.00 percent for a full year. Even in the wake of Hurricane Katrina, on September 20, 2005, the Fed decided to continue its "measured pace" of 25 basis point increases in the Fed Funds Rate. The Fed Funds Rate now stands at 3.75 percent. According to the *Wall Street Journal* (*WSJ*), the Fed concluded that Hurricane Katrina's impact on inflation is more worrisome than its effect on growth. According to the *WSJ*, Alan Greenspan "appears more willing to risk slowing the economy down by raising rates too much, than to risk letting inflation rise further by raising them to little." The Fed believes that economic growth would be supported by still-low interest rates and brisk productivity growth. According to the *WSJ* financial markets now expect one more quarter-point rate increase during the Fed's three remaining meetings before Alan Greenspan's term ends on January 31, 2006. Long-term rates were little affected by the most recent increase in the Fed Funds Rate because this was already anticipated by the market. (*Wall Street Journal*, pp. A1 and A6, September 21, 2005).

Q. Have long-term interest rates risen as a result of the Federal Reserve's eleven increases in the Fed Funds Rate since June 2004?

A. Not by much. Actually, this is a phenomenon that the Federal Reserve has struggled with and has openly discussed in many of its deliberations and speeches in recent months. This intellectual struggle has resulted in Chairman Alan Greenspan causing another movement into common use of a term or phrase. The latest term commonly being used, at least in the field of finance, is "conundrum," which was used by Mr. Greenspan in a speech in which he admitted his confusion as to why long-term interest rates haven't increased recently.

Q. What are the consequences of long-term interest rates remaining low?

A. Cost of long-term capital, including utilities' common equity, remains low.

Q. Is this also reflected in the yields on recently issued utility bonds?

A. Yes. A review of Schedules 5-1 and 5-3 shows the continued low level of costs on utility debt. The average yield of 5.39 percent on utility bonds during June 2005 was the lowest average yield in the past 25 years.

Q. Do you fully understand why long-term interest rates have remained so low even while the Federal Reserve has continued to steadily increase the Fed Funds Rate?

A. No. However, there are many theories as to why long-term interest rates have remained low. Many analysts believe that investors have confidence that the Federal Reserve will be able to contain inflation. Therefore, long-term investors do not require a higher return in order to cover higher inflation in the future. Another school of thought is that the United States' (U.S.) economy is so integrated with the global economy that swings in short-term interest rates do not have as large of an impact on long-term investment requirements as

they did in previous years. This may also explain why some tragic events that have occurred in the U.S. over the last several years have not rattled investors for any sustained period.

In light of the above interest rate activity, it is important to reflect on the results of the major stock market indexes in the past year. According to the October 7, 2005 issue of the The Value Line Investment Survey: Selection & Opinion, for the first three quarters of 2005, the Dow Jones Industrial Average (DJIA) decreased 2.0 percent, the S&P 500 increased 1.4 percent, the Nasdaq Composite Index (NASDAQ) decreased 1.1 percent and the Dow Jones Utility Average (DJUA) increased 29.1 percent. According to the same publication, for the third quarter of 2005, the DJIA increased 2.9 percent, the S&P 500 increased 3.1 percent, the NASDAQ increased 4.6 percent and the DJUA increased 11.8 percent. For the twelve months, September 30, 2004, through September 30, 2005, the DJIA increased 4.8 percent, the S&P 500 increased 10.2 percent and the NASDAQ increased 13.4 percent (*Wall Street Journal*, p. C10, October 3, 2005). According to closing quotes obtained from CBS MarketWatch, the DJUA increased 46.4 percent over this same period.

Q. What can one infer from the fact that the DJUA has increased more in the past year than the other indices have?

A. Since the projected earnings growth rates of utility stocks have not sky rocketed along with the market, external macroeconomic factors have caused the utility industry to become quite favorable in the capital markets. This would imply that the cost of common equity for utility stocks is quite low. This explains why a reasonable application of the DCF Model produces lower results than were seen in the past.

Q. Should the results from the DJUA be analyzed with some caution in this case?

A. Yes. Only one of my comparable companies is contained in the DJUA. Consequently, some of the factors that have caused companies' stock prices in the DJUA to increase so much, may not be the same factors that have caused other utilities' stock prices to increase. However, even though other utility indexes may not have increased as much as the DJUA, most have easily outpaced the DJIA and the S&P 500. For example, Value Line Utilities are up 9.2 percent for the 9-months ending, September 30, 2005. Consequently, I believe it is safe to conclude that utility stocks have attracted investors' attention in recent months.

**ECONOMIC PROJECTIONS**

Q. Do you have any information on economic projections?

A. Yes. See Schedule C for these projections.

**BUSINESS OPERATIONS OF AQUILA, INC.**

Q. Please describe Aquila, Inc.'s (Aquila) business operations.

A. Aquila has had a major change in its business strategy since 2002. Before the collapse of Enron and the shrinkage of the energy marketing and trading industry, Aquila was embracing its nonregulated operations. In fact, at one time Aquila believed that it could achieve more capital market value for its energy merchant business if it spun this business off from its regulated utility business. Aquila took the initial step for this strategy in April 2001 by issuing 20 percent of the common stock in its energy merchant subsidiary to the public before the collapse of the energy marketing and trading industry. However, Aquila was soon faced with the fact that credit rating agencies had realized the amount of risk involved in this "light asset" industry and started to require companies to have more "hard assets" to support

this type of business and still maintain an investment grade credit rating. As a result, in early 2002 Aquila reacquired the 20 percent of its energy merchant business that it had spun off. It was at this time that UtiliCorp United, Inc. changed its name to Aquila, Inc. This was a signal to investors that even though the Company was not spinning off the energy merchant business, it was going to embrace this business in the future. However, because of unforeseen events, Aquila's risks and losses from the energy merchant business proved too great to keep Aquila's credit rating from falling below investment grade.

After Aquila realized that it might not be able to avoid bankruptcy if it remained in the energy merchant sector, it decided to divest many of these assets, which involved many losses. Aquila also decided to exit some of its other investments, such as the sale of much of its interest in Quanta Services. Many in the industry considered this type of strategy as a "Back to the Basics" strategy. Aquila's losses and impairments resulted in the deterioration in Aquila's book value of common equity. The market value of Aquila's common equity had already taken into consideration many of these expected losses. Aquila also decided to divest of its international businesses as well.

As recently as this past spring, ** _____

_____

_____ ** An announcement of agreements to sell some of these properties for $896.7 million was made on September 21, 2005. Staff has yet to review the details of these sale agreements. Included in the sale of these properties are the sale of Aquila's gas properties to Empire District Electric Company (Empire). At the very least, Staff will review in detail the proposed sale of Aquila's natural



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gas properties to Empire. To the extent that any of the other sales will affect Aquila's Missouri operations, Staff will review these as well.

Q. Please provide some information from Aquila's 2004 Annual Report.

A. Aquila's 2004 Annual Report states the following relevant information about its operations and financial condition:

> Aquila, Inc. (Aquila or the company, which may be referred to as "we," "us" or "our") is primarily an integrated electric and natural gas utility headquartered in Kansas City, Missouri. We began as Missouri Public Service Company in 1917 and reincorporated in Delaware as UtiliCorp United Inc. in 1985. In March 2002, we changed our name to Aquila, Inc. As of December 31, 2004, we had 3,192 employees in the United States. Our business is organized into two groups: Domestic Utilities, which comprises our regulated utility operations, and Merchant Services, which comprises our unregulated energy activities. All other operations are included in Corporate and Other, including costs that are not allocated to our operating businesses; our controlling investment in a broadband company operating in Kansas City, Everest Connections; and our former investments in Australia, New Zealand and the United Kingdom. Substantially all of our revenues are generated by the Domestic Utilities group.
>
> Our electric utilities include 2,075 MW of generation and 20,888 pole miles of electric transmission and distribution lines. Our gas utilities include 721 miles of intrastate gas transmission pipelines and 19,356 miles of gas distribution mains and service lines. The Domestic Utilities group generated revenues of $1.8 billion in the year ended December 31, 2004 and had total assets of $3.2 billion at December 31, 2004.
>
> Until recently, our operations also included significant international utility investments and Merchant Services was a much larger component of our business. In 2002, we began to reposition our business to concentrate on our Domestic Utilities and reduce our financial obligations. As part of that repositioning, we sold all of our international investments and a substantial portion of our Merchant Services assets. Additionally, we wound down most of our Merchant Services energy trading portfolio. Our remaining Merchant Services group principally owns, operates, and contractually controls non-regulated power generation assets in the United States. See Management's Discussion and Analysis for further discussion of our strategic and financial repositioning.

Aquila provides the following, more detailed explanations in its SEC Form 10K Filing on its two business groups, Domestic Utilities and Merchant Services:

> **Domestic Utilities:**
>
> Domestic Utilities generates, transmits and distributes electricity to approximately 452,646 customers in Colorado, Kansas and Missouri. Our electric generating facilities and purchase power contracts supply electricity principally to our own distribution systems. Additionally, we sell excess power to other utilities and marketing companies. Approximately 65% of our electric customers are located in Missouri. Domestic Utilities also distributes natural gas to approximately 910,116 customers in Colorado, Iowa, Kansas, Michigan, Minnesota, Missouri and Nebraska. Approximately 46% of our utility operations, based on the book value of our regulated assets, are located in Missouri.
>
> **Merchant Services**
>
> Merchant Services consists principally of our interests in gas-fired merchant power plants and our remaining wholesale energy trading business. Our merchant power plants are exempt wholesale generators that do not have dedicated customers and are designed to operate only during periods of peak demand in the geographic area in which the plant is located. Because we currently believe that the fuel and start-up costs of operating our merchant power plants will exceed the revenues that would be generated from the power sold, we believe that for the foreseeable future we will have limited ability to generate power from these plants at a gross profit. Annual operating and maintenance costs of these plants are approximately $9.0 million. In addition, we make annual capacity payments of approximately $37.3 million on our Elwood tolling contracts. We have sold capacity in three of these plants which will partially offset these costs in 2005 and 2006.

Aquila currently operates two electric utility divisions within the state of Missouri, the St. Joseph Light & Power (L&P) division (L&P steam operations are included in this division) and the Missouri Public Service (MPS) division. Both of these divisions are considered a part of Aquila's Domestic Networks operations. On September 21, 2005, Aquila announced its agreement to sell its Missouri natural gas properties to Empire. The natural gas properties are not a part of Aquila's rate increase request.

Aquila's total operating revenues were $1,711,000,000 for the 12 months ended December 31, 2004. These total operating revenues resulted in an overall net loss of $292,500,000. These revenues and net incomes were generated from a total property, plant and equipment of $2,777,400,000 at December 31, 2004. These amounts were taken from Aquila's 2004 SEC Form 10-K filing.

Q. Please describe the current credit ratings of Aquila.

A. Currently, Standard & Poor's Corporation's (S&P) corporate credit rating of Aquila is "B-" and recently placed Aquila on CreditWatch with positive implications. S&P placed Aquila on a positive CreditWatch after Aquila announced it had signed definitive agreements to sell several utility properties for $896.7 million. Aquila's credit rating still is not considered to be of "investment grade."

Q. Please provide S&P's most recent outlook concerning the credit rating assigned to Aquila.

A. S&P's recent September 22, 2005 research report on Aquila provides a summary explaining S&P's outlook for Aquila. Specifically the report states:

> **OUTLOOK: Watch Positive**
> **RATIONALE**
>
> On September 22, 2005, Standard & Poor's Ratings Services placed its ratings on Aquila Inc. on CreditWatch with positive implications. As of June 2005, the Kansas City, Mo.-based energy provider had about $2.35 billion in total debt.
>
> The placement follows the company's announcement that it has signed definitive agreements to sell four utility businesses, for a total of $897 million, plus working capital and subject to net plant adjustments. Associated EBITDA loss is estimated to be in the $100 million range, which implies that Aquila received relatively attractive bids for its assets. If approved by the various regulatory commissions, the sales would provide an opportunity for debt reduction – potentially 30% of total adjusted debt. While the company is likely to lose as much in cash flows as a result of the sales, Standard

& Poor's expects the subsequent debt reduction to alter the company's maturity schedule, which could reduce intermediate refinancing risk. The company has large debt maturities in 2009, half of which are related to a $220 million term loan that can be prepaid with a modest penalty. Because the sales involve three gas utilities, they are also likely to reduce the company's working-capital requirements, which would improve liquidity, all other things constant. Post-sale, the company will serve 45% fewer gas customers. Due to its speculative-grade status, the company must post collateral to its gas suppliers (in addition to other counterparties). In an elevated commodity price environment, such posting requirements can be a significant drain on cash and alternative liquidity resources.

Standard & Poor's expects to resolve the CreditWatch listing on close of the above asset sales, which are anticipated in the next 12 months once regulatory approvals have been obtained. Greater clarity regarding the amount and composition of debt to be retired should be available at that time. A ratings upgrade would be contingent on an improved financial profile as stipulated above, and on the company demonstrating an established trend in positive cash flows. Over the last two years, the company has worked to stem material cash losses by exiting its noncore businesses, and terminating its tolls and gas contracts. For the first time since 2001, Aquila generated positive (albeit marginally positive) funds from operations (FFO) in the first half of the year. While the Elwood toll continues to drain $37 million in cash per year and the company's merchant gas peakers barely cover their carrying costs, lower interest expense (due to early premium income equity securities (PIEs) conversion), and pending rate cases in Iowa, Missouri and Nebraska could establish a sustainable and positive trend. That said, an adverse outcome in the South Harper peaking facility lawsuit could thwart the establishment of a trend. The plaintiffs in the lawsuit are seeking the removal and relocation of a 315 MW gas peaking facility and substation that cost the company $155 million to build.

Aquila is a diversified energy company with regulated and nonregulated businesses. The company operates regulated electric and natural gas distribution networks in seven Midcontinent states. Following the completion of the above sales, Aquila will operate in only five states. The company has nonregulated electric generation assets in Illinois and Mississippi and also delivers gas and electricity under contracted and hedged legacy trading arrangements. The current ratings reflect the company's onerous debt burden and marginal FFO.

The company is aggressively leveraged. Adjusted debt to capital was 73% as of June 2005. Early conversion of its PIES enabled Aquila to retire about $341 million in debt and reduce annual interest expense to

about $23 million through 2007. Post-conversion, adjusted debt to capital was 64%. The PIE conversions will be somewhat offset by an increase in leverage to fund Aquila's capital program, which includes participation in the Iatan 2 project. The company closed on a $300 million secured facility to secure its participation in the project on Aug. 31, 2005. Aquila's debt burden results in heavy interest expense (currently in excess of $200 million), which pressures FFO.

Q. Please provide some historical financial information for Aquila.

A. Schedule 7-1 presents Aquila's historical capital structures from 1992 through 2004 in dollar amounts, while Schedule 7-2 presents Aquila's historical capital structures from 1992 through 2004 in percentage terms. Schedule 8 presents selected financial ratios from 2000 through 2004 for Aquila. Aquila and its subsidiaries' consolidated common equity ratio has ranged from a high of 44.17 percent to a low of 32.28 percent from 1992 through 2004. As of June 30, 2005, the capital structure used for purposes of calculating the rate of return to be applied to L&P-Steam's rate base, had a common equity ratio of 36.16 percent (Schedule 9). Aquila's consolidated return on year-end common equity (ROE) has varied widely from a negative 129.06 percent in 2002 to a high of 13.46 percent in 2000. Aquila's 2002 ROE of negative 129.06 percent is a result of impairments, losses and write-downs from its nonregulated activities. Aquila's market-to-book ratio has varied in the past five years from a high of 1.73 times in 2000 to a low of 0.21 times in 2002.

## DETERMINATION OF THE COST OF CAPITAL

Q. Please describe the approach for determining a utility company's cost of capital.

A. The total dollars of capital for the utility company are determined as of a specific point in time. This total dollar amount is then apportioned into each specific capital component, i.e. common equity, long-term debt, preferred stock and short-term debt. A

weighted cost for each capital component is determined by multiplying each capital component ratio by the appropriate embedded cost or by the estimated cost of common equity component. The individual weighted costs are summed to arrive at a total weighted cost of capital. This total weighted average cost of capital (WACC) is synonymous with the fair rate of return for the utility company.

Q. Why is a total WACC synonymous with a fair rate of return?

A. From a financial viewpoint, a company employs different forms of capital to support or fund the assets of the company. Each different form of capital has a cost and these costs are weighted proportionately to fund each dollar invested in the assets.

Assuming that the various forms of capital are within a reasonable balance and are costed correctly, the resulting total weighted cost of capital, when applied to rate base, will provide the funds necessary to service the various forms of capital. Thus, the total weighted cost of capital corresponds to a fair rate of return for the utility company.

**CAPITAL STRUCTURE AND EMBEDDED COSTS**

Q. What capital structure did you use for L&P-Steam?

A. The capital structure I have used for this case is Aquila's capital structure on a consolidated basis, as of June 30, 2005. Schedule 9 presents Aquila's capital structure and associated capital ratios. The resulting capital structure consists of 36.16 percent common stock equity and 63.84 percent long-term debt.

The amount of long-term debt outstanding on June 30, 2005 includes current maturities due within one year. The amount of long-term debt in the capital structure is based on net proceeds available from long-term debt financings, which is shown on Schedule 10 attached to this direct testimony.

Q. Why did you use Aquila's capital structure as of the update period, June 30, 2005?

A. L&P is a division of Aquila. Because the debt and equity are generated from the parent company, Aquila, L&P relies on Aquila to finance its investment in L&P assets. Because L&P does not issue their own debt or equity, Aquila's actual capital structure as of June 30, 2005 was used for L&P. In addition, Aquila's consolidated capital structure is only slightly more leveraged than Puget Energy Inc. and Southern Company, which are companies in my comparable group.

Q. Did you review any other information to determine if Aquila's consolidated capital structure is reasonable for ratemaking purposes?

A. Yes. Schedule 7-1 attached to this direct testimony shows Aquila's year-end capital structures in dollar amounts from 1992 through 2004. Schedule 7-2 attached to this direct testimony shows Aquila's year-end capital structures in percentage terms from 1992 through 2004. Aquila began to encounter its current financial difficulties in 2002, which is the same year that Aquila's corporate credit rating was downgraded to junk (not investment grade). In order to determine the amount of leverage that Aquila consistently used while its corporate credit rating was still investment grade, I determined the 5-year and 10-year average capital structures for Aquila up to the year that it was downgraded to below investment grade (see Schedule 7-2). According to Staff's analysis, Aquila was able to maintain a corporate investment grade credit rating with an average common equity ratio of 38.76 percent for ten years before it was downgraded and 39.36 percent for the five years before it was downgraded.

Q. What was Aquila's lowest common equity ratio during the period 1997 through 2001, in which it still had an investment grade credit rating?

A. 34.91 percent in 1999.

Q. What was Aquila's lowest common equity ratio during the period 1992 through 2001 in which it still had an investment grade credit rating?

A. 34.65 percent in 1995.

Q. Is your recommended common equity ratio based on Aquila's June 30, 2005 capital structure above the lowest common equity ratios for the periods mentioned above?

A. Yes. Aquila's common equity ratio in my recommended capital structure is 36.16 percent common equity.

Q. What was the embedded cost of long-term debt for Aquila on June 30, 2005?

A. The embedded cost of long-term debt for Aquila as of June 30, 2005 was 10.115 percent. Aquila provided this embedded cost in response to Staff Data Request No. 250.

Q. Is this the embedded cost of long-term debt that you are recommending to be included in your rate-of-return recommendation for the L&P-Steam properties?

A. No. The embedded cost of debt of 10.115 percent includes debt issuances that were made at a time when Aquila's creditworthiness was highly uncertain. The uncertainty of Aquila's creditworthiness was caused by Aquila's failed investments in the energy merchant sector and the continued cash drain from these investments. It would not be fair to ask Missouri ratepayers to pay the increased costs that Aquila is incurring due to these failed investments. These increased costs should be incurred by investors because they would have incurred the benefit of these investments if they had succeeded. It is not the ratepayers'

responsibility to bail a company out if its investments fail. If we assumed that Aquila's electric utility operations were subject to competition, any attempt to raise rates because of other failed investments would result in lost market share. This would result in even lower cash flows for Aquila to utilize to attempt to gain financial stability. It is the Staff's and Commission's responsibility to ensure that the increased costs due to these investment failures are not passed on to ratepayers.

Q. How can one ensure that Aquila's recent increased capital costs due to failed nonregulated investments are not incurred by Missouri ratepayers?

A. One option would be just to exclude all debt issuances that have been made since Aquila's creditworthiness became uncertain in 2002. However, if this approach were used, then L&P-Steam ratepayers would not benefit from the decreased capital costs that have occurred in recent years. Aquila has had to issue debt to fund its operations since 2002 and if Aquila had been able to keep its credit rating above investment grade, then it would have been able to issue this debt at the lower costs that other Missouri utilities have been able to enjoy during the recent low-cost-of-capital environment. Many Missouri utilities not only have been able to replace maturing debt with lower cost debt, but they also have been able to redeem existing debt early with cheaper debt because of the low cost of capital environment. Aquila's ratepayers should not be denied the lower capital cost structure that Aquila could have achieved if its financial health had not been impacted by its other nonutility investments. Consequently, I decided to make downward adjustments to certain debt issuances that have been made since Aquila's creditworthiness became questionable.

Q. Which debt issuances required adjustment?

A. The following debt issuances required downward adjustments to the stated interest rate:

- July 3, 2002 11.875% Senior Note Due July 1, 2012
- September 20, 2004 8.260% Term Loan Due September 19, 2009

Q. Please explain how you determined the amount of downward adjustment to apply to the July 3, 2002 Senior Note.

A. Empire issued a twenty-year, 7.05 percent senior note the same year that Aquila issued its July 3, 2002 ten-year senior note. However, Empire issued its senior note five months later (December 2002). Because interest rates were lower in December 2002 than in July 2002, Empire's yield needs to be adjusted upward to reflect the higher cost of debt during the month Aquila issued its debt. Twenty-year U.S. Treasury Bonds averaged a 5.01 percent yield during December 2002. This is 50 basis points lower than what twenty-year U.S. Treasury Bonds were yielding during July 2002 (5.51 percent). Because Aquila issued its note during July 2002, a comparison to Empire's senior note should assume that it was also issued in July 2002. If this assumption is made, then it would be reasonable to assume that Empire's twenty-year senior note would have a stated interest rate of 7.55 percent (7.05 plus .50).

Because Empire's senior note had a term of twenty years, a further adjustment needs to be made in order to impute a reasonable cost for Aquila's shorter term note of ten years (shorter term notes tend to be less costly than longer term notes). In July 2002 the ten-year U.S. Treasury Bond was yielding 4.65 percent. This is approximately 85 basis points less than what the twenty-year U.S. Treasury was yielding at the same time. After making the

additional downward adjustment of 85 basis points, I arrived at an estimated cost of debt of 6.70 percent (7.55 percent less .85), if Aquila had been financially stable.

Q. Please explain how you determined the amount of downward adjustment to apply to the September 20, 2004 Term Loan.

A. In response to Staff Data Request No. 252 Aquila provided the indenture agreement for its September 20, 2004 Term Loan. ** _____
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Q. After you made these adjustments what is Aquila's embedded cost of long-term debt?

A. After making the adjustments I described above, Aquila's embedded cost of long-term debt was 7.281% as of June 30, 2005.

Q. Do you believe that this is a reasonable embedded cost of long-term debt for purposes of recommending a fair and reasonable rate of return for Aquila's Missouri steam utility operations?

A. Yes. This embedded cost of long-term debt is very similar to Empire's embedded cost of long-term debt of 7.22% as of June 30, 2004. The Commission adopted this embedded cost of long-term debt in the Report and Order in Empire's recent rate case,



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Case No. ER-2004-0570. Although this embedded cost of long-term debt is not as low as AmerenUE's or Kansas City Power and Light's, because Empire and Aquila are much alike when considering their reliance on natural-gas-fueled electricity, it would appear that using Empire's embedded cost of debt as a test of reasonableness is the most logical.

## COST OF COMMON EQUITY

Q. How do you propose to analyze those factors by which the cost of common equity for L&P-Steam may be determined?

A. In order to calculate the cost of equity for L&P-Steam, I performed a comparable company analysis of six companies. I have selected the DCF Model (explained in detail as Schedule D) as the primary tool to determine the cost of equity for L&P-Steam, but I also used the CAPM Model CAPM (explained in detail as Schedule E) to check the reasonableness of the DCF results. I also chose to provide the opinions and views of some of the most prominent individuals in the finance field, whether they are investors, academics and/or monetary policy setters. In addition, I reviewed some other external indicators to test the reasonableness of my recommendation. I will discuss these in more detail later in my testimony.

Q. Can you directly analyze the cost of common equity for L&P-Steam?

A. No. In order to directly determine the cost of common equity for L&P-Steam, they would have to be stand-alone companies that are publicly traded and pay a cash dividend. The only way that an investor can invest in the operations of L&P-Steam is by investing in the consolidated corporation of Aquila. When an investor purchases a share of Aquila, he is purchasing an interest in the entire company, which includes the financial effects of Aquila's failed nonregulated investments.

Q. Please explain how you approached the determination of the cost of common equity for L&P-Steam.

A. I decided to do an analysis of the cost of common equity for a comparable group of vertically integrated electric utility companies.

Q. Why didn't you use Aquila's cost of common equity as a proxy for the cost of equity for L&P-Steam?

A. As explained above, Aquila's riskier, nonregulated operations have had a dramatic effect on Aquila's cost of capital. Aquila's cost of capital is higher than it would be for an electric utility company that did not get involved in riskier operations, such as energy marketing and trading. The objective of this analysis is to approximate the cost of common equity for L&P-Steam, which is a regulated utility. Therefore, it is appropriate to estimate L&P-Steam's cost of common equity based on publicly traded companies that have operations that resemble the operations of L&P-Electric's operations.

Q. How did you determine which companies you would include to represent the comparable electric utility companies?

A. I first relied on Standard & Poor's (S&P) current classification system, which specifies companies that they consider to be vertically integrated electric utilities. Because L&P is a vertically integrated utility, this helps ensure the selection of companies that are similar in risk profile to that of L&P's business operations. Schedule 11 presents a list of the eleven electric utility companies that S&P currently classifies as vertically integrated electric utility companies. I then applied the following criteria to these eleven companies in order to select my ultimate proxy group:

1. Stock publicly traded: This criterion eliminated two companies;

2. Information printed in Value Line: This criterion didn't eliminate any companies;

3. Ten years of data available: This criterion eliminated one additional company;

4. At least investment grade credit rating: This criterion didn't eliminate any companies;

5. Two sources for projected growth available with one of those being from Value Line: This criterion eliminated two additional companies.

This final group of six publicly traded electric utility companies serves as a proxy group to determine the cost of common equity for L&P-Steam. The comparables are listed on Schedule 12.

Q. Please explain how you approached the determination of the cost of common equity for the comparables.

A. I have calculated a DCF cost of common equity for each of the comparables. The first step was to calculate a growth rate. I reviewed the actual dividends per share (DPS), earnings per share (EPS), and book values per share (BVPS) as well as projected EPS growth rates for the comparables. Schedule 13-1 lists the annual compound growth rates for DPS, EPS, and BVPS for the past ten years. Schedule 13-2 lists the annual compound growth rates for DPS, EPS, and BVPS for the past five years. Schedule 13-3 presents the averages of the growth rates determined in Schedules 13-1 and 13-2. Schedule 14 presents the average historical growth rates and the projected growth rates for the comparables. The projected EPS growth rates were obtained from three outside sources; I/B/E/S Inc.'s *Institutional Brokers Estimate System*, Standard & Poor's Corporation's *Earnings Guide*, and *The Value Line Investment Survey: Ratings and Reports*. The three projected EPS growth rates were averaged to develop an average projected growth rate of 4.16 percent, which was averaged with the historical growth rates to produce an average historical and projected

growth rate of 2.29 percent. All the growth rates were then analyzed to arrive at a growth rate range for the comparables of 3.90 percent to 4.90 percent.

The next step was to calculate an expected yield for each of the comparables. The yield term of the DCF model is calculated by dividing the amount of common dividends per share expected to be paid over the next twelve months by the market price per share of the firm's stock. Even though a strict technical application of the model requires the use of a current spot market price, I have chosen to use a monthly average market price for each of the comparables. This averaging technique is an attempt to minimize the effects on the dividend yield which can occur due to daily volatility in the stock market. Schedule 15 presents the average high / low stock price for the period of May 1, 2005, through August 31, 2005, for each comparable. Column 1 of Schedule 16 indicates the expected dividend for each comparable over the next 12 months as projected by *The Value Line Investment Survey: Ratings & Reports*, June 3, July 1, and August 12, 2005. Column 3 of Schedule 16 shows the projected dividend yield for each of the comparables. The dividend yield for each comparable was averaged to calculate the projected dividend yield for the comparables of 4.56 percent. This was rounded up to 4.60 percent.

As illustrated in Column 5 of Schedule 16, the average cost of common equity based on the projected dividend yield added to the average of historical and projected growth is 6.85 percent. However, this is not my recommendation because in this case, the historical growth rates are somewhat volatile. As a result, I decided to place almost complete weight on the projected growth rates that I analyzed. Even with giving complete weight to the projected growth rates, which, in my opinion, tend to be overly optimistic, my DCF cost of common equity recommendation is 8.50 percent to 9.50 percent. While some witnesses have

been dismissing the lower results obtained from a DCF analysis, even when they rely entirely on projected growth rates, I will explain later in my testimony why these lower results are actually consistent with the current capital market environment, in which the cost of money is cheap compared to recent historical standards.

Q. What analysis did you perform to determine the reasonableness of your DCF model-derived cost of common equity for the comparable company group?

A. I performed a CAPM cost-of-common-equity analysis for the comparables.

Q. What did you use for your risk-free rate?

A. For purposes of this analysis, the risk-free rate I used was the yield on 30-Year U.S. Treasury Bonds. I determined the appropriate rate to be the average yield for the month of August 2005. This rate was determined from Yahoo!Finance's Investopedia web site and was calculated to be 4.46 percent.

For the second variable, beta, I researched Value Line in order to find the betas for my comparable group of companies. Schedules 17-1 and 17-2 contain the appropriate betas for the comparables.

The final term of the CAPM is the market risk premium (Rm - R f). The market risk premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment. For purposes of this analysis, I not only looked at historical time periods for risk premium estimates from actual returns, but because there has been much discussion and research about lower equity risk premiums in the financial press and in financial journals, I also looked at some implied/forward-looking equity risk premiums. Although I am not recommending that the Commission adopt any of the results from my CAPM analysis using these forward-looking equity risk premiums, I do

believe the Commission should keep these results in mind when determining whether the lower cost of common equity estimates that are obtained from a reasonable application of the DCF model are logical.

Q. Is there any other reason that you have decided to analyze the implied/forward looking equity risk premiums in your application of the CAPM?

A. Yes. In the textbook, *Investment Analysis & Portfolio Management*, seventh edition, 2003, written by Frank K. Reilly and Keith C. Brown, the authors discussed the concept of the appropriate equity risk premium. In this discussion, the authors explained the often-used method of estimating the current equity risk premium by analyzing historical spreads between stock returns and U.S. Treasury returns (the risk-free rate). This is the method that Staff has used for several years in order to test the reasonableness of its DCF recommendation. However, the authors of this textbook cite many examples of research done that questions estimates based on the historical actual returns that are reported in Ibbotson and Sinquefield's yearbook, *Stocks, Bonds, Bills and Inflation*. As a result of this concern, the authors used the risk premium estimates based on historical returns for the high end of an estimate of the cost of capital. Consequently, Staff's historical application of the CAPM has been on the high end of estimates made by many in the field of finance. Because Staff had used the CAPM as a test of reasonableness for its DCF recommendation, Staff believes that its past recommendations using the DCF model have been reliable and consistent with the lower cost of capital environment. Staff is still recommending that the Commission adopt its DCF recommendation, but by providing the Commission with the information regarding implied/forward-looking risk premiums, Staff believes that this should

make the Commission more comfortable about the reasonableness of single-digit ROE recommendations.

Q. Please explain your application of the CAPM using historical return differences.

A. The first risk premium used was based on the long-term period of 1926 to 2004, which was 6.60 percent. The second risk premium used was based on the short-term, recent period of 1995 to 2004, which was determined to be 2.29 percent. These risk premiums were taken from Ibbotson Associates, Inc.'s *Stocks, Bonds, Bills, and Inflation: 2005 Yearbook.*

Schedule 17-1 presents the CAPM analysis of the comparables using historical actual return spreads to estimate the required equity risk premium. The CAPM analysis produces an estimated cost of common equity of 9.41 percent for the comparables when using the long-term risk premium period. Using the short-term risk premium period produces an estimated cost of common equity of 6.18 percent. The long-term risk premium CAPM results support the upper part of my recommended cost of common equity range based on my DCF analysis. Considering the fact that the Reilly and Brown textbook considers equity risk premium estimates based on historical earned return spreads as a high estimate of the cost of common equity, this result provides considerable support for my DCF cost of common equity estimate of 8.50 percent to 9.50 percent.

Although the short-term risk premium CAPM results are about 300 basis points below the results of the long-term risk premium CAPM results, it is interesting to note the narrowing of this historical risk premium estimate.

Q. Please explain your application of the CAPM using forward-looking/implied risk premium estimates.

A. As I indicated previously, because there has been considerable research on equity risk premiums that are implied in current stock valuation levels, I have decided to perform a CAPM analysis using some of these estimates.

The first risk premium used for a forward-looking equity risk premium was based on the difference between Roger G. Ibbotson (publisher of the yearbook that provides data on the historical differences in returns between stocks and bonds) and Peng Chen's expected return on the market over the long-run of 9.52 percent and the expected average yield of 5.53 percent on long-term treasury bonds through 2009, which is based on a compound average of estimates provided by Value Line. This translates into an equity risk premium of 3.99 percent (9.52 less 5.53). The estimated cost of common equity for the comparable companies using this approach was 7.45 percent (column 5 of Schedule 17-2).

The second risk premium is based on an implied equity risk premium made using a financial model developed by Dr. Aswath Damodaran, Associate Professor of Finance at New York University's (NYU) Leonard N. Stern School of Business (Stern). I obtain this model from Dr. Damodaran's website maintained as part of Stern's website. Based on the current level of the S&P 500, the S&P dividend yield, projected growth in earnings for the S&P 500 and the August 2005 average yield on the Thirty-Year U.S. Treasury Bond, the current implied equity risk premium is 2.47 percent. The use of this equity risk premium in the CAPM results in an estimated cost of common equity of 6.31 percent for the comparable companies.

Q. What was Dr. Damodaran's year-end 2004 CAPM estimation of the cost of common equity for the electric utility industry in the central region of the U.S.?

A. 7.89 percent

Q. How did you become familiar with Dr. Damodaran's research?

A. Dr. Damodaran is the author of one of the textbooks that has been used as part of the CFA curriculum. The title of this book is *Investment Valuation*, published in 1996.

Q. The CAPM cost of common equity results using forward-looking/implied equity risk premiums appear to be quite low. Are you recommending that the Commission use these results in its authorization of a cost of common equity in this case?

A. No. However, I urge the Commission to keep these low estimates of cost of common equity in mind when determining if my cost of common equity estimate using the DCF model is reasonable. These low cost of common equity estimates provide a basis that my conclusions regarding the appropriate cost of common equity using the DCF model are actually conservative and appear to be quite reasonable.

Q. Are you aware of any other influential individuals in the finance field that believe that equity risk premiums are currently quite low?

A. Yes. I have cited several of these individuals in past cases in which I have filed cost of capital testimony.

These experts include Warren Buffett, Jeremy Siegel and Cliff Asness. Warren Buffett is the chief executive officer of Berkshire Hathaway and is, in my opinion, one of the most respected investors in the U.S. On December 20, 2001, in an interview on CNBC, Mr. Buffett indicated that "returns in the stock market should come in around an average 7-8 percent over the next ten years." He also said that he's "not finding" undervalued

companies in this market, indicating that he remains watchful of valuation levels for stocks. As recently as the release of Berkshire Hathaway's 2004 Annual Report, Mr. Buffett stated that he only "found very few attractive securities to buy."

The other two financial experts are Dr. Asness, University of Chicago, who writes influential studies in academic journals while running the $5 billion hedge fund AQR Capital Management, and Dr. Siegel, The Wharton School of the University of Pennsylvania, whose book, *Stocks for the Long Run*, helped mold academic thinking on how equities perform over long periods. These two experts were featured in a June 16, 2003 article in Fortune magazine, "Can Stocks Defy Gravity? That's what Wall Street wants you to believe. Don't buy it. The best minds say the market will rise, but it won't soar." Although these are the two main academicians featured in the article, Kenneth French of Dartmouth also urges caution when investing in today's market. Dr. French and Eugene Fama, University of Chicago, Ph.D., have published many influential stock market studies in the past two decades. Dr. Fama has been considered a possible candidate for a Nobel Prize in Economics since at least the early 1990s. While he hasn't received the Nobel Prize in Economics yet, much of Dr. Fama's research on the efficient market hypothesis has made him well-respected in field of finance.

All of the influential individuals featured in this article have come to the conclusion that the equity risk premium, which is the additional return that investors demand over risk-free government securities, is now lower. As a result of the lower equity-risk premium, they predict that the stock market as a whole can only provide 6 percent to 8 percent returns for the foreseeable future. Dr. Siegel, when speaking about total market returns, specifically states: "Better-than-average earnings, if they happen, could get us perhaps 8%. But 10%

assumes earnings growth that is just too big." It is obvious that well-respected investors and academicians are not predicting very high returns for the near future because of current stock valuation levels. This translates into a low-cost-of common equity environment.

Comparing my recommended cost of common equity of 8.50 percent to 9.50 percent to the predictions of anywhere from 6 to 10 percent for the entire market by these well respected individuals offers a barometer to the reasonableness of my recommendation in this case. Given that regulated utilities are less risky than the market, and therefore investors would normally require less return than the market, my recommendation is quite reasonable considering the current capital market environment.

Q. Has any other influential financial expert made any comments concerning investors' reduced required equity risk premiums?

A. Yes. In an August 26, 2005, symposium sponsored by the Federal Reserve Bank of Kansas City at Jackson Hole, Wyoming, Alan Greenspan, Chairman of The Federal Reserve, stated the following about investors' appetite for risk, i.e. lower required equity risk premiums:

> Whether the currently elevated level of the wealth-to-income ratio will be sustained in the longer run remains to be seen. But arguably, the growing stability of the world economy over the past decade may have encouraged investors to accept increasingly lower levels of compensation for risk. They are exhibiting a seeming willingness to project stability and commit over an ever more extended time horizon.
>
> The lowered risk premiums--the apparent consequence of a long period of economic stability--coupled with greater productivity growth have propelled asset prices higher. The rising prices of stocks, bonds and, more recently, of homes, have engendered a large increase in the market value of claims which, when converted to cash, are a source of purchasing power. Financial intermediaries, of course, routinely convert capital gains in stocks, bonds, and homes into cash for businesses and households to facilitate purchase transactions. The

> conversions have been markedly facilitated by the financial innovation that has greatly reduced the cost of such transactions.
>
> Thus, this vast increase in the market value of asset claims is in part the indirect result of investors accepting lower compensation for risk. Such an increase in market value is too often viewed by market participants as structural and permanent. To some extent, those higher values may be reflecting the increased flexibility and resilience of our economy. But what they perceive as newly abundant liquidity can readily disappear. Any onset of increased investor caution elevates risk premiums and, as a consequence, lowers asset values and promotes the liquidation of the debt that supported higher asset prices. This is the reason that history has not dealt kindly with the aftermath of protracted periods of low risk premiums.

Although Mr. Greenspan does not attempt to quantify investors' lower required equity risk premiums, it is clear that his views about investors' not requiring as much of a risk premium to invest in stocks, rather than risk-free treasuries, is similar to that of the other influential individuals in the field of finance that I have already mentioned. This provides further support for the lower results that are being achieved by a reasonable application of the DCF model. The lower results are not because the DCF model is not reliable, it is because the cost of common equity is down. In fact, because the DCF model incorporates the price of the subject companies' stocks, a reasonable application of this model will directly reflect the lower costs of common equity.

Q. Have you reviewed any other evidence to test the reasonableness of your recommendation?

A. Yes. I observed three other indicators that I believe provide the Commission a measure of the reasonableness of my recommendation.

Q. What is the first indicator that you believe provides some insight as to the reasonableness of your recommendation?

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Q. ** _____

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A. ** _____ **



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Q. What discount rate are you recommending in this rate case?

A. The cost of capital, i.e., discount rate, that I am recommending in this case is 7.72 percent to 8.08 percent.

Q. ** _____ _____ **

A. ** _____ _____ _____ **

Q. Do you know the discount rates that were used by the successful bidders on Aquila's utility properties?

A. No, but S&P indicated in a September 22, 2005, research report that it believed that Aquila received attractive bids. This would imply that the successful bidders used a lower discount rate, i.e., lower required return, and/or it believed it could realize higher cash flows from the properties than Aquila realized.

Q. Did you review any other information to test the reasonableness of your recommendation?

A. Yes. Page 63 of Aquila's 2004 Annual Report indicated an expected return of 8.50 percent on pension assets. In Staff Data Request No. 308, I asked for the basis of this expected return (asset allocation and expected returns on the various asset classes). The following was part of Aquila's response to this data request:



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I believe the expected return of 8.25 percent on U.S. equities is the most relevant for testing the reasonableness of my recommended cost of common equity. My recommended return on common equity is actually higher than Aquila's own expectation of returns on the entire market (and the entire market is more risky than investing in a regulated utility company based on using beta as a measure of risk).

Q. Do you have any other tests of reasonableness?

A. Yes. Since the Empire rate case, Case No. ER-2004-0570, I have been monitoring the current yield on Empire's trust preferred securities. Until Empire's recent announcement of its proposed acquisition of Aquila's Missouri natural gas properties, this security had been yielding in the low 8 percent range. Because of some concerns about Empire's credit quality with the acquisition of this property, this yield has risen to around 8.4 percent. Although I cannot advise the Commission with any certainty the appropriate risk premium for a common equity investment versus trust preferred securities, I can advise the Commission that this yield can be used as a floor for a reasonable cost of common equity. This assumes that the Commission believes that Empire is an efficiently managed company. Even though I can't estimate with any certainty an appropriate risk premium to apply to trust preferred securities to determine the cost of common equity, I can advise the Commission that investors tend to view a regulated electric utility's common stock as a debt-like security.



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The fact that Empire has been steadfast in not lowering its common stock dividend provides some insight as to the debt-like nature that some utility stocks may exhibit. The dividends on these stocks are quite similar to the stated yield on bonds.

Q. Did the Commission rely in part on authorized ROEs for its decision in the Report and Order in the Empire rate case, Case No. ER-2004-0570?

A. Yes. The Commission cited the average electric utility authorized ROE of 11 percent for the first quarter of 2004.

Q. What were the average authorized ROEs for electric utilities since the first quarter of 2004?

A. According to Regulatory Research Associates (RRA) the average authorized ROE for electric utilities in 2004 was 10.73 percent based on 19 decisions the entire year (first quarter – 11.00 percent based on 3 decisions; second quarter – 10.50 percent based on 6 decisions; third quarter – 10.33 percent based on 2 decisions; fourth quarter 10.91 percent based on 8 decisions).

The average authorized ROE year-to-date for 2005 is 10.43 percent based on 17 decisions (first quarter – 10.44 percent based on 8 decisions; second quarter – 10.06 percent based on 6 decisions; third quarter through 9/23/05 – 11.13 percent based on 3 decisions).

Q. Have you researched all of the cases mentioned above to determine the specifics of the cases?

A. No.

Q. In light of your testimony about the lower cost of capital, isn't it true that the Commission recently authorized an ROE of 11.0 percent for Empire?

A. Yes.

Q. How much higher was the Commission's authorized return on common equity than your recommendation in that case?

A. It was approximately 170 basis points higher (11 percent minus 9.29 percent).

Q. What factors did the Commission consider in its Report and Order in the Empire rate case, Case No. ER-2004-0570 when deciding on a fair and reasonable authorized rate of return?

A. As a risk-increasing factor, the Commission cited Empire's more leveraged capital structure compared to that of Dr. James Vander Weide's comparable companies. Of course, the comparison that Dr. Vander Weide made was based on Empire's book value capital structure versus his comparable companies' market value capital structure.

As risk-reducing factors, the Commission cited the stipulated Interim Energy Charge (IEC) to consider in Empire's authorized return on common equity. The Commission also cited as a risk-reducing issue that it had found for Empire on Net Salvage.

Q. Is the Staff proposing an IEC in this case?

A. Yes. It is my understanding that Staff is proposing to use an IEC approach to determine fuel and purchased power costs in this case. Please see the testimony of Staff witness Cary G. Featherstone for discussion regarding the IEC proposal.

Q. Has Staff developed its recommendation on depreciation rates consistent with the Commission's decision in the Empire rate case?

A. Yes. Staff witness Gregory Macias, of the Commission's Engineering and Management Services Department, determined the depreciation rates consistent with the Commission's treatment of cost of removal and net salvage in the Empire case.

Q. Are Staff's recommendations on the use of an IEC for fuel and purchased power costs and depreciation rates consistent with the Commission's most recent decision on cost of removal and net salvage, and therefore, risk-reducing?

A. Yes.

Q. Is Staff's capital structure recommendation more leveraged than the capital structure of its proxy group?

A. In this case, Staff recognizes that its recommended capital structure for L&P-Steam is more leveraged than the comparable companies' average book value capital structure. Staff has not analyzed the comparable companies' market value capital structures, but because the market-to-book ratios of the comparable companies are well above one (1.60, as shown on Schedule 18), Staff can assure the Commission that if it were to make this comparison in this case, then Staff's recommended capital structure would be significantly more leveraged that the comparable group's market value capital structure.

Q. What has happened to the yields on Thirty-Year U.S. Treasury Bonds and public utility bonds since the Commission issued its March 10, 2005 Report and Order in the Empire rate case?

A. Schedules 5-1 and 5-2 attached to my direct testimony show that these yields have declined. In fact, average public utility bond yields have hit a recent historic low of 5.39 percent as of June 2005.

Q. What has happened to the yields on Thirty-Year U.S. Treasury Bonds and public utility bonds since you filed your direct testimony in September of 2004 in the Empire rate case, Case No. ER-2004-0570?

A. Although I filed testimony in September of 2004, much of the capital market information that I relied on was from the spring and summer of 2004. A review of Schedules 5-1 and 5-2 shows that these yields have declined since I did my analysis in the Empire rate case.

Q. What was your cost of common equity recommendation for Empire in Case No. ER-2004-0570?

A. My cost of common equity recommendations was 8.29 percent to 9.29 percent.

Q. If interest rates have declined since the Empire rate case, why is your recommendation higher in this case?

A. I believe my higher results can be attributed to my heavy reliance on projected growth rates (including Value Line) in this case. If I had not given Value Line's projected earnings per share growth rates any weight, and had only used IBES growth rates, as Dr. Vander Weide did in Empire's rate case, then my recommendation would have been as low as the low- to mid-8 percent range. This would appear to be consistent with the continued decrease in long-term yields on public utility bonds and U.S. Treasuries.

Q. How much has the public utility bond yield dropped since the Commission issued its Report and Order in the Empire rate case?

A. The average utility bond yield averaged 5.86 percent during the month the Commission issued its order. The public utility bond yield was around 5.50 percent during the months of July and August. This represents a 35 basis point decrease.

Q. If the Commission were to assume that the cost of common equity had dropped by the same amount, what could the authorized ROE be in this case?

A. 10.65 percent.

Q. How much has the public utility bond yield dropped since you performed the analysis that supported your direct testimony in the Empire rate case?

A. As of July 2004, the latest month in which public utility bond yield information was available at the time I wrote my testimony, the average public utility bond yield was 6.34 percent. As indicated before, the average public utility bond yield recently has been around 5.50 percent. This represents an 85 basis point decrease in the average cost of utility debt. If one were to apply this 85 basis point reduction to the Empire authorized ROE, then this would result in an authorized ROE of 10.15 percent.

Q. Considering all of the information you have analyzed to provide the Commission with evidence to support an authorization, what do you think a reasonable range would be for the Commission to use to be consistent with its most recent authorization?

A. I believe the Commission could authorize in the range of 10.20 percent to 11.20 percent and still be consistent with its most previous decision in Empire.

Q. What witness in the Empire rate case did the Commission appear to give the most weight in its decision on the authorized return on common equity?

A. Dr. Vander Weide.

Q. Is Dr. Vander Weide a witness in this case?

A. No, he is not.

Q. Has Staff attempted to perform the same type of analysis that Dr. Vander Weide performed in the Empire rate case?

A. No. However, because Dr. Vander Weide performed an analysis of "ex-ante" equity risk premiums, I wanted to inform the Commission about what many prominent

individuals in the field of finance are indicating about "ex-ante" equity risk premiums. In fact, I incorporated some of these estimations of "ex-ante" risk premiums in my CAPM analysis. This results in lower cost-of-common-equity estimates than Dr. Vander Weide made in the Empire case. Even though I looked at forward-looking equity risk premiums in this case, my results were lower because I disagree with the inputs in the models that were used by Dr. Vander Weide.

Q. Did you do anything else different in this case that should be explained?

A. Yes. I did not perform the type of "risk premium" analysis that the Financial Analysis Department has performed for some time. The reason I eliminated this analysis was because it wasn't necessarily an indicator of the company's cost of common equity, because it was not a market-based model. It relied on actual book earned returns on common equity for approximately the most recent ten years for the proxy companies. The actual earned book return on common equity may not be reflective of a company's cost of common equity. For example, in Case No. EC-2002-1, if Staff had just relied on AmerenUE's past earned returns on common equity to determine AmerenUE's cost of common equity, than obviously AmerenUE would have continued to earn more than the cost of common equity reflected in Ameren's stock price.

Q. If you believed that the risk-premium analysis you were performing was not reflective of the subject utility company's cost of common equity, then why did you continue to perform such an analysis?

A. Because I only used it to test the reasonableness of my DCF recommended cost of common equity. Now that the Commission appears to be giving weight to other models, I believe it is important for the Commission to have all of the information about the

differences in professional opinions about the appropriate inputs for a "risk premium" analysis.

Q. Did you perform a "comparable company" analysis in this case, which is what the Commission indicated it believed was more consistent with *Hope* and *Bluefield* in its Report And Order in Empire's last rate case?

A. Yes. However, even if it were possible for Staff to perform a company-specific cost of common equity analysis on Aquila, Staff would not use results from this analysis to determine a reasonable cost of common equity for L&P-Steam. L&P-Steam ratepayers should not pay higher rates because of Aquila's failed foray into nonregulated businesses. Staff believed this approach was appropriate in the Empire rate case because Empire's business operations are largely confined to regulated utility operations. This is not the case with Aquila.

Q. If you used a comparable company approach to directly determine a reasonable cost-of-common equity recommendation for Aquila's Missouri properties, then why are your results still similar to what they were in the Empire rate case?

A. Because the results of my cost of common equity analysis is still a function of what I consider to be reasonable inputs to the models, even if I apply these inputs to a comparable group. In fact, I have given considerable deference to the projected EPS growth rates in this case and my DCF recommended cost of common equity is still firmly in the single digits.

Q. Please summarize your cost of equity analysis to this point.

A. I have performed a DCF and CAPM cost of common equity analysis on a group of six comparable companies. The results are summarized below.

| | DCF | CAPM (Historical & Forward-Looking) |
|---|---|---|
| Comparable Companies | 8.50% - 9.50% | Historical - 9.41%; 6.18%<br>Forward-looking – 7.45%; 6.31% |

Q. Based on the analysis you performed, what is your recommended return on common equity in this proceeding?

A. I am recommending a return on common equity in the range of 8.50 percent to 9.50 percent based on the results of my DCF analysis.

## RATE OF RETURN FOR L&P-STEAM

Q. Please explain how the returns developed for each capital component are used in the ratemaking approach you have adopted for L&P-Steam.

A. The cost of service ratemaking method was adopted in this case. This approach develops the public utility's revenue requirement. The cost of service (revenue requirement) is based on the following components: operating costs, rate base and a return allowed on the rate base (see Schedule 19).

It is my responsibility to calculate and recommend a rate of return that should be authorized on the Missouri jurisdictional utility rate base of L&P-Steam. Under the cost of service rate making approach, a weighted cost of capital in the range of 7.72 to 8.08 percent was developed for L&P's steam utility operations (see Schedule 20). This rate was calculated by applying an embedded cost of long-term debt of 7.281 percent and a cost of common equity range of 8.50 percent to 9.50 percent to a capital structure consisting of 63.84 percent long-term debt and 36.16 percent common equity. Therefore, from a financial risk/return prospective, as I suggested earlier, I am recommending that the L&P steam utility operations be allowed to earn a return on its original cost rate base in the range of 7.72 to 8.08 percent.

Through my analysis, I believe that I have developed a fair and reasonable return, which, when applied to the L&P-Steam jurisdictional rate base, will allow Aquila the opportunity to earn the revenue requirement developed in this rate case.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

## CASE PROCEEDING PARTICIPATION

### DAVID MURRAY

| Date Filed | Issue | Case Number | Exhibit | Case Name |
|---|---|---|---|---|
| 1/31/2001 | Rate of Return Capital Structure | TC2001402 | Direct | Ozark Telephone Company |
| 2/28/2001 | Rate of Return Capital Structure | TR2001344 | Direct | Northeast Missouri Rural Telephone Company |
| 3/1/2001 | Rate of Return Capital Structure | TT2001328 | Rebuttal | Oregon Farmers Mutual Telephone Company |
| 4/19/2001 | Rate of Return Capital Structure | GR2001292 | Direct | Missouri Gas Energy, A Division of Southern Union Company |
| 5/22/2001 | Rate of Return Capital Structure | GR2001292 | Rebuttal | Missouri Gas Energy, A Division of Southern Union Company |
| 12/6/2001 | Rate of Return Capital Structure | ER2001672 | Direct | UtiliCorp United Inc. dba Missouri Public Service |
| 12/6/2001 | Rate of Return Capital Structure | EC2002265 | Direct | UtiliCorp United Inc. dba Missouri Public Service |
| 1/8/2002 | Rate of Return Capital Structure | ER2001672 | Rebuttal | UtiliCorp United Inc. dba Missouri Public Service |
| 1/8/2002 | Rate of Return Capital Structure | EC2002265 | Rebuttal | UtiliCorp United Inc. dba Missouri Public Service |
| 1/22/2002 | Rate of Return Capital Structure | EC2002265 | Surrebuttal | UtiliCorp United Inc. dba Missouri Public Service |
| 1/22/2002 | Rate of Return Capital Structure | ER2001265 | Surrebuttal | UtiliCorp United Inc. dba Missouri Public Service |
| 8/6/2002 | Rate of Return Capital Structure | TC20021076 | Direct | BPS Telephone Company |
| 8/16/2002 | Rate of Return Capital Structure | ER2002424 | Direct | The Empire District Electric Company |
| 9/24/2002 | Rate of Return Capital Structure | ER2002424 | Rebuttal | The Empire District Electric Company |
| 10/16/2002 | Rate of Return Capital Structure | ER2002424 | Surrebuttal | The Empire District Electric Company |
| 3/17/2003 | Insulation | GM20030238 | Rebuttal | Southern Union Co. dba Missouri Gas Energy |
| 10/3/2003 | Rate of Return Capital Structure | WC20040168 | Direct | Missouri-American Water Company |

| Date Filed | Issue | Case Number | Exhibit | Case Name |
|---|---|---|---|---|
| 10/3/2003 | Rate of Return Capital Structure | WR20030500 | Direct | Missouri-American Water Company |
| 11/10/2003 | Rate of Return Capital Structure | WR20030500 | Rebuttal | Missouri-American Water Company |
| 11/10/2003 | Rate of Return Capital Structure | WC20040168 | Rebuttal | Missouri-American Water Company |
| 12/5/2003 | Rate of Return Capital Structure | WC20040168 | Surrebuttal | Missouri-American Water Co |
| 12/5/2003 | Rate of Return Capital Structure | WR20030500 | Surrebuttal | Missouri-American Water Co |
| 12/9/2003 | Rate of Return Capital Structure | ER20040034 | Direct | Aquila, Inc. |
| 12/9/2003 | Rate of Return Capital Structure | HR20040024 | Direct | Aquila, Inc. |
| 12/19/2003 | Rate of Return Capital Structure | ST20030562 | Direct | Osage Water Company |
| 12/19/2003 | Rate of Return Capital Structure | WT20030563 | Direct | Osage Water Company |
| 1/6/2004 | Rate of Return Capital Structure | GR20040072 | Direct | Aquila, Inc. |
| 1/9/2004 | Rate of Return Capital Structure | WT20030563 | Rebuttal | Osage Water Company |
| 1/9/2004 | Rate of Return Capital Structure | ST20030562 | Rebuttal | Osage Water Company |
| 1/26/2004 | Rate of Return Capital Structure | HR20040024 | Rebuttal | Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks L&P |
| 1/26/2004 | Rate of Return Capital Structure | ER20040034 | Rebuttal | Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks L&P |
| 2/13/2004 | Rate of Return Capital Structure | GR20040072 | Rebuttal | Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks-L&P |
| 2/13/2004 | Rate of Return Capital Structure | ER20040034 | Surrebuttal | Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks-L&P |
| 2/13/2004 | Rate of Return Capital Structure | HR20040024 | Surrebuttal | Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks-L&P |
| 3/11/2004 | Rate of Return Capital Structure | IR20040272 | Direct | Fidelity Telephone Company |

| Date Filed | Issue | Case Number | Exhibit | Case Name |
|---|---|---|---|---|
| 4/15/2004 | Rate of Return Capital Structure | GR20040209 | Direct | Missouri Gas Energy |
| 5/24/04 | Rate of Return Capital Structure | GR20040209 | Rebuttal | Missouri Gas Energy |
| 6/14/04 | Rate of Return Capital Structure | GR20040209 | Surrebuttal | Missouri Gas Energy |
| 7/19/04 | Rate of Return Capital Structure | GR20040209 | True-Up Direct | Missouri Gas Energy |
| 9/20/04 | Rate of Return | ER20040570 | Direct | Empire District Electric Co. |
| 11/04/04 | Rate of Return Capital Structure | ER20040570 | Rebuttal | Empire District Electric Co. |
| 11/24/04 | Rate of Return Capital Structure | ER20040570 | Surrebuttal | Empire District Electric Co. |

**DAVID MURRAY**

**TESTIMONY SCHEDULES A THROUGH E**

**AQUILA, INC.**

**CASE NO. HR-2005-0450**

Q. Is the recommendation of the cost of common equity consistent with a fair rate of return on common equity?

A. Yes. It is generally recognized that authorizing an allowed return on common equity based on a utility's cost of common equity is consistent with a fair rate of return. It is for this very reason that the Discounted Cash Flow (DCF) model is widely recognized as an appropriate model to utilize in arriving at a reasonable recommended return on equity that should be authorized for a utility. The concept underlying the DCF model is to determine the cost of common equity capital to the utility, which reflects the current economic and capital market environment. For example, a company may achieve a return on common equity that is higher than its cost of common equity. This situation will tend to increase the share price. However, this does not mean that this past achieved return is the barometer for what would be a fair authorized return in the context of a rate case. It is the lower cost of capital that should be recognized as a fair authorized return. If a utility continues to be allowed a return on common equity that is not reflective of today's current low-cost-of-capital environment, then this will result in the possibility of excessive returns.

The authorized return should provide a fair and reasonable return to the investors of the company, while ensuring that excessive earnings do not result from the utility's

monopolistic powers. However, this fair and reasonable rate does not necessarily guarantee revenues or the continued financial integrity of the utility.

It should be noted that a reasonable return may vary over time as economic conditions, such as the level of interest rates, and business conditions change. Therefore, the past, present and projected economic and business conditions must be analyzed in order to calculate a fair and reasonable rate of return.

Q. Please discuss the historical economic conditions in which MPS and L&P have operated.

A. One of the most commonly accepted indicators of economic conditions is the discount rate set by the Federal Reserve Board (Federal Reserve or Fed). The Federal Reserve tries to achieve its monetary policy objectives by controlling the discount rate (the interest rate charged by the Federal Reserve for loans of reserves to depository institutions) and the Federal (Fed) Funds Rate (the overnight lending rate between banks). However, recently the Fed Funds Rate has become the primary means for the Federal Reserve to achieve its monetary policy, and the discount rate has become more of a symbolic interest rate. This explains why the Federal Reserve's decisions now focus on the Fed Funds rate and this is reflected in the discussion of interest rates. It should also be noted that on January 9, 2003, the Federal Reserve changed the administration of the discount window. Under the changed administration of the discount window an eligible institution does not need to exhaust other sources of funds before coming to the discount window, nor are there restrictions on the purposes for which the borrower can use primary credit. This explains why the discount rate jumped from 0.75 percent to 2.25 percent on January 9, 2003, when the Fed Funds rate didn't change. Therefore, discount rates before January 9, 2003, are not comparable to discount rates after January 9.

At the end of 1982, the U.S. economy was in the early stages of an economic expansion, following the longest post-World War II recession. This economic expansion began when the Federal Reserve reduced the discount rate seven times in the second half of 1982 in an attempt to stimulate the economy. This reduction in the discount rate led to a reduction in the prime interest rate (the rate charged by banks on short-term loans to

borrowers with high credit ratings) from 16.50 percent in June 1982, to 11.50 percent in December 1982. The economic expansion continued for approximately eight years until July 1990, when the economy entered into a recession.

In December 1990, the Federal Reserve responded to the slumping economy by lowering the discount rate to 6.50 percent (see Schedules 2-1 and 2-2). Over the next year-and-a-half, the Federal Reserve lowered the discount rate another six times to a low of 3.00 percent, which had the effect of lowering the prime interest rate to 6.00 percent (see Schedules 3-1 and 3-2).

In 1993, perhaps the most important factor for the U.S. economy was the passage of the North American Free Trade Agreement (NAFTA). NAFTA created a free trade zone consisting of the United States, Canada and Mexico. The rate of economic growth for the fourth quarter of 1993 was one the Federal Reserve believed could not be sustained without experiencing higher inflation. In the first quarter of 1994, the Federal Reserve took steps to try to restrict the economy by increasing interest rates. As a result, on March 24, 1994, the prime interest rate increased to 6.25 percent. On April 18, 1994, the Federal Reserve announced its intention to raise its targeted interest rates, which resulted in the prime interest rate increasing to 6.75 percent. The Federal Reserve took action again on May 17, 1994, by raising the discount rate to 3.50 percent. The Federal Reserve took three additional restrictive monetary actions, with the last occurring on February 1, 1995. These actions raised the discount rate to 5.25 percent, and in turn, banks raised the prime interest rate to 9.00 percent.

The Federal Reserve then reversed its policy in late 1995 by lowering its target for the Fed Funds Rate by 0.25 percentage points on two different occasions. This had the effect of

lowering the prime interest rate to 8.50 percent. On January 31, 1996, the Federal Reserve lowered the discount rate to a rate of 5.00 percent.

The actions of the Federal Reserve from 1996 through 2000 were primarily focused on keeping the level of inflation under control, and it was successful. The inflation rate, as measured by the *Consumer Price Index - All Urban Consumers* (CPI), had never been higher than 3.70 percent during this period. The increase in CPI stood at 3.20 percent for the twelve months ending July 31, 2005 (see attached Schedules 4-1, 4-2 and 6).

The unemployment rate was 4.90 percent as of August 2005 (see Schedule 6), which is fairly low by historical standards. A lower unemployment rate probably provides the Fed with some comfort to continue to raise the Fed Funds rate at its "measured" pace.

The combination of low inflation and low unemployment had led to a prosperous economy from 1993 through 2000 as evidenced by the fact that real gross domestic product (GDP) of the United States increased every quarter during this period. However, GDP actually declined for the first three quarters of 2001, indicating there was a contraction in the economy during these three quarters. This contraction of GDP for more than two quarters in a row meets the textbook definition of a recession. According to the National Bureau of Economic Research, the recession began in March of 2001 and ended eight months later. Since the recession ended, GDP had been low up until the second quarter of 2003, but since the second quarter of 2003, GDP has been fairly healthy. GDP grew at a rate of 3.30 percent for the second quarter of 2005(see attached Schedule 6).

Q. Please explain the changes in utility bond yields and Thirty-Year U.S. Treasury yields in a little more detail.

A. Cost of capital changes for utilities are closely reflected in the yields on public utility bonds and yields on Thirty-Year U.S. Treasury Bonds (see attached Schedules 5-1 and 5-2). Schedule 5-3, attached to this direct testimony, shows how closely the Mergent's "Public Utility Bond Yields" have followed the yields of Thirty-Year U.S. Treasury Bonds during the period from 1980 to the present. The average spread for this period between these two composite indices has been 152 basis points, with the spread ranging from a low of 80 basis points to a high of 304 basis points (see attached Schedule 5-4). Although there may be times when utility bond yield changes may lag the yield changes in the Thirty-Year U.S. Treasury Bond, these spread parameters show just how tightly correlated utilities' cost of capital is with the level of interest rates on long-term treasuries. This fact should be considered when determining the reasonableness of rate of return recommendations.

Q. What are the inflationary estimations and expectations for 2005 through 2007?

A. *The Value Line Investment Survey: Selection & Opinion*, August 26, 2005, estimates inflation to be 3.3 percent for 2005, 2.4 percent for 2006 and 2.0 percent for 2007. The Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2006-2015*, issued January 2005, states that inflation is expected to be 2.4 percent for 2005, 1.9 percent for 2006 and 2.1 percent for 2007 (see attached Schedule 6).

Q. What are the interest rate estimates and forecasts for 2005, 2006 and 2007?

A Short-term interest rates, those measured by three-month U.S. Treasury Bills, are estimated to be 3.2 percent in 2005, 4.2 percent in 2006 and 4.3 percent in 2007 according to Value Line's predictions. Value Line expects long-term treasury bond rates to average 4.7 percent in 2005, 5.3 percent in 2006 and 5.6 percent in 2007.

The current rate for the period ending August 2005 is 3.44 percent for three-month U.S. Treasury Bills, as noted on the Federal Reserve website, http://www.stls.frb.org/fred/data/rates.html. The rate for 30-Year U.S. Treasury Bonds was 4.57 percent as of September 30, 2005, as quoted on CBS MarketWatch at http://cbs.marketwatch.com/tools/marketsummary/default.asp?siteid=mktw.

Q. What are the growth estimates and expectations for real GDP?

A. GDP is a benchmark utilized by the Commerce Department to measure economic growth within the U.S. borders. Real GDP is measured by the actual GDP, adjusted for inflation. Value Line stated that real GDP growth is expected to increase by 3.7 percent in 2005, 3.4 percent in 2006 and 3.1 percent in 2007. The Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2006-2015*, stated that real GDP is expected to

increase by 3.8 percent in 2005, 3.7 percent in 2006 and 3.7 percent in 2007 (see attached Schedule 6).

Q. Please summarize the expectations of the economic conditions for the next few years.

A. In summary, when combining the previously mentioned sources, inflation is expected to be in the range of 1.9 to 3.3 percent, increase in real GDP in the range of 3.1 to 3.8 percent and long-term interest rates are expected to range from 4.7 to 5.6 percent.

*The Value Line Investment Survey: Selection & Opinion,* October 7, 2005, states that:

> **The economic signals are mixed.** For example, new home sales are off, while the inventory of unsold homes is rising, suggesting we could see further softness here in the coming months. However, home resales—a much larger housing market—are up, while home prices for both housing markets, a sign that this sector may slow down, but probably won't pull back to any great extent. At the same time, consumer confidence is falling, under pressure from high oil prices and the dislocations caused by the recent hurricanes, but industrial production and factory use remain relatively strong. These crosscurrents suggest that the U.S. gross domestic product probably rose by 3.5%, or so, in the just-concluded third quarter.
>
> **We think the current pattern will continue for the rest of this year and into early 2006.** The resilience shown by the economy, in the face of hurricanes, monetary tightening by the Federal Reserve, and record oil prices, is sufficiently encouraging for us to conclude that the next few quarters will see GPD growth in the range of 3.0%-3.5%. This forecast assumes the Fed will raise interest rates once or twice more before it brings the tightening cycle to an end, and that the latest drop in consumer confidence (which is based, in large part, on rising fuel costs) will reverse itself once oil prices stabilize either later this year or early in 2006.
>
> **Some pickup in inflation is likely in the coming months.** Not only will higher gasoline and heating oil costs pinch consumer budgets, but so will the rising costs for certain building materials (arising from the need to rebuild hurricane-ravaged areas of the country). The prices of products that are dependent on petroleum as a raw material are also likely to rise. We think future increases in inflation will be modest, although pricing data will need to be watched closely.

**Meanwhile, the next challenge for investors will be the release of third quarter earnings reports in the next few weeks.** Our feeling is that the economy's resilience and the ongoing careful attention to expenses will keep earnings trending higher.

**The stock market continues to do rather well, seemingly mirroring the economy itself.** The third quarter was a decent one and assuming that our economic, interest-rate, and profit forecasts are near the mark, the stock market's strength should continue.

S&P stated the following in the October 5, 2005, issue of *The Outlook*:

> Despite higher short-term interest rates, S&P thinks conditions are favorable for stocks in the coming months.
>
> The Federal Reserve raised its fed funds target to 3.75% at the Sept. 20 meeting. We now expect the Fed to continue its "measured" pace of tightening by 25 basis points (one quarter of a percentage point) at each of its two remaining 2005 meetings.
>
> "If Katrina didn't stop the Fed, nothing will," observes David Wyss, Standard & Poor's chief economist. He now believes that a rate increase also is likely at the January meeting, which would bring fed funds to 4.5%.
>
> The statement issued with the Fed's most recent increase noted that Hurricane Katrina's disruptions "do not pose a more persistent threat." But the Fed noted that the boost in energy costs has "the potential to add to inflation pressures." We take that to mean that the Fed is now a bit more concerned that the latest energy shock will fuel inflation.
>
> Our projection for the 2006 average gain in the core consumer price index, which excludes food and energy, remains a moderate 2.4%. While we don't see much in the way of inflation, neither do we see the economy slowing considerably. Standard & Poor's analysts now expect S&P 500 operating earnings to increase 10% in 2006. Although that's down from the 14% growth we project for this year, it is still a fairly robust advance.
>
> The market's seasonal patterns appear favorable. Although October is known for its crashes in 1929 and 1987, stocks usually do well during the month. Since 1990, the average October gain for the S&P 500 has been 2.4%.
>
> Sam Stovall, Standard & Poor's chief investment strategist, notes that the fourth quarter has been positive for the S&P 500 in 13 of the 15 years since 1990. What's more, Stovall notes that consumer

discretionary and tech stocks, the two sectors we currently favor, tend to outperform the market during the quarter.

A strong market with good showings by tech and consumer stocks could put investors in a merry mood by the end of 2005.

Q. Please describe the DCF model.

A. The DCF model is a market-oriented approach for deriving the cost of common equity. The cost of common equity calculated from the DCF model is inherently capable of attracting capital. This results from the theory that security prices adjust continually over time, so that an equilibrium price exists and the stock is neither undervalued nor overvalued. It can also be stated that stock prices continually fluctuate to reflect the required and expected return for the investor.

The constant-growth form of the DCF model was used in this analysis. This model relies upon the fact that a company's common stock price is dependent upon the expected cash dividends and upon cash flows received through capital gains or losses that result from stock price changes. The interest rate which discounts the sum of the future expected cash flows to the current market price of the common stock is the calculated cost of common equity. This can be expressed algebraically as:

$$\text{Present Price} = \underset{\text{Discounted by k}}{\text{Expected Dividends}} + \underset{\text{Discounted by k}}{\text{Expected Price in 1 year}} \qquad (1)$$

where k equals the cost of equity. Since the expected price of a stock in one year is equal to the present price multiplied by one plus the growth rate, equation (1) can be restated as:

$$\text{Present Price} = \frac{\text{Expected Dividends}}{(1+k)} + \frac{\text{Present Price}\,(1+g)}{(1+k)} \qquad (2)$$

where g equals the growth rate and k equals the cost of equity. Letting the present price equal $P_0$ and expected dividends equal $D_1$, the equation appears as:

$$P_0 = \frac{D_1}{(1+k)} + \frac{P_0(1+g)}{(1+k)} \qquad (3)$$

The cost of equity equation may also be algebraically represented as:

$$k = \frac{D_1}{P_0} + g \qquad (4)$$

Thus, the cost of common stock equity, k, is equal to the expected dividend yield ($D_1/P_0$) plus the expected growth in dividends (g) continuously summed into the future. The growth in dividends and implied growth in earnings will be reflected in the current price. Therefore, this model also recognizes the potential of capital gains or losses associated with owning a share of common stock.

The discounted cash flow method is a continuous stock valuation model. The DCF theory is based on the following assumptions:

1. Market equilibrium;
2. Perpetual life of the company;
3. Constant payout ratio;
4. Payout of less than 100% earnings;
5. Constant price/earnings ratio;
6. Constant growth in cash dividends;
7. Stability in interest rates over time;
8. Stability in required rates of return over time; and
9. Stability in earned returns over time.

Flowing from these, it is further assumed that an investor's growth horizon is unlimited and that earnings, book values and market prices grow hand-in-hand. Although the entire list of the above assumptions is rarely met, the DCF model is a reasonable working model describing an actual investor's expectations and resulting behaviors.

Q. Please describe the CAPM.

A. The CAPM describes the relationship between a security's investment risk and its market rate of return. This relationship identifies the rate of return which investors expect a security to earn so that its market return is comparable with the market returns earned by other securities that have similar risk. The general form of the CAPM is as follows:

$$k = R_f + \beta (R_m - R_f)$$

where:

$k$ = the expected return on equity for a specific security;
$R_f$ = the risk-free rate;
$\beta$ = beta; and
$R_m - R_f$ = the market risk premium.

The first term of the CAPM is the risk-free rate (Rf). The risk-free rate reflects the level of return that can be achieved without accepting any risk. In reality, there is no such risk-free asset, but it is generally represented by U.S. Treasury securities.

The second term of the CAPM is beta ($\beta$). Beta is an indicator of a security's investment risk. It represents the relative movement and relative risk between a particular security and the market as a whole (where beta for the market equals 1.00). Securities with betas greater than 1.00 exhibit greater volatility than do securities with betas less than 1.00. This causes a higher beta security to be less desirable to a risk-averse investor and therefore requires a higher return in order to attract investor capital away from a lower beta security.

The final term of the CAPM is the market risk premium (Rm - R f). The market risk premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment

# AN ANALYSIS OF THE COST OF CAPITAL

FOR

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

CASE NO. HR-2005-0450

SCHEDULES

BY

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UTILITY SERVICES DIVISION

MISSOURI PUBLIC SERVICE COMMISSION

OCTOBER 2005

AQUILA, INC.
CASE NO. HR-2005-0450

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Aquila Inc.
Case No. HR-2005-0450

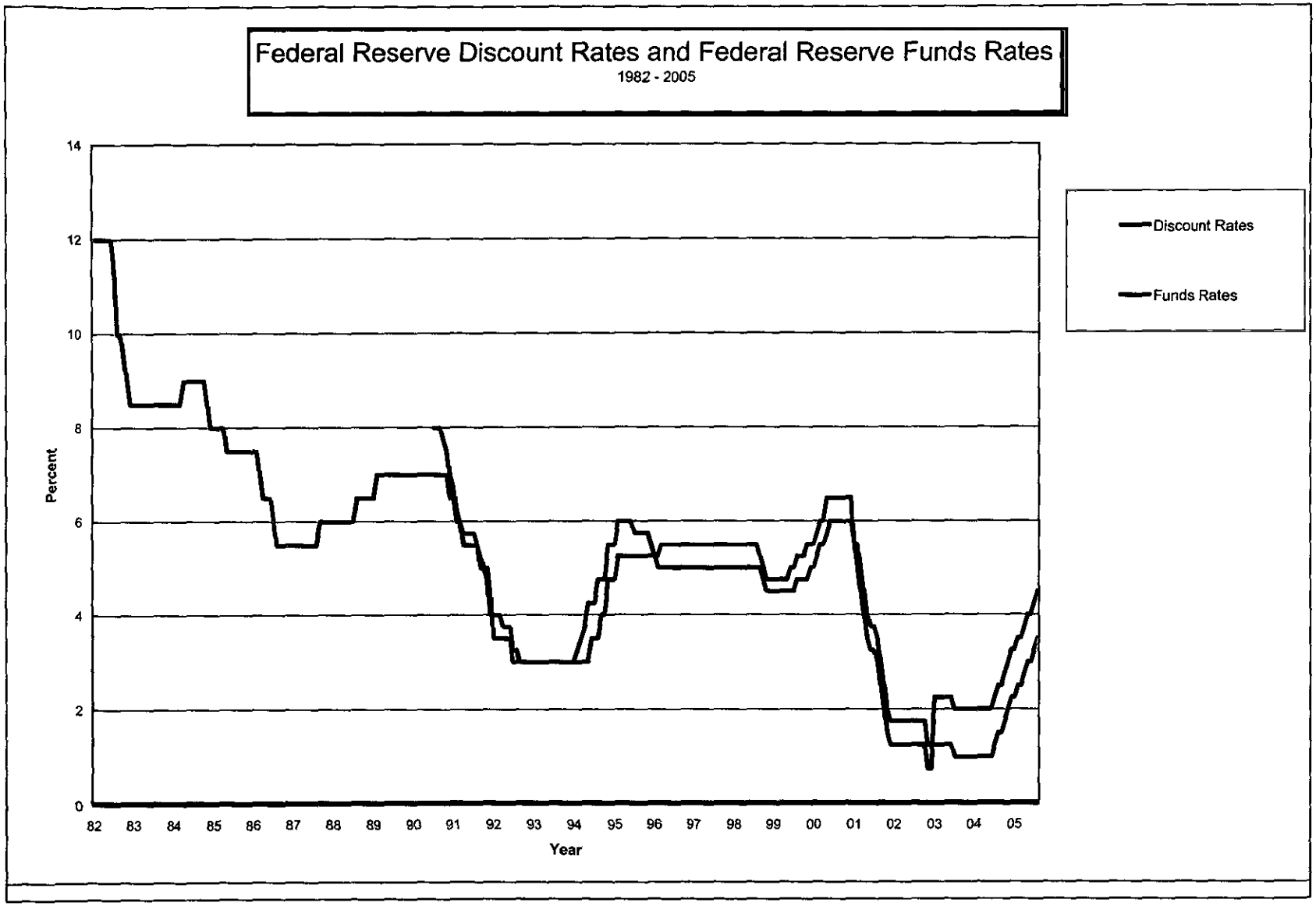
## Federal Reserve Discount Rate and Federal Reserve Funds Rate Changes

| Date | Discount Rate | Funds Rate |
|---|---|---|
| 07/19/82 | 11.50% | |
| 07/31/82 | 11.00% | |
| 08/14/82 | 10.50% | |
| 08/26/82 | 10.00% | |
| 10/10/82 | 9.50% | |
| 11/20/82 | 9.00% | |
| 12/14/82 | 8.50% | |
| 01/01/83 | 8.50% | |
| 12/31/83 | 8.50% | |
| 04/09/84 | 9.00% | |
| 11/21/84 | 8.50% | |
| 12/24/84 | 8.00% | |
| 05/20/85 | 7.50% | |
| 03/07/86 | 7.00% | |
| 04/21/86 | 6.50% | |
| 07/11/86 | 6.00% | |
| 08/21/86 | 5.50% | |
| 09/04/87 | 6.00% | |
| 08/09/88 | 6.50% | |
| 02/24/89 | 7.00% | |
| * 07/13/90 | | 8.00% |
| 10/29/90 | | 7.75% |
| 11/13/90 | | 7.50% |
| 12/07/90 | | 7.25% |
| 12/18/90 | | 7.00% |
| 12/19/90 | 6.50% | |
| 01/09/91 | | 6.75% |
| 02/01/91 | 6.00% | 6.25% |
| 03/08/91 | | 6.00% |
| 04/30/91 | 5.50% | 5.75% |
| 08/06/91 | | 5.50% |
| 09/13/91 | 5.00% | 5.25% |
| 10/31/91 | | 5.00% |
| 11/06/91 | 4.50% | 4.75% |
| 12/06/91 | | 4.50% |
| 12/20/91 | 3.50% | 4.00% |
| 04/09/92 | | 3.75% |
| 07/02/92 | 3.00% | 3.25% |
| 09/04/92 | | 3.00% |
| 01/01/93 | | |
| 12/31/93 | No Changes | No Changes |
| 02/04/94 | | 3.25% |
| 03/22/94 | | 3.50% |
| 04/18/94 | | 3.75% |
| 05/17/94 | 3.50% | 4.25% |
| 08/16/94 | 4.00% | 4.75% |
| 11/15/94 | 4.75% | 5.50% |
| 02/01/95 | 5.25% | 6.00% |
| 07/06/95 | | 5.75% |
| 12/19/95 | | 5.50% |
| 01/31/96 | 5.00% | 5.25% |
| 03/25/97 | | 5.50% |
| 12/12/97 | 5.00% | |
| 01/09/98 | 5.00% | |
| 03/06/98 | 5.00% | |
| 09/29/98 | | 5.25% |
| 10/15/98 | 4.75% | 5.00% |
| 11/17/98 | 4.50% | 4.75% |
| 06/30/99 | 4.50% | 5.00% |
| 08/24/99 | 4.75% | 5.25% |
| 11/16/99 | 5.00% | 5.50% |
| 02/02/00 | 5.25% | 5.75% |
| 03/21/00 | 5.50% | 6.00% |
| 05/19/00 | 6.00% | 6.50% |
| 01/03/01 | 5.75% | 6.00% |
| 01/04/01 | 5.50% | 6.00% |
| 01/31/01 | 5.00% | 5.50% |
| 03/20/01 | 4.50% | 5.00% |
| 04/18/01 | 4.00% | 4.50% |
| 05/15/01 | 3.50% | 4.00% |
| 06/27/01 | 3.25% | 3.75% |
| 08/21/01 | 3.00% | 3.50% |
| 09/17/01 | 2.50% | 3.00% |
| 10/02/01 | 2.00% | 2.50% |
| 11/06/01 | 1.50% | 2.00% |
| 12/11/01 | 1.25% | 1.75% |
| 11/06/02 | 0.75% | 1.25% |
| ** 01/09/03 | 2.25% | 1.25% |
| 06/25/03 | 2.00% | 1.00% |
| 06/30/04 | 2.25% | 1.25% |
| 08/10/04 | 2.50% | 1.50% |
| 09/21/04 | 2.75% | 1.75% |
| 11/10/04 | 3.00% | 2.00% |
| 12/14/04 | 3.25% | 2.25% |
| 02/02/05 | 3.50% | 2.50% |
| 03/22/05 | 3.75% | 2.75% |
| 05/03/05 | 4.00% | 3.00% |
| 06/30/05 | 4.25% | 3.25% |
| 08/09/05 | 4.50% | 3.50% |

* Staff began tracking the Federal Funds Rate.
**Revised discount window program begins. Reflects rate on primary credit. This revised discount window policy results in incomparability of the discount rates after January 9, 2003 to discount rates before January 9, 2003.

Sources: Federal Reserve Bank of New York: http://www.newyorkfed.org/aboutthefed/fedpoint/fed18.html (1/1/2000 through 8/9/2005).
MGE direct testimony in Case No.GR-2004-0209 (all data prior to 1/1/2000).

Note: Interest rates as of December 31 for each year are underlined.


Federal Reserve Discount Rates and Federal Reserve Funds Rates
1982 - 2005
Percent
14
12
10
8
6
4
2
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05
Year
Discount Rates
Funds Rates

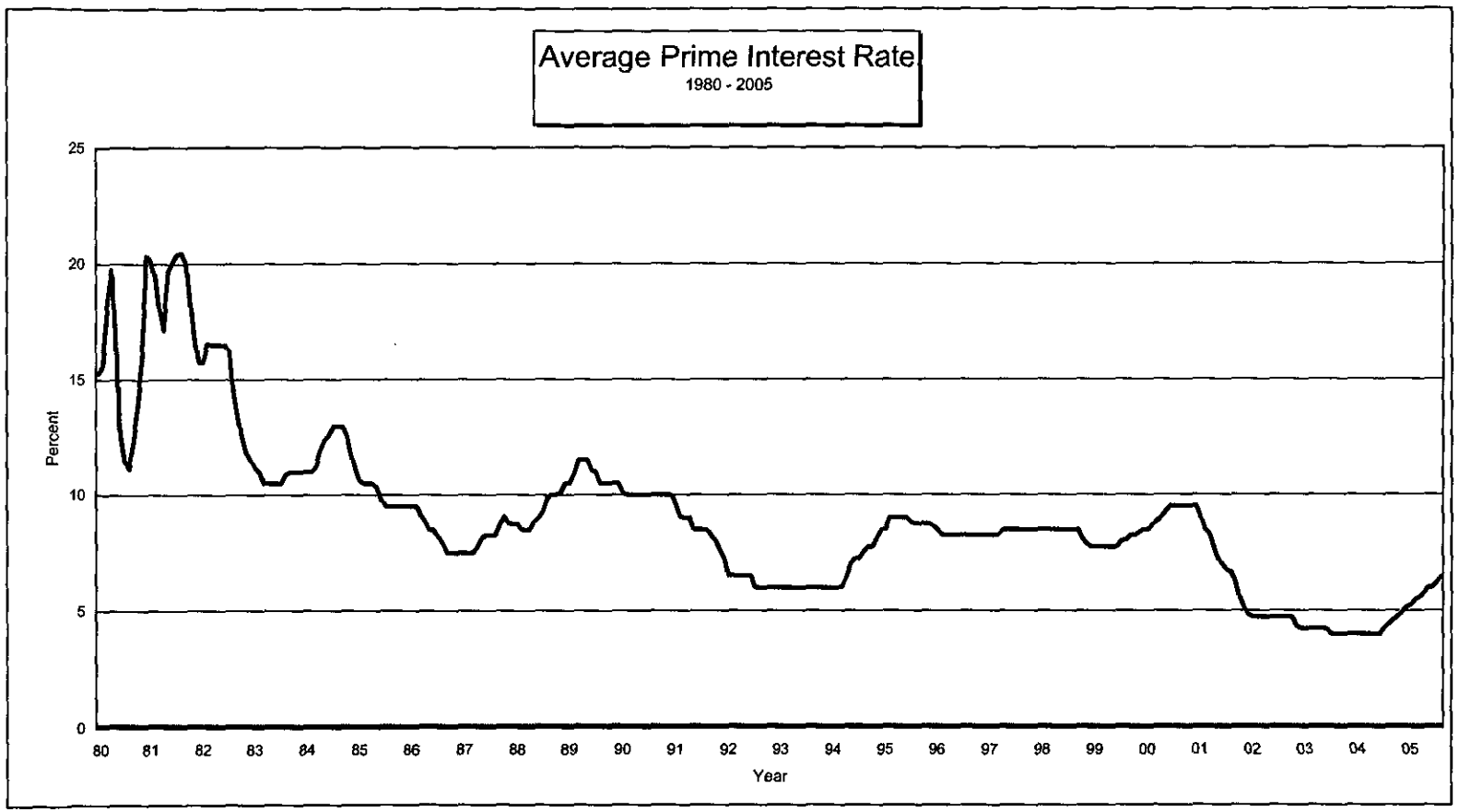
SCHEDULE 2-2

Aquila Inc.
Case No. HR-2005-0450

## Average Prime Interest Rates

| Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan 1980 | 15.25 | Jan 1984 | 11.00 | Jan 1988 | 8.75 | Jan 1992 | 6.50 | Jan 1996 | 8.50 | Jan 2000 | 8.50 | Jan 2004 | 4.00 |
| Feb | 15.63 | Feb | 11.00 | Feb | 8.51 | Feb | 6.50 | Feb | 8.25 | Feb | 8.73 | Feb | 4.00 |
| Mar | 18.31 | Mar | 11.21 | Mar | 8.50 | Mar | 6.50 | Mar | 8.25 | Mar | 8.83 | Mar | 4.00 |
| Apr | 19.77 | Apr | 11.93 | Apr | 8.50 | Apr | 6.50 | Apr | 8.25 | Apr | 9.00 | Apr | 4.00 |
| May | 16.57 | May | 12.39 | May | 8.84 | May | 6.50 | May | 8.25 | May | 9 | May | 4.00 |
| Jun | 12.63 | Jun | 12.60 | Jun | 9.00 | Jun | 6.50 | Jun | 8.25 | Jun | 9.50 | Jun | 4.00 |
| Jul | 11.48 | Jul | 13.00 | Jul | 9.29 | Jul | 6.02 | Jul | 8.25 | Jul | 9.50 | Jul | 4.25 |
| Aug | 11.12 | Aug | 13.00 | Aug | 9.84 | Aug | 6.00 | Aug | 8.25 | Aug | 9.50 | Aug | 4.43 |
| Sep | 12.23 | Sep | 12.97 | Sep | 10.00 | Sep | 6.00 | Sep | 8.25 | Sep | 9.50 | Sep | 4.58 |
| Oct | 13.79 | Oct | 12.58 | Oct | 10.00 | Oct | 6.00 | Oct | 8.25 | Oct | 9.50 | Oct | 4.75 |
| Nov | 16.06 | Nov | 11.77 | Nov | 10.05 | Nov | 6.00 | Nov | 8.25 | Nov | 9.50 | Nov | 4.93 |
| Dec | 20.35 | Dec | 11.06 | Dec | 10.50 | Dec | 6.00 | Dec | 8.25 | Dec | 9.50 | Dec | 5.15 |
| Jan 1981 | 20.16 | Jan 1985 | 10.61 | Jan 1989 | 10.50 | Jan 1993 | 6.00 | Jan 1997 | 8.26 | Jan 2001 | 9.05 | Jan 2005 | 5.25 |
| Feb | 19.43 | Feb | 10.50 | Feb | 10.93 | Feb | 6.00 | Feb | 8.25 | Feb | 8.50 | Feb | 5.49 |
| Mar | 18.05 | Mar | 10.50 | Mar | 11.50 | Mar | 6.00 | Mar | 8.30 | Mar | 8.32 | Mar | 5.58 |
| Apr | 17.15 | Apr | 10.50 | Apr | 11.50 | Apr | 6.00 | Apr | 8.50 | Apr | 7.80 | Apr | 5.75 |
| May | 19.61 | May | 10.31 | May | 11.50 | May | 6.00 | May | 8.50 | May | 7 | May | 5.98 |
| Jun | 20.03 | Jun | 9.78 | Jun | 11.07 | Jun | 6.00 | Jun | 8.50 | Jun | 6.98 | Jun | 6.01 |
| Jul | 20.39 | Jul | 9.50 | Jul | 10.98 | Jul | 6.00 | Jul | 8.50 | Jul | 6.75 | Jul | 6.25 |
| Aug | 20.50 | Aug | 9.50 | Aug | 10.50 | Aug | 6.00 | Aug | 8.50 | Aug | 6.67 | Aug | 6.44 |
| Sep | 20.08 | Sep | 9.50 | Sep | 10.50 | Sep | 6.00 | Sep | 8.50 | Sep | 6.28 | | |
| Oct | 18.45 | Oct | 9.50 | Oct | 10.50 | Oct | 6.00 | Oct | 8.50 | Oct | 5.53 | | |
| Nov | 16.84 | Nov | 9.50 | Nov | 10.50 | Nov | 6.00 | Nov | 8.50 | Nov | 5.10 | | |
| Dec | 15.75 | Dec | 9.50 | Dec | 10.50 | Dec | 6.00 | Dec | 8.50 | Dec | 4.84 | | |
| Jan 1982 | 15.75 | Jan 1986 | 9.50 | Jan 1990 | 10.11 | Jan 1994 | 6.00 | Jan 1998 | 8.50 | Jan 2002 | 4.75 | | |
| Feb | 16.56 | Feb | 9.50 | Feb | 10.00 | Feb | 6.00 | Feb | 8.50 | Feb | 4.75 | | |
| Mar | 16.50 | Mar | 9.10 | Mar | 10.00 | Mar | 6.06 | Mar | 8.50 | Mar | 4.75 | | |
| Apr | 16.50 | Apr | 8.83 | Apr | 10.00 | Apr | 6.45 | Apr | 8.50 | Apr | 4.75 | | |
| May | 16.50 | May | 8.50 | May | 10.00 | May | 6.99 | May | 8.50 | May | 4.75 | | |
| Jun | 16.50 | Jun | 8.50 | Jun | 10.00 | Jun | 7.25 | Jun | 8.50 | Jun | 4.75 | | |
| Jul | 16.26 | Jul | 8.16 | Jul | 10.00 | Jul | 7.25 | Jul | 8.50 | Jul | 4.75 | | |
| Aug | 14.39 | Aug | 7.90 | Aug | 10.00 | Aug | 7.51 | Aug | 8.50 | Aug | 4.75 | | |
| Sep | 13.50 | Sep | 7.50 | Sep | 10.00 | Sep | 7.75 | Sep | 8.49 | Sep | 4.75 | | |
| Oct | 12.52 | Oct | 7.50 | Oct | 10.00 | Oct | 7.75 | Oct | 8.12 | Oct | 4.75 | | |
| Nov | 11.85 | Nov | 7.50 | Nov | 10.00 | Nov | 8.15 | Nov | 7.89 | Nov | 4.35 | | |
| Dec | 11.50 | Dec | 7.50 | Dec | 10.00 | Dec | 8.50 | Dec | 7.75 | Dec | 4.25 | | |
| Jan 1983 | 11.16 | Jan 1987 | 7.50 | Jan 1991 | 9.52 | Jan 1995 | 8.50 | Jan 1999 | 7.75 | Jan 2003 | 4.25 | | |
| Feb | 10.98 | Feb | 7.50 | Feb | 9.05 | Feb | 9.00 | Feb | 7.75 | Feb | 4.25 | | |
| Mar | 10.50 | Mar | 7.50 | Mar | 9.00 | Mar | 9.00 | Mar | 7.75 | Mar | 4.25 | | |
| Apr | 10.50 | Apr | 7.75 | Apr | 9.00 | Apr | 9.00 | Apr | 7.75 | Apr | 4.25 | | |
| May | 10.50 | May | 8.14 | May | 8.50 | May | 9.00 | May | 7.75 | May | 4.25 | | |
| Jun | 10.50 | Jun | 8.25 | Jun | 8.50 | Jun | 9.00 | Jun | 7.75 | Jun | 4.22 | | |
| Jul | 10.50 | Jul | 8.25 | Jul | 8.50 | Jul | 8.80 | Jul | 8.00 | Jul | 4.00 | | |
| Aug | 10.89 | Aug | 8.25 | Aug | 8.50 | Aug | 8.75 | Aug | 8.06 | Aug | 4.00 | | |
| Sep | 11.00 | Sep | 8.70 | Sep | 8.20 | Sep | 8.75 | Sep | 8.25 | Sep | 4.00 | | |
| Oct | 11.00 | Oct | 9.07 | Oct | 8.00 | Oct | 8.75 | Oct | 8.25 | Oct | 4.00 | | |
| Nov | 11.00 | Nov | 8.78 | Nov | 7.58 | Nov | 8.75 | Nov | 8.37 | Nov | 4.00 | | |
| Dec | 11.00 | Dec | 8.75 | Dec | 7.21 | Dec | 8.65 | Dec | 8.50 | Dec | 4.00 | | |

Source: St Louis Federal Reserve Bank: http://research.stlouisfed.org/fred2/data/MPRIME.txt


Average Prime Interest Rate
1980 - 2005
Percent
25
20
15
10
5
0
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03
04
05
Year

**SCHEDULE 3-2**

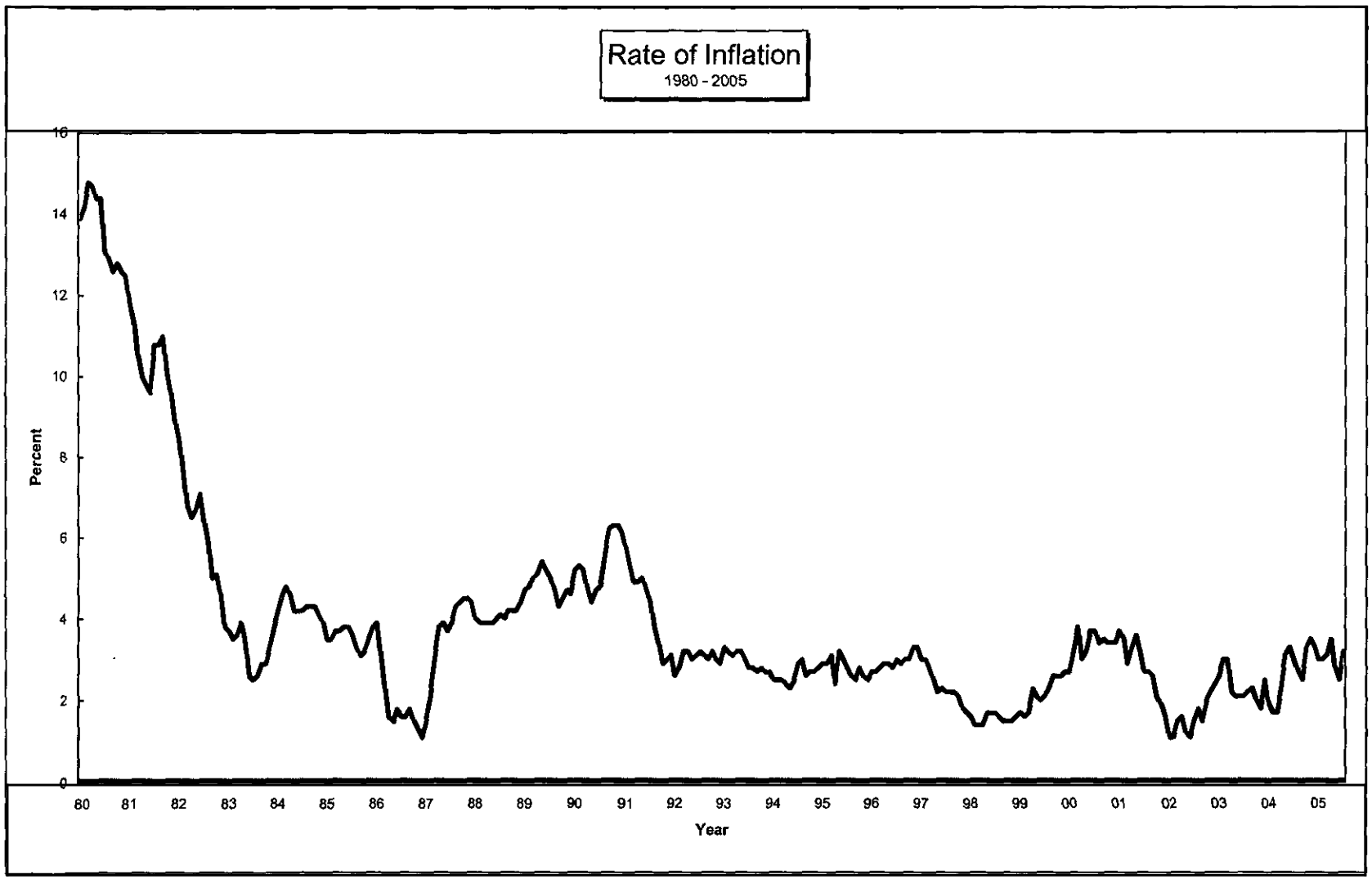
Aquila Inc.
Case No. HR-2005-0450

## Rate of Inflation

| Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan 1980 | 13.90 | Jan 1984 | 4.20 | Jan 1988 | 4.00 | Jan 1992 | 2.60 | Jan 1996 | 2.70 | Jan 2000 | 2.70 | Jan 2004 | 1.90 |
| Feb | 14.20 | Feb | 4.60 | Feb | 3.90 | Feb | 2.80 | Feb | 2.70 | Feb | 3.20 | Feb | 1.70 |
| Mar | 14.80 | Mar | 4.80 | Mar | 3.90 | Mar | 3.20 | Mar | 2.80 | Mar | 3.70 | Mar | 1.70 |
| Apr | 14.70 | Apr | 4.60 | Apr | 3.90 | Apr | 3.20 | Apr | 2.90 | Apr | 3.00 | Apr | 2.30 |
| May | 14.40 | May | 4.20 | May | 3.90 | May | 3.00 | May | 2.90 | May | 3.20 | May | 3.10 |
| Jun | 14.40 | Jun | 4.20 | Jun | 4.00 | Jun | 3.10 | Jun | 2.80 | Jun | 3.70 | Jun | 3.30 |
| Jul | 13.10 | Jul | 4.20 | Jul | 4.10 | Jul | 3.20 | Jul | 3.00 | Jul | 3.70 | Jul | 3.00 |
| Aug | 12.90 | Aug | 4.30 | Aug | 4.00 | Aug | 3.10 | Aug | 2.90 | Aug | 3.40 | Aug | 2.70 |
| Sep | 12.60 | Sep | 4.30 | Sep | 4.20 | Sep | 3.00 | Sep | 3.00 | Sep | 3.50 | Sep | 2.50 |
| Oct | 12.80 | Oct | 4.30 | Oct | 4.20 | Oct | 3.20 | Oct | 3.00 | Oct | 3.40 | Oct | 3.30 |
| Nov | 12.60 | Nov | 4.10 | Nov | 4.20 | Nov | 3.00 | Nov | 3.30 | Nov | 3.40 | Nov | 3.50 |
| Dec | 12.50 | Dec | 3.90 | Dec | 4.40 | Dec | 2.90 | Dec | 3.30 | Dec | 3.40 | Dec | 3.30 |
| Jan 1981 | 11.80 | Jan 1985 | 3.50 | Jan 1989 | 4.70 | Jan 1993 | 3.30 | Jan 1997 | 3.00 | Jan 2001 | 3.70 | Jan 2005 | 3.00 |
| Feb | 11.40 | Feb | 3.50 | Feb | 4.80 | Feb | 3.20 | Feb | 3.00 | Feb | 3.50 | Feb | 3.00 |
| Mar | 10.50 | Mar | 3.70 | Mar | 5.00 | Mar | 3.10 | Mar | 2.80 | Mar | 2.90 | Mar | 3.10 |
| Apr | 10.00 | Apr | 3.70 | Apr | 5.10 | Apr | 3.20 | Apr | 2.50 | Apr | 3.30 | Apr | 3.50 |
| May | 9.80 | May | 3.80 | May | 5.40 | May | 3.20 | May | 2.20 | May | 3.60 | May | 2.80 |
| Jun | 9.60 | Jun | 3.80 | Jun | 5.20 | Jun | 3.00 | Jun | 2.30 | Jun | 3.20 | Jun | 2.50 |
| Jul | 10.80 | Jul | 3.60 | Jul | 5.00 | Jul | 2.80 | Jul | 2.20 | Jul | 2.70 | Jul | 3.20 |
| Aug | 10.80 | Aug | 3.30 | Aug | 4.70 | Aug | 2.80 | Aug | 2.20 | Aug | 2.70 | Aug | 3.60 |
| Sep | 11.00 | Sep | 3.10 | Sep | 4.30 | Sep | 2.70 | Sep | 2.20 | Sep | 2.60 | | |
| Oct | 10.10 | Oct | 3.20 | Oct | 4.50 | Oct | 2.80 | Oct | 2.10 | Oct | 2.10 | | |
| Nov | 9.60 | Nov | 3.50 | Nov | 4.70 | Nov | 2.70 | Nov | 1.80 | Nov | 1.90 | | |
| Dec | 8.90 | Dec | 3.80 | Dec | 4.60 | Dec | 2.70 | Dec | 1.70 | Dec | 1.60 | | |
| Jan 1982 | 8.40 | Jan 1986 | 3.90 | Jan 1990 | 5.20 | Jan 1994 | 2.50 | Jan 1998 | 1.60 | Jan 2002 | 1.10 | | |
| Feb | 7.60 | Feb | 3.10 | Feb | 5.30 | Feb | 2.50 | Feb | 1.40 | Feb | 1.10 | | |
| Mar | 6.80 | Mar | 2.30 | Mar | 5.20 | Mar | 2.50 | Mar | 1.40 | Mar | 1.50 | | |
| Apr | 6.50 | Apr | 1.60 | Apr | 4.70 | Apr | 2.40 | Apr | 1.40 | Apr | 1.60 | | |
| May | 6.70 | May | 1.50 | May | 4.40 | May | 2.30 | May | 1.70 | May | 1.20 | | |
| Jun | 7.10 | Jun | 1.80 | Jun | 4.70 | Jun | 2.50 | Jun | 1.70 | Jun | 1.10 | | |
| Jul | 6.40 | Jul | 1.60 | Jul | 4.80 | Jul | 2.90 | Jul | 1.70 | Jul | 1.50 | | |
| Aug | 5.90 | Aug | 1.60 | Aug | 5.60 | Aug | 3.00 | Aug | 1.60 | Aug | 1.80 | | |
| Sep | 5.00 | Sep | 1.80 | Sep | 6.20 | Sep | 2.60 | Sep | 1.50 | Sep | 1.50 | | |
| Oct | 5.10 | Oct | 1.50 | Oct | 6.30 | Oct | 2.70 | Oct | 1.50 | Oct | 2.00 | | |
| Nov | 4.60 | Nov | 1.30 | Nov | 6.30 | Nov | 2.70 | Nov | 1.50 | Nov | 2.20 | | |
| Dec | 3.80 | Dec | 1.10 | Dec | 6.10 | Dec | 2.60 | Dec | 1.60 | Dec | 2.40 | | |
| Jan 1983 | 3.70 | Jan 1987 | 1.50 | Jan 1991 | 5.70 | Jan 1995 | 2.90 | Jan 1999 | 1.70 | Jan 2003 | 2.60 | | |
| Feb | 3.50 | Feb | 2.10 | Feb | 5.30 | Feb | 2.90 | Feb | 1.60 | Feb | 3.00 | | |
| Mar | 3.60 | Mar | 3.00 | Mar | 4.90 | Mar | 3.10 | Mar | 1.70 | Mar | 3.00 | | |
| Apr | 3.90 | Apr | 3.80 | Apr | 4.90 | Apr | 2.40 | Apr | 2.30 | Apr | 2.20 | | |
| May | 3.50 | May | 3.90 | May | 5.00 | May | 3.20 | May | 2.10 | May | 2.10 | | |
| Jun | 2.60 | Jun | 3.70 | Jun | 4.70 | Jun | 3.00 | Jun | 2.00 | Jun | 2.10 | | |
| Jul | 2.50 | Jul | 3.90 | Jul | 4.40 | Jul | 2.80 | Jul | 2.10 | Jul | 2.10 | | |
| Aug | 2.60 | Aug | 4.30 | Aug | 3.80 | Aug | 2.60 | Aug | 2.30 | Aug | 2.20 | | |
| Sep | 2.90 | Sep | 4.40 | Sep | 3.40 | Sep | 2.50 | Sep | 2.60 | Sep | 2.30 | | |
| Oct | 2.90 | Oct | 4.50 | Oct | 2.90 | Oct | 2.80 | Oct | 2.60 | Oct | 2.00 | | |
| Nov | 3.30 | Nov | 4.50 | Nov | 3.00 | Nov | 2.60 | Nov | 2.60 | Nov | 1.80 | | |
| Dec | 3.80 | Dec | 4.40 | Dec | 3.10 | Dec | 2.50 | Dec | 2.70 | Dec | 1.90 | | |

Source: U.S. Dept of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers,
Change for 12-Month Period, Bureau of Labor Statistics,

**SCHEDULE 4-1**


Rate of Inflation
1980 - 2005
Percent
0
2
4
6
8
10
12
14
16
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03
04
05
Year

Aquila Inc.
Case No. HR-2005-0450

## Average Yields on Mergent's Public Utility Bonds

| Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan 1980 | 12.12 | Jan 1984 | 13.40 | Jan 1988 | 10.75 | Jan 1992 | 8.67 | Jan 1996 | 7.20 | Jan 2000 | 8.22 | Jan 2004 | 6.23 |
| Feb | 13.48 | Feb | 13.50 | Feb | 10.11 | Feb | 8.77 | Feb | 7.37 | Feb | 8.10 | Feb | 6.17 |
| Mar | 14.33 | Mar | 14.03 | Mar | 10.11 | Mar | 8.84 | Mar | 7.72 | Mar | 8.14 | Mar | 6.01 |
| Apr | 13.50 | Apr | 14.30 | Apr | 10.53 | Apr | 8.79 | Apr | 7.88 | Apr | 8.14 | Apr | 6.38 |
| May | 12.17 | May | 14.95 | May | 10.75 | May | 8.72 | May | 7.99 | May | 8.55 | May | 6.68 |
| Jun | 11.87 | Jun | 15.16 | Jun | 10.71 | Jun | 8.64 | Jun | 8.07 | Jun | 8.22 | Jun | 6.53 |
| Jul | 12.12 | Jul | 14.92 | Jul | 10.96 | Jul | 8.46 | Jul | 8.02 | Jul | 8.17 | Jul | 6.34 |
| Aug | 12.82 | Aug | 14.29 | Aug | 11.09 | Aug | 8.34 | Aug | 7.84 | Aug | 8.05 | Aug | 6.18 |
| Sep | 13.29 | Sep | 14.04 | Sep | 10.56 | Sep | 8.32 | Sep | 8.01 | Sep | 8.16 | Sep | 6.01 |
| Oct | 13.53 | Oct | 13.68 | Oct | 9.92 | Oct | 8.44 | Oct | 7.76 | Oct | 8.08 | Oct | 5.95 |
| Nov | 14.07 | Nov | 13.15 | Nov | 9.89 | Nov | 8.53 | Nov | 7.48 | Nov | 8.03 | Nov | 5.97 |
| Dec | 14.48 | Dec | 12.96 | Dec | 10.02 | Dec | 8.36 | Dec | 7.58 | Dec | 7.79 | Dec | 5.93 |
| Jan 1981 | 14.22 | Jan 1985 | 12.88 | Jan 1989 | 10.02 | Jan 1993 | 8.23 | Jan 1997 | 7.79 | Jan 2001 | 7.76 | Jan 2005 | 5.80 |
| Feb | 14.84 | Feb | 13.00 | Feb | 10.02 | Feb | 8.00 | Feb | 7.68 | Feb | 7.69 | Feb | 5.64 |
| Mar | 14.86 | Mar | 13.66 | Mar | 10.16 | Mar | 7.85 | Mar | 7.92 | Mar | 7.59 | Mar | 5.86 |
| Apr | 15.32 | Apr | 13.42 | Apr | 10.14 | Apr | 7.76 | Apr | 8.08 | Apr | 7.81 | Apr | 5.72 |
| May | 15.84 | May | 12.89 | May | 9.92 | May | 7.78 | May | 7.94 | May | 7.88 | May | 5.60 |
| Jun | 15.27 | Jun | 11.91 | Jun | 9.49 | Jun | 7.68 | Jun | 7.77 | Jun | 7.75 | Jun | 5.39 |
| Jul | 15.87 | Jul | 11.88 | Jul | 9.34 | Jul | 7.53 | Jul | 7.52 | Jul | 7.71 | Jul | 5.50 |
| Aug | 16.33 | Aug | 11.93 | Aug | 9.37 | Aug | 7.21 | Aug | 7.57 | Aug | 7.57 | Aug | 5.51 |
| Sep | 16.89 | Sep | 11.95 | Sep | 9.43 | Sep | 7.01 | Sep | 7.50 | Sep | 7.73 | | |
| Oct | 16.76 | Oct | 11.84 | Oct | 9.37 | Oct | 6.99 | Oct | 7.37 | Oct | 7.64 | | |
| Nov | 15.50 | Nov | 11.33 | Nov | 9.33 | Nov | 7.30 | Nov | 7.24 | Nov | 7.61 | | |
| Dec | 15.77 | Dec | 10.82 | Dec | 9.31 | Dec | 7.33 | Dec | 7.16 | Dec | 7.86 | | |
| Jan 1982 | 16.73 | Jan 1986 | 10.66 | Jan 1990 | 9.44 | Jan 1994 | 7.31 | Jan 1998 | 7.03 | Jan 2002 | 7.69 | | |
| Feb | 16.72 | Feb | 10.16 | Feb | 9.66 | Feb | 7.44 | Feb | 7.09 | Feb | 7.62 | | |
| Mar | 16.07 | Mar | 9.33 | Mar | 9.75 | Mar | 7.83 | Mar | 7.13 | Mar | 7.83 | | |
| Apr | 15.82 | Apr | 9.02 | Apr | 9.87 | Apr | 8.20 | Apr | 7.12 | Apr | 7.74 | | |
| May | 15.60 | May | 9.52 | May | 9.89 | May | 8.32 | May | 7.11 | May | 7.76 | | |
| Jun | 16.18 | Jun | 9.51 | Jun | 9.69 | Jun | 8.31 | Jun | 6.99 | Jun | 7.67 | | |
| Jul | 16.04 | Jul | 9.19 | Jul | 9.66 | Jul | 8.47 | Jul | 6.99 | Jul | 7.54 | | |
| Aug | 15.22 | Aug | 9.15 | Aug | 9.84 | Aug | 8.41 | Aug | 6.96 | Aug | 7.34 | | |
| Sep | 14.56 | Sep | 9.42 | Sep | 10.01 | Sep | 8.65 | Sep | 6.88 | Sep | 7.23 | | |
| Oct | 13.88 | Oct | 9.39 | Oct | 9.94 | Oct | 8.88 | Oct | 6.88 | Oct | 7.43 | | |
| Nov | 13.58 | Nov | 9.15 | Nov | 9.76 | Nov | 9.00 | Nov | 6.96 | Nov | 7.31 | | |
| Dec | 13.55 | Dec | 8.96 | Dec | 9.57 | Dec | 8.79 | Dec | 6.84 | Dec | 7.20 | | |
| Jan 1983 | 13.46 | Jan 1987 | 8.77 | Jan 1991 | 9.56 | Jan 1995 | 8.77 | Jan 1999 | 6.87 | Jan 2003 | 7.13 | | |
| Feb | 13.60 | Feb | 8.81 | Feb | 9.31 | Feb | 8.56 | Feb | 7.00 | Feb | 6.92 | | |
| Mar | 13.28 | Mar | 8.75 | Mar | 9.39 | Mar | 8.41 | Mar | 7.18 | Mar | 6.80 | | |
| Apr | 13.03 | Apr | 9.30 | Apr | 9.30 | Apr | 8.30 | Apr | 7.16 | Apr | 6.68 | | |
| May | 13.00 | May | 9.82 | May | 9.29 | May | 7.93 | May | 7.42 | May | 6.35 | | |
| Jun | 13.17 | Jun | 9.87 | Jun | 9.44 | Jun | 7.62 | Jun | 7.70 | Jun | 6.21 | | |
| Jul | 13.28 | Jul | 10.01 | Jul | 9.40 | Jul | 7.73 | Jul | 7.66 | Jul | 6.54 | | |
| Aug | 13.50 | Aug | 10.33 | Aug | 9.16 | Aug | 7.86 | Aug | 7.86 | Aug | 6.78 | | |
| Sep | 13.35 | Sep | 11.00 | Sep | 9.03 | Sep | 7.62 | Sep | 7.87 | Sep | 6.58 | | |
| Oct | 13.19 | Oct | 11.32 | Oct | 8.99 | Oct | 7.46 | Oct | 8.02 | Oct | 6.50 | | |
| Nov | 13.33 | Nov | 10.82 | Nov | 8.93 | Nov | 7.40 | Nov | 7.86 | Nov | 6.44 | | |
| Dec | 13.48 | Dec | 10.99 | Dec | 8.76 | Dec | 7.21 | Dec | 8.04 | Dec | 6.36 | | |

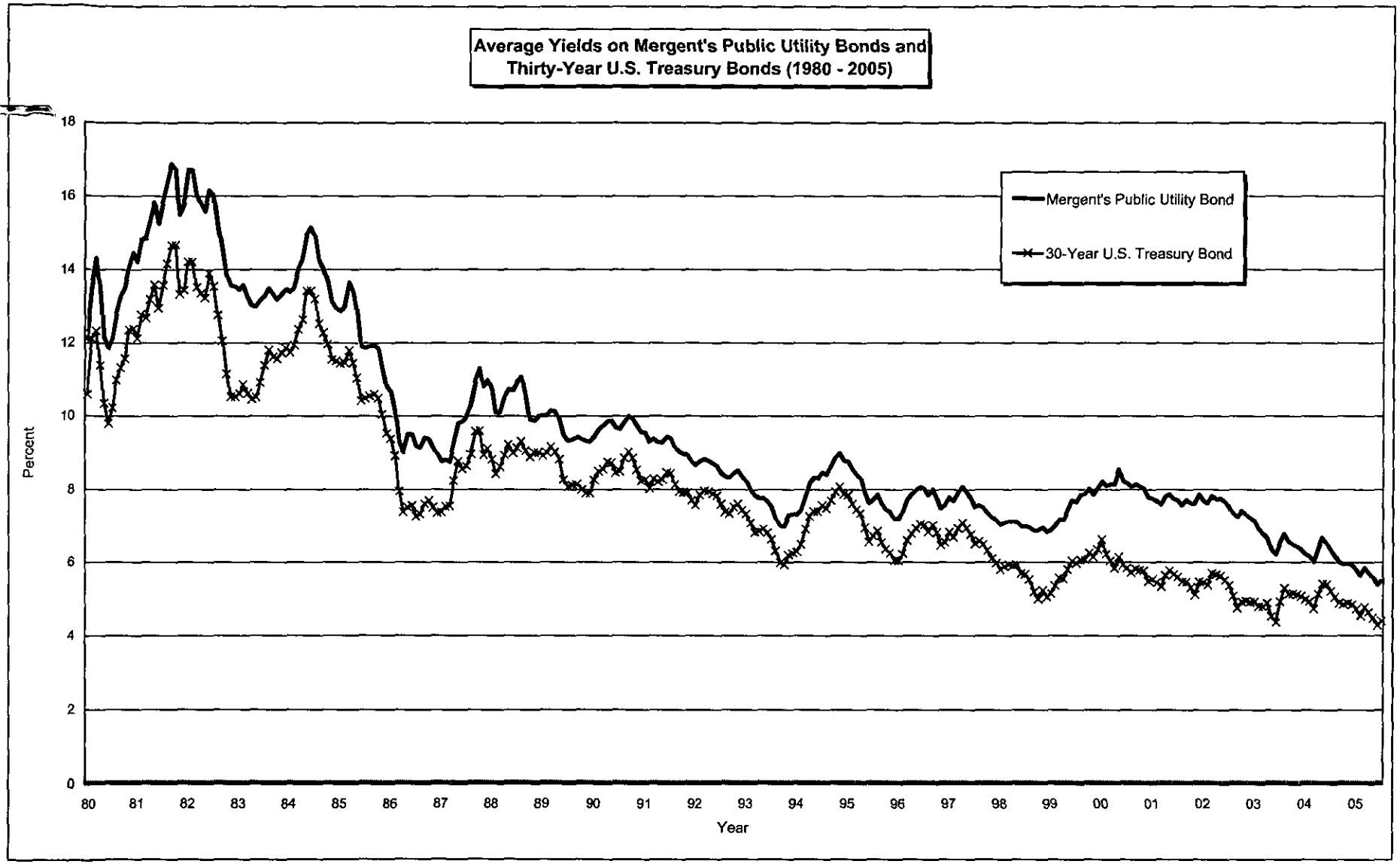
Source: Mergent Bond Record

**SCHEDULE 5-1**

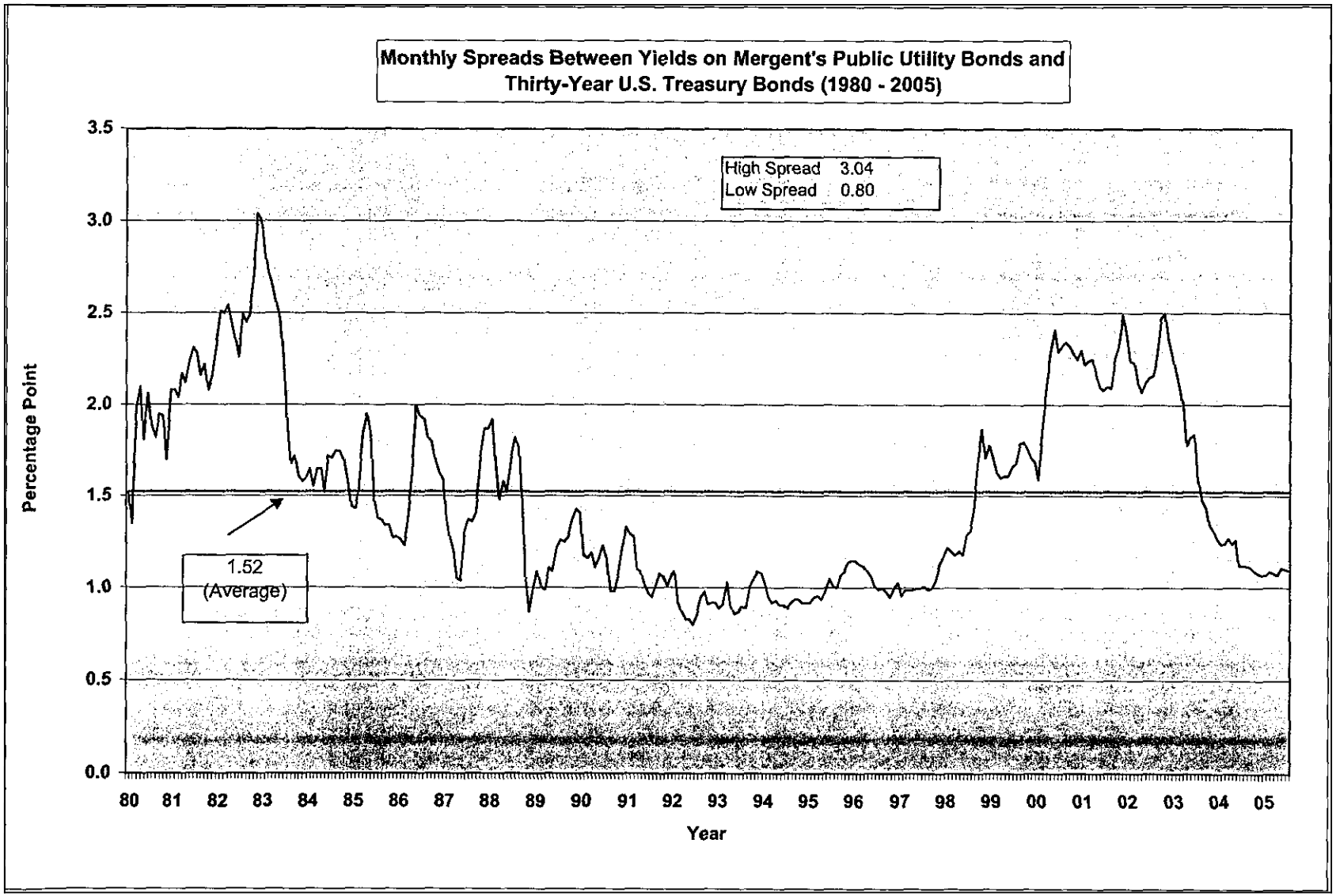
## Average Yields on Thirty-Year U.S. Treasury Bonds

| Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) | Mo/Year | Rate (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan 1980 | 10.60 | Jan 1984 | 11.75 | Jan 1988 | 8.83 | Jan 1992 | 7.58 | Jan 1996 | 6.05 | Jan 2000 | 6.63 | Jan 2004 | 4.99 |
| Feb | 12.13 | Feb | 11.95 | Feb | 8.43 | Feb | 7.85 | Feb | 6.24 | Feb | 6.23 | Feb | 4.93 |
| Mar | 12.34 | Mar | 12.38 | Mar | 8.63 | Mar | 7.97 | Mar | 6.60 | Mar | 6.05 | Mar | 4.74 |
| Apr | 11.40 | Apr | 12.65 | Apr | 8.95 | Apr | 7.96 | Apr | 6.79 | Apr | 5.85 | Apr | 5.14 |
| May | 10.36 | May | 13.43 | May | 9.23 | May | 7.89 | May | 6.93 | May | 6.15 | May | 5.42 |
| Jun | 9.81 | Jun | 13.44 | Jun | 9.00 | Jun | 7.84 | Jun | 7.06 | Jun | 5.93 | Jun | 5.41 |
| Jul | 10.24 | Jul | 13.21 | Jul | 9.14 | Jul | 7.60 | Jul | 7.03 | Jul | 5.85 | Jul | 5.22 |
| Aug | 11.00 | Aug | 12.54 | Aug | 9.32 | Aug | 7.39 | Aug | 6.84 | Aug | 5.72 | Aug | 5.06 |
| Sep | 11.34 | Sep | 12.29 | Sep | 9.06 | Sep | 7.34 | Sep | 7.03 | Sep | 5.83 | Sep | 4.90 |
| Oct | 11.59 | Oct | 11.98 | Oct | 8.89 | Oct | 7.53 | Oct | 6.81 | Oct | 5.80 | Oct | 4.86 |
| Nov | 12.37 | Nov | 11.56 | Nov | 9.02 | Nov | 7.61 | Nov | 6.48 | Nov | 5.78 | Nov | 4.89 |
| Dec | 12.40 | Dec | 11.52 | Dec | 9.01 | Dec | 7.44 | Dec | 6.55 | Dec | 5.49 | Dec | 4.86 |
| Jan 1981 | 12.14 | Jan 1985 | 11.45 | Jan 1989 | 8.93 | Jan 1993 | 7.34 | Jan 1997 | 6.83 | Jan 2001 | 5.54 | Jan 2005 | 4.73 |
| Feb | 12.80 | Feb | 11.47 | Feb | 9.01 | Feb | 7.09 | Feb | 6.69 | Feb | 5.45 | Feb | 4.55 |
| Mar | 12.69 | Mar | 11.81 | Mar | 9.17 | Mar | 6.82 | Mar | 6.93 | Mar | 5.34 | Mar | 4.78 |
| Apr | 13.20 | Apr | 11.47 | Apr | 9.03 | Apr | 6.85 | Apr | 7.09 | Apr | 5.65 | Apr | 4.65 |
| May | 13.60 | May | 11.05 | May | 8.83 | May | 6.92 | May | 6.94 | May | 5.78 | May | 4.49 |
| Jun | 12.96 | Jun | 10.44 | Jun | 8.27 | Jun | 6.81 | Jun | 6.77 | Jun | 5.67 | Jun | 4.29 |
| Jul | 13.59 | Jul | 10.50 | Jul | 8.08 | Jul | 6.63 | Jul | 6.51 | Jul | 5.61 | Jul | 4.41 |
| Aug | 14.17 | Aug | 10.56 | Aug | 8.12 | Aug | 6.32 | Aug | 6.58 | Aug | 5.48 | Aug | 4.46 |
| Sep | 14.67 | Sep | 10.61 | Sep | 8.15 | Sep | 6.00 | Sep | 6.50 | Sep | 5.48 | | |
| Oct | 14.68 | Oct | 10.50 | Oct | 8.00 | Oct | 5.94 | Oct | 6.33 | Oct | 5.32 | | |
| Nov | 13.35 | Nov | 10.06 | Nov | 7.90 | Nov | 6.21 | Nov | 6.11 | Nov | 5.12 | | |
| Dec | 13.45 | Dec | 9.54 | Dec | 7.90 | Dec | 6.25 | Dec | 5.99 | Dec | 5.48 | | |
| Jan 1982 | 14.22 | Jan 1986 | 9.40 | Jan 1990 | 8.26 | Jan 1994 | 6.29 | Jan 1998 | 5.81 | Jan 2002 | 5.44 | | |
| Feb | 14.22 | Feb | 8.93 | Feb | 8.50 | Feb | 6.49 | Feb | 5.89 | Feb | 5.39 | | |
| Mar | 13.53 | Mar | 7.96 | Mar | 8.56 | Mar | 6.91 | Mar | 5.95 | Mar | 5.71 | | |
| Apr | 13.37 | Apr | 7.39 | Apr | 8.76 | Apr | 7.27 | Apr | 5.92 | Apr | 5.67 | | |
| May | 13.24 | May | 7.52 | May | 8.73 | May | 7.41 | May | 5.93 | May | 5.64 | | |
| Jun | 13.92 | Jun | 7.57 | Jun | 8.46 | Jun | 7.40 | Jun | 5.70 | Jun | 5.52 | | |
| Jul | 13.55 | Jul | 7.27 | Jul | 8.50 | Jul | 7.58 | Jul | 5.68 | Jul | 5.38 | | |
| Aug | 12.77 | Aug | 7.33 | Aug | 8.86 | Aug | 7.49 | Aug | 5.54 | Aug | 5.08 | | |
| Sep | 12.07 | Sep | 7.62 | Sep | 9.03 | Sep | 7.71 | Sep | 5.20 | Sep | 4.76 | | |
| Oct | 11.17 | Oct | 7.70 | Oct | 8.86 | Oct | 7.94 | Oct | 5.01 | Oct | 4.93 | | |
| Nov | 10.54 | Nov | 7.52 | Nov | 8.54 | Nov | 8.08 | Nov | 5.25 | Nov | 4.95 | | |
| Dec | 10.54 | Dec | 7.37 | Dec | 8.24 | Dec | 7.87 | Dec | 5.06 | Dec | 4.92 | | |
| Jan 1983 | 10.63 | Jan 1987 | 7.39 | Jan 1991 | 8.27 | Jan 1995 | 7.85 | Jan 1999 | 5.16 | Jan 2003 | 4.94 | | |
| Feb | 10.88 | Feb | 7.54 | Feb | 8.03 | Feb | 7.61 | Feb | 5.37 | Feb | 4.81 | | |
| Mar | 10.63 | Mar | 7.55 | Mar | 8.29 | Mar | 7.45 | Mar | 5.58 | Mar | 4.80 | | |
| Apr | 10.48 | Apr | 8.25 | Apr | 8.21 | Apr | 7.36 | Apr | 5.55 | Apr | 4.90 | | |
| May | 10.53 | May | 8.78 | May | 8.27 | May | 6.95 | May | 5.81 | May | 4.53 | | |
| Jun | 10.93 | Jun | 8.57 | Jun | 8.47 | Jun | 6.57 | Jun | 6.04 | Jun | 4.37 | | |
| Jul | 11.40 | Jul | 8.64 | Jul | 8.45 | Jul | 6.72 | Jul | 5.98 | Jul | 4.93 | | |
| Aug | 11.82 | Aug | 8.97 | Aug | 8.14 | Aug | 6.86 | Aug | 6.07 | Aug | 5.30 | | |
| Sep | 11.63 | Sep | 9.59 | Sep | 7.95 | Sep | 6.55 | Sep | 6.07 | Sep | 5.14 | | |
| Oct | 11.58 | Oct | 9.61 | Oct | 7.93 | Oct | 6.37 | Oct | 6.26 | Oct | 5.16 | | |
| Nov | 11.75 | Nov | 8.95 | Nov | 7.92 | Nov | 6.26 | Nov | 6.15 | Nov | 5.13 | | |
| Dec | 11.88 | Dec | 9.12 | Dec | 7.70 | Dec | 6.06 | Dec | 6.35 | Dec | 5.08 | | |

Sources: Federal Reserve, http://www.stls.frb.org/fred/data/irates
yahoo finance http://finance.yahoo.com/q/hp?s=^TYX


Average Yields on Mergent's Public Utility Bonds and Thirty-Year U.S. Treasury Bonds (1980 - 2005)
Mergent's Public Utility Bond
30-Year U.S. Treasury Bond
Percent
Year
0
2
4
6
8
10
12
14
16
18
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03
04
05

**SCHEDULE 5-3**


Monthly Spreads Between Yields on Mergent's Public Utility Bonds and Thirty-Year U.S. Treasury Bonds (1980 - 2005)
High Spread 3.04
Low Spread 0.80
1.52
(Average)
Percentage Point
Year
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05

SCHEDULE 5-4

AQUILA, INC.
CASE NO. HR-2005-0450

# Economic Estimates and Projections, 2005 - 2007

| | Inflation Rate | | | Real GDP | | | Unemployment | | | 3-Mo. T-Bill Rate | | | 30-Yr. T-Bond Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 |
| Value Line Investment Survey (08/26/05) | 3.30% | 2.40% | 2.00% | 3.70% | 3.40% | 3.10% | 5.10% | 5.00% | 5.00% | 3.20% | 4.20% | 4.30% | 4.70% | 5.30% | 5.60% |
| The Budget and Economic Outlook FY2005-2015 | 2.40% | 1.90% | 2.10% | 3.80% | 3.70% | 3.70% | 5.20% | 5.20% | 5.20% | 2.80% | 4.00% | 4.60% | N.A. | N.A. | N.A. |
| Current rate | 3.60% | | | 3.30% | | | 4.90% | | | 3.44% | | | 4.42% | | |

Notes: N.A. = Not Available.

Sources of Current Rates:

| | |
|---|---|
| Inflation: | The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, 12-Month Period Ending August 31, 2005. |
| 30-Yr. T-Bond: | Investopedia, 30-Year U.S. Treasury Bond Rate, http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETYX&d=1y as of October 7, 2005. |
| 3-Month Treasury: | The Federal Reserve Bank of St. Louis, 3-Month Treasury Bill Rate, http://research.stlouisfed.org/fred2/data/GS3M.txt as of August 1, 2005. |
| GDP: | U.S. Department of Commerce, Bureau of Economic Analysis, Real GDP for the 3-month period ending June 30, 2005. |
| Unemployment: | The Bureau of Labor Statistics, Economy at a Glance - Unemployment Rate as of August 2005. |

Other Sources:

The Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2005-2015
http://www.cbo.gov/showdoc.cfm?index=2727&sequence=11.

**SCHEDULE 6**

AQUILA, INC.
CASE NO. HR-2005-0450

## Historical Consolidated Capital Structures for Aquila, Inc.

*(Dollars in millions)*

| Capital Structure | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| Common Equity | $661.1 | $851.7 | $906.8 | $946.3 | $1,158.0 |
| Preferred Stock | 95.1 | 83.9 | 25.4 | 125.4 | 125.0 |
| Long-Term Debt | 896.7 ** | 1,011.5 ** | 1,115.7 ** | 1,370.5 ** | 1,496.4 ** |
| Short-Term Debt | 230.9 | 70.0 | 182.4 | 288.6 | 252.0 |
| | $1,883.8 | $2,017.1 | $2,230.3 | $2,730.8 | $3,031.4 |

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

| Capital Structure | 2002 | 2003 | 2004 |
|---|---|---|---|
| Common Equity | $1,608.0 | $1,359.3 | $1,130.5 |
| Preferred Stock | 0.0 * | 0.0 * | 0.0 * |
| Long-Term Debt | 2,929.0 ** | 2,706.0 ** | 2,371.9 ** |
| Short-Term Debt | 301.0 | 0.0 | 0.0 |
| | $4,838.0 | $4,065.3 | $3,502.4 |

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

Sources: Aquila, Inc.'s 2000, 2002 and 2004 Annual Reports.

AQUILA, INC.
CASE NO. HR-2005-0450

## Historical Consolidated Capital Structures for Aquila, Inc.

*(In Percentages)*

| Capital Structure | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| Common Equity | 35.09% | 42.22% | 40.66% | 34.65% | 38.20% |
| Preferred Stock | 5.05% | 4.16% | 1.14% | 4.59% | 4.12% |
| Long-Term Debt | 47.60% ** | 50.15% ** | 50.02% ** | 50.19% ** | 49.36% ** |
| Short-Term Debt | 12.26% | 3.47% | 8.18% | 10.57% | 8.31% |
| Total | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

| Capital Structure | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| Common Equity | 40.31% | 42.45% | 34.91% | 34.96% | 44.17% |
| Preferred Stock | 3.46% * | 2.93% * | 8.01% * | 8.74% * | 4.33% * |
| Long-Term Debt | 52.28% ** | 47.70% ** | 51.38% ** | 46.57% ** | 42.01% ** |
| Short-Term Debt | 3.94% | 6.91% | 5.70% | 9.73% | 9.50% |
| Total | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

| Capital Structure | 2002 | 2003 | 2004 | **10-Year (1992-2001) Average** | **5-Year (1997-2001) Average** |
|---|---|---|---|---|---|
| Common Equity | 33.24% | 33.44% | 32.28% | **38.76%** | **39.36%** |
| Preferred Stock | 0.00% * | 0.00% * | 0.00% * | **4.65%** | **5.50%** |
| Long-Term Debt | 60.54% ** | 47.70% ** | 67.72% ** | **48.73%** | **47.99%** |
| Short-Term Debt | 6.22% | 0.00% | 0.00% | **7.86%** | **7.16%** |
| | 100.00% | 81.14% | 100.00% | **100.00%** | **100.00%** |

Source: Schedule 7-1

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

Sources: Aquila, Inc.'s 2000, 2002 and 2004 Annual Reports.

**SCHEDULE 7-2**

AQUILA, INC.
CASE NO. HR-2005-0450

**Selected Financial Ratios for Aquila, Inc.**
**Consolidated Basis**

| Financial Ratios | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Return on Ending Common Equity | 13.46% | 11.70% | -129.06% * | -24.75% * | -25.87% * |
| Earnings Per Common Share | $1.91 | $2.01 | -$12.83 | -$1.73 | -$1.13 |
| Cash Dividends Per Common Share | $1.20 | $1.20 | $0.78 | $0.00 | $0.00 |
| Common Dividend Payout Ratio | 62.83% | 59.70% | N.M. | N.M. | N.M. |
| Year-End Market Price Per Common Share | $31.00 | $17.10 | $1.77 | $3.39 | $3.69 |
| Year-End Book Value Per Common Share | $17.94 | $22.01 | $8.30 | $6.96 | $4.68 |
| Year-End Market-to-Book Ratio | 1.73 x | 0.78 x | 0.21 x | 0.49 x | 0.79 x |
| Pre-Tax Interest Coverage Ratio | 2.51 x | 3.16 x | Negative x | Negative x | Negative x |
| Issuer Credit Rating | BBB ** | BBB ** | BB ** | B ** | B- ** |

* Because the financial data was not directly provided in Aquila, Inc.'s 2002 or 2004 Annual Report, Staff made its own calculation of the Return on Ending Common Equity.
**Ratings are as of year-end for respective years. Ratings for Aquila have changed many times during the period from 2002 to present.

Formulas:
Return on Ending Common Equity = Net Income Available for Common Stock / Ending Common Shareholders' Equity.

Year-End Market to Book Ratio = Year-End Market Price Per Common Share / Year-End Book Value Per Common Share.

Year-End Market Price Per Common Share has been adjusted for stock splits and stock dividends.

Pre-Tax Interest Coverage Ratio = (Net Income + Income Taxes + Total Interest Expense) / Total Interest Expense.

Sources:
Aquila, Inc.'s Stockholders Annual Reports.
The Value Line Investment Survey: Ratings & Reports July 1, 2005.
S&P's Stock Guides, January 2005 and January 2004.
S&P's Ratings Direct at: http://www.ratingsdirect.com/Apps/RD

Notes: N.M. = Not Meaningful

**SCHEDULE 8**

**AQUILA, INC**
**CASE NO. HR-2005-0450**

**Capital Structure as of June 30, 2005**
**for Aquila, Inc.**

| Capital Component | Amount in Dollars | Percentage of Capital |
|---|---|---|
| Common Stock Equity | $1,103,700,000 | 36.16% |
| Preferred Stock | 0 | 0.00% |
| Long-Term Debt | 1,948,769,382 * | 63.84% |
| Short-Term Debt | 0 | 0.00% |
| **Total Capitalization** | **$3,052,469,382** | **100.00%** |

**Electric Financial Ratio Benchmark**
**Total Debt / Total Capital**

| | |
|---|---|
| Standard & Poor's Corporation's RatingsDirect, Revised Financial Guidelines as of June 2, 2004 | BBB Credit Rating based on a "6" Business Profile |
| | 48% to 58% |

Note: *Net proceeds as indicated on Schedule 10.

Source: Aquila, Inc.'s response to Staff's Data Request No. MPSC-250 and Aquila's 10Q for June 30, 2005.

**SCHEDULE 9**

AQUILA, INC.
CASE NO. HR-2005-0450

**Aquila, Inc. Weighted Average Cost of Debt**
**as of June 30, 2005**

| LONG-TERM DEBT | ISSUE DATE YR/MO/DAY | DUE DATE YR/MO/DAY | INTEREST RATE | A ORIGINAL ISSUE | B AMOUNT OUTSTANDING | C DISCOUNT/PREMIUM & ISSUE COSTS | D=B/A*C RELATIVE COSTS | B-D NET PROCEEDS | ANNUAL INTEREST | COST OF MONEY |
|---|---|---|---|---|---|---|---|---|---|---|
| Convertible Subordinated Debentures | July 24, 1986 | July 1, 2011 | 6.625% | 50,000,000 | 2,173,001 | 2,626,347 | 114,141 | 2,058,860 | 143,961 | 6.992% |
| Warnego, KS Pollution Control Bonds | March 1, 1996 | March 1, 2026 | 2.000% | 7,300,000 | 7,300,000 | 422,982 | 422,982 | 6,877,018 | 146,000 | 2.123% |
| Senior Notes, 9.0% Series | November 25, 1991 | November 15, 2021 | 9.000% | 150,000,000 | 5,000,000 | 3,018,294 | 100,610 | 4,899,390 | 450,000 | 9.185% |
| Senior Notes, 8.2% Series | January 29, 1992 | January 15, 2007 | 8.200% | 130,000,000 | 36,905,000 | 13,042,943 | 3,702,691 | 33,202,309 | 3,026,210 | 9.114% |
| Senior Notes, 8.0% Series | March 3, 1993 | March 1, 2023 | 8.000% | 125,000,000 | 51,500,000 | 1,982,502 | 816,791 | 50,683,209 | 4,120,000 | 8.129% |
| Environmental Improvement Bonds | May 26, 1993 | May 1, 2028 | 2.030% | 5,000,000 | 5,000,000 | 111,563 | 111,563 | 4,888,437 | 101,500 | 2.076% |
| Sanwa Bus CC | December 9, 1995 | December 9, 2009 | 6.990% | 8,190,000 | 3,533,280 | 35,000 | 15,099 | 3,518,181 | 246,976 | 7.020% |
| Senior Notes, 6.7% Series | October 17, 1996 | October 15, 2006 | 6.700% | 100,000,000 | 85,900,000 | 666,537 | 572,555 | 85,327,445 | 5,755,300 | 6.745% |
| Senior Notes, 8.27% Series | March 31, 1999 | November 15, 2021 | 8.270% | 131,750,000 | 80,850,000 | 3,591,143 | 2,203,749 | 78,646,251 | 6,686,295 | 8.502% |
| Senior Notes, 9.03% Series | March 31, 1999 | December 1, 2005 | 9.030% | 20,232,000 | 19,057,000 | 613,622 | 577,985 | 18,479,015 | 1,720,847 | 9.312% |
| Senior Notes, 7.625% Series | November 15, 1999 | November 15, 2009 | 7.625% | 200,000,000 | 199,000,000 | 3,025,739 | 3,010,610 | 195,989,390 | 15,173,750 | 7.742% |
| SJLP FMB | November 25, 1991 | February 1, 2021 | 9.440% | 22,500,000 | 18,000,000 | 664,653 | 531,722 | 17,468,278 | 1,699,200 | 9.727% |
| SJLP Unsecured MTN | December 6, 1993 | December 1, 2023 | 7.170% | 7,000,000 | 7,000,000 | 382,259 | 382,259 | 6,617,741 | 501,900 | 7.584% |
| SJLP Unsecured MTN | November 30, 1993 | November 30, 2023 | 7.330% | 3,000,000 | 3,000,000 | 163,606 | 163,606 | 2,836,394 | 219,900 | 7.753% |
| SJLP Unsecured MTN | November 30, 1993 | November 29, 2013 | 7.160% | 9,000,000 | 9,000,000 | 490,738 | 490,738 | 8,509,262 | 644,400 | 7.573% |
| SJLP Unsecured MTN | November 30, 1993 | November 29, 2013 | 7.130% | 1,000,000 | 1,000,000 | 54,526 | 54,526 | 945,474 | 71,300 | 7.541% |
| SJLP Unsecured Pollution Control Bonds | June 4, 1995 | February 1, 2013 | 5.850% | 5,600,000 | 5,600,000 | 913,838 | 913,838 | 4,686,162 | 327,600 | 6.991% |
| Senior Notes, 7.95% Series (downgrade 9.95%) | February 1, 2001 | February 1, 2011 | 7.950% | 250,000,000 | 250,000,000 | 1,880,959 | 1,880,959 | 248,119,041 | 19,875,000 | 8.010% |
| Senior Notes, 11.875% Series (downgrade 14.875%) | July 3, 2002 | July 1, 2012 | 6.700% | 500,000,000 | 500,000,000 | 9,365,205 | 9,365,205 | 490,634,795 | 33,500,000 | 6.828% |
| QUIBS | February 28, 2002 | March 1, 2032 | 7.875% | 287,500,000 | 287,500,000 | 9,432,634 | 9,432,634 | 278,067,366 | 22,640,625 | 8.142% |
| Manditorily Convertible Senior Notes (PIES) (A) | August 24, 2004 | September 15, 2007 | 6.750% | 345,000,000 | 3,926,375 | 10,699,751 | 121,772 | 3,804,603 | 265,030 | 6.966% |
| Term Loan | September 20, 2004 | September 19, 2009 | 4.010% | 220,000,000 | 220,000,000 | 5,839,825 | 5,839,825 | 214,160,175 | 8,822,000 | 4.119% |
| Everest Term Loan | April 28, 2004 | April 1, 2007 | 5.25% | 5,500,000 | 5,500,000 | 53,925 | 53,925 | 5,446,075 | 288,750 | |
| MZ Partners | December 1, 2004 | January 2, 2010 | 4.75% | 2,715,000 | 1,531,121 | 34,847 | 19,652 | 1,511,469 | 72,728 | 4.812% |
| MZ Partners Nebraska | June 9, 1994 | July 1, 2009 | 7.88% | 3,640,000 | 1,516,805 | 63,865 | 26,613 | 1,490,192 | 119,448 | 8.016% |
| UCFC 7.75% Senior Notes | June 20, 2001 | June 15, 2011 | 7.750% | 200,000,000 | 197,000,000 | 17,357,512 | 17,097,149 | 179,902,851 | 15,267,500 | 8.487% |
| **Total Aquila Long-Term Debt** | | | | **2,789,927,000** | **2,006,792,582** | | | **1,948,769,382** | **141,886,222** | **7.281%** |

Source: Response to Staff's Data Information Request No. MPSC 250.

Notes:
July 3, 2002 11.875% senior note adjusted downward to more closely match the cost of a senior note that Empire issued during the same year.
September 20, 2004 Term Loan adjusted downward to reflect the margin that would be charged if Aquila were investement grade.

SCHEDULE 10

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Criteria for Selecting Comparable Electric Utility Companies**

| Vertically Integrated Electric Utility Companies(Ticker) | (1) Stock Publicly Traded | (2) Information Printed In Value Line | (3) 10-Years of Data Available | (4) At Least Investment Grade Credit Rating | (5) Two Sources for Projected Growth Available with One from Value Line | (6) **Comparable Company Met All Criteria** |
|---|---|---|---|---|---|---|
| Cen. Vermont Pub. Serv.(CV) | Yes | Yes | Yes | Yes | No | |
| El Paso Electric(EE) | Yes | Yes | No | | | |
| **Empire Dist. Electric(EDE)** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| Green Mountain Power(GMP) | Yes | Yes | Yes | Yes | No | |
| **Hawaiian Electric(HE)** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| **IDACORP, Inc.(IDA)** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| PacifiCorp(N.A.) | No | | | | | |
| **Pinnacle West Capital(PNW)** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| Portland General Electric Co.(N.A.) | No | | | | | |
| **Puget Energy Inc.(PSD)** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| **Southern Co.(SO)** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |

Sources: Columns 1 and 4 = Standard & Poor's RatingsDirect
Columns 2, 3 and 5 = The Value Line Investment Survey: Ratings & Reports.
Columnn 5 = August 2005 Earnings Guide and I/B/E/S Inc.'s Institutional Brokers Estimate System, August 18, 2005.

Notes: N.A. = Not availabe because not publicly traded.

**Schedule 11**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Comparable Electric Utility Companies**
**For Aquila, Inc. d/b/a Aquila Networks L&P**

| Number | Ticker Symbol | Company Name |
|---|---|---|
| 1 | EDE | Empire District Electric Company |
| 2 | HE | Hawaiian Electric Industries, Inc. |
| 3 | IDA | IDACORP, Inc. |
| 4 | PNW | Pinnacle West Capital |
| 5 | PSD | Puget Energy Inc. |
| 6 | SO | Southern Co. |

**SCHEDULE 12**

AQUILA, INC.
CASE NO. HR-2005-0450

## Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Six Comparable Electric Utility Companies

| | 10-Year Annual Compound Growth Rates | | | |
|---|---|---|---|---|
| Company Name | DPS | EPS | BVPS | Average of 10 Year Annual Compound Growth Rates |
| Empire District Electric Company | 0.00% | -1.00% | 2.00% | 0.33% |
| Hawaiian Electric Industries, Inc. | 1.00% | 2.00% | 2.50% | 1.83% |
| IDACORP, Inc. | -1.50% | -1.50% | 2.50% | -0.17% |
| Pinnacle West Capital | 17.50% | 3.00% | 5.00% | 8.50% |
| Puget Energy Inc. | -5.00% | -4.00% | -1.00% | -3.33% |
| Southern Co. | 2.00% | 2.50% | 1.00% | 1.83% |
| **Average** | **2.33%** | **0.17%** | **2.00%** | **1.50%** |
| Standard Deviation | 7.14% | 2.53% | 1.80% | 3.58% |

Source: The Value Line Investment Survey: Ratings & Reports, June 3, July 1 and August 12, 2005.

SCHEDULE 13-1

AQUILA, INC.
CASE NO. HR-2005-0450

**Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Six Comparable Electric Utility Companies**

| | 5-Year Annual Compound Growth Rates | | | |
|---|---|---|---|---|
| Company Name | DPS | EPS | BVPS | Average of 10 Year Annual Compound Growth Rates |
| Empire District Electric Company | 0.00% | -3.50% | 2.00% | -0.50% |
| Hawaiian Electric Industries, Inc. | 0.00% | 1.00% | 2.50% | 1.17% |
| IDACORP, Inc. | -3.00% | -9.00% | 3.50% | -2.83% |
| Pinnacle West Capital | 7.00% | -3.00% | 4.00% | 2.67% |
| Puget Energy Inc. | -10.50% | -5.50% | 0.50% | -5.17% |
| Southern Co. | 1.00% | 2.50% | -1.50% | 0.67% |
| **Average** | **-0.92%** | **-2.92%** | **1.83%** | **-0.67%** |
| Standard Deviation | 5.23% | 3.85% | 1.86% | 2.62% |

Source: The Value Line Investment Survey: Ratings & Reports, June 3, July 1, and August 12, 2005.

SCHEDULE 13-2

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Average of Ten- and Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Comparable Electric Utility Companies**

| Company Name | 10-Year Average DPS, EPS & BVPS | 5-Year Average DPS, EPS & BVPS | Average of 5-Year & 10-Year Averages |
|---|---|---|---|
| Empire District Electric Company | 0.33% | -0.50% | -0.08% |
| Hawaiian Electric Industries, Inc. | 1.83% | 1.17% | 1.50% |
| IDACORP, Inc. | -0.17% | -2.83% | -1.50% |
| Pinnacle West Capital | 8.50% | 2.67% | 5.58% |
| Puget Energy Inc. | -3.33% | -5.17% | -4.25% |
| Southern Co. | 1.83% | 0.67% | 1.25% |
| **Average** | **1.50%** | **-0.67%** | **0.42%** |

**SCHEDULE 13-3**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Historical and Projected Growth Rates**
**for the Comparable Electric Utility Companies**

| Company Name | (1) Historical Growth Rate (DPS, EPS and BVPS) | (2) Projected 5 Year Growth IBES (Mean) | (3) Projected 5-Year EPS Growth S&P | (4) Projected 3-5 Year EPS Growth Value Line | (5) Average Projected Growth | (6) Average of Historical & Projected Growth |
|---|---|---|---|---|---|---|
| Empire District Electric Company | -0.08% | 2.00% | 2.00% | 8.00% | 4.00% | 1.96% |
| Hawaiian Electric Industries, Inc. | 1.50% | 3.10% | 3.00% | 2.50% | 2.87% | 2.18% |
| IDACORP, Inc. | -1.50% | 4.00% | 4.00% | 6.00% | 4.67% | 1.58% |
| Pinnacle West Capital | 5.58% | 4.50% | 5.00% | 3.50% | 4.33% | 4.96% |
| Puget Energy Inc. | -4.25% | 4.00% | 4.00% | 5.50% | 4.50% | 0.13% |
| Southern Co. | 1.25% | 4.80% | 5.00% | 4.00% | 4.60% | 2.93% |
| **Average** | **0.42%** | **3.73%** | **3.83%** | **4.92%** | **4.16%** | **2.29%** |

**Proposed Range of Growth: 3.9%-4.9%**

Column 5 = [ (Column 2 + Column 3 + Column 4) / 3 ]

Column 6 = [ ( Column 1 + Column 5 ) / 2 ]

Sources: Column 1 = Average of 10-Year and 5-Year Annual Compound Growth Rates from Schedule 13-3.

Column 2 = I/B/E/S Inc.'s Institutional Brokers Estimate System, August 18, 2005.

Column 3 = Standard & Poor's Earnings Guide, August 2005.

Column 4 = The Value Line Investment Survey: Ratings and Reports, June 3, July 1 and August 12, 2005.

**SCHEDULE 14**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Average High / Low Stock Price for May 2005 through August 2005**
**for the Comparable Electric Utility Companies**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | -- May 2005 -- | | -- June 2005 -- | | -- July 2005 -- | | -- August 2005 -- | | **Average High/Low Stock Price (5/05 - 8/05)** |
| Company Name | High Stock Price | Low Stock Price | High Stock Price | Low Stock Price | High Stock Price | Low Stock Price | High Stock Price | Low Stock Price | |
| Empire District Electric Company | 23.390 | 22.000 | 24.450 | 22.970 | 25.010 | 23.570 | 24.410 | 22.300 | **23.513** |
| Hawaiian Electric Industries, Inc. | 26.030 | 24.690 | 27.450 | 25.790 | 27.770 | 26.510 | 27.810 | 26.210 | **26.533** |
| IDACORP, Inc. | 28.510 | 26.220 | 30.800 | 28.330 | 32.050 | 30.490 | 31.560 | 28.750 | **29.589** |
| Pinnacle West Capital | 44.340 | 41.310 | 45.340 | 43.820 | 46.160 | 43.760 | 46.680 | 43.220 | **44.329** |
| Puget Energy Inc. | 22.760 | 21.350 | 23.560 | 22.600 | 24.360 | 23.260 | 23.540 | 22.050 | **22.935** |
| Southern Co. | 34.700 | 32.700 | 35.000 | 33.830 | 35.930 | 34.300 | 35.310 | 33.240 | **34.376** |

Notes:

Column 9 = [ ( Column 1 + Column 2 + Column 3 + Column 4 + Column 5 + Column 6 + Column 7 + Column 8 ) / 8 ].

Sources: S & P Stock Guides: June 2005, July 2005, August 2005 and September 2005.

**SCHEDULE 15**

AQUILA, INC.
CASE NO. HR-2005-0450

**DCF Estimated Costs of Common Equity**
**for the Comparable Electric Utility Companies**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Company Name | Expected Annual Dividend | Average High/Low Stock Price | Projected Dividend Yield | Average of Historical & Projected Growth | Estimated Cost of Common Equity |
| Empire District Electric Company | $1.28 | $23.513 | 5.44% | 1.96% | 7.40% |
| Hawaiian Electric Industries, Inc. | $1.24 | $26.533 | 4.67% | 2.18% | 6.86% |
| IDACORP, Inc. | $1.20 | $29.589 | 4.06% | 1.58% | 5.64% |
| Pinnacle West Capital | $1.98 | $44.329 | 4.47% | 4.96% | 9.42% |
| Puget Energy Inc. | $1.00 | $22.935 | 4.36% | 0.13% | 4.49% |
| Southern Co. | $1.51 | $34.376 | 4.38% | 2.93% | 7.30% |
| **Average** | | | 4.56% | 2.29% | 6.85% |

| | |
|---|---|
| **Proposed Dividend Yield:** | **4.60%** |
| **Proposed Range of Growth:** | **3.90% - 4.90%** |
| **Estimated Cost of Common Equity:** | **8.50%-9.50%** |

Notes: Column 1 = Estimated Dividends Declared per share represents the average projected dividends for 2005 and 2006.

Column 3 = ( Column 1 / Column 2 ).

Column 5 = ( Column 3 + Column 4 ).

Sources: Column 1 = The Value Line Investment Survey: Ratings and Reports, June 3, July 1, and August 12, 2005.

Column 2 = Schedule 15.

Column 4 = Schedule 14.

**SCHEDULE 16**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Capital Asset Pricing Model (CAPM) Costs of Common Equity Estimates for the Comparable Electric Utility Companies**

| Company Name | (1) Risk Free Rate | (2) Company's Value Line Beta | (3) Market Risk Premium (1926-2004) | (4) Market Risk Premium (1995-2004) | (5) CAPM Cost of Common Equity (1926-2002) | (6) CAPM Cost of Common Equity (1995-2004) |
|---|---|---|---|---|---|---|
| Empire District Electric Company | 4.46% | 0.70 | 6.60% | 2.29% | 9.08% | 6.06% |
| Hawaiian Electric Industries, Inc. | 4.46% | 0.65 | 6.60% | 2.29% | 8.75% | 5.95% |
| IDACORP, Inc. | 4.46% | 0.90 | 6.60% | 2.29% | 10.40% | 6.52% |
| Pinnacle West Capital | 4.46% | 0.85 | 6.60% | 2.29% | 10.07% | 6.41% |
| Puget Energy Inc. | 4.46% | 0.75 | 6.60% | 2.29% | 9.41% | 6.18% |
| Southern Co. | 4.46% | 0.65 | 6.60% | 2.29% | 8.75% | 5.95% |
| **Average** | | **0.75** | | | **9.41%** | **6.18%** |

Sources:

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for August 2005 which was obtained from Investopedia at: http://www.investopedia.com

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by the Value Line Investment Survey: Ratings & Reports, June 3, July 1, and August 12, 2005.

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2004 was determined to be 6.60% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2005 Yearbook.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1995 - 2004 was determined to be 2.29% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2005 Yearbook.

Column 5 = (Column 1 + (Column 2 * Column 3)).

Column 6 = (Column 1 + (Column 2 * Column 4)).

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Capital Asset Pricing Model (CAPM) Costs of Common Equity Estimates**
**for the Comparable Electric Utility Companies**

| Company Name | (1) Risk Free Rate | (2) Company's Value Line Beta | (3) Ibbotson & Chen Ex-Post Risk Premium | (4) Damodaran Ex-Post Risk Premium | (5) CAPM Cost of Common Equity (Ibbotson & Chen) | (6) CAPM Cost of Common Equity (Damodaran) |
|---|---|---|---|---|---|---|
| Empire District Electric Company | 4.46% | 0.70 | 3.99% | 2.47% | 7.25% | 6.19% |
| Hawaiian Electric Industries, Inc. | 4.46% | 0.65 | 3.99% | 2.47% | 7.05% | 6.07% |
| IDACORP, Inc. | 4.46% | 0.90 | 3.99% | 2.47% | 8.05% | 6.68% |
| Pinnacle West Capital | 4.46% | 0.85 | 3.99% | 2.47% | 7.85% | 6.56% |
| Puget Energy Inc. | 4.46% | 0.75 | 3.99% | 2.47% | 7.45% | 6.31% |
| Southern Co. | 4.46% | 0.65 | 3.99% | 2.47% | 7.05% | 6.07% |
| **Average** | | **0.75** | | | **7.45%** | **6.31%** |

Sources:

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for August 2005 which was obtained from Investopedia at: http://www.investopedia.com

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by the Value Line Investment Survey: Ratings & Reports, June 3, July 1 and August 12, 2005.

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected holding period return from holding long-term treasury bonds. The appropriate Market Risk Premium of 3.99% is based on Roger G. Ibbotson and Peng Chen's expected return from investing in the stock market of 9.52% over the long run, which was indicated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2005 Yearbook and the expected average yield of 5.53% on long-term treasury bond's through 2009 provided by Value Line.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium of 2.26% is based on Dr. Aswath Damadoran's implied equity risk premium model provided on New York University's Leanard N. Stern School of Business' website. Inputs: 1.80% dividend yield (September 2005 Standard & Poor's Stock Guide), 10.58% S&P 500 earnings growth rate (http://finance.yahoo.com) and 4.46% growth in earnings over the long-run.

Column 5 = (Column 1 + (Column 2 * Column 3)).

Column 6 = (Column 1 + (Column 2 * Column 4)).

**SCHEDULE 17-2**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Selected Financial Ratios for the Comparable Electric Utility Companies**

| Company Name | (1) June 30, 2005 Common Equity to Total Capital Ratio | (2) June 30, 2005 Long-Term Debt Ratio | (3) Pre-Tax Interest Coverage Ratio | (4) Market-to-Book Value | (5) 2005 Projected Return on Common Equity | (6) Bond Rating |
|---|---|---|---|---|---|---|
| Empire District Electric Company | 47.07% | 44.52% | 2.00 x * | 1.56 x | 8.50% | BBB |
| Hawaiian Electric Industries, Inc. | 52.91% | 39.04% | 3.90 x * | 1.75 x | 10.00% | BBB+ |
| IDACORP, Inc. | 49.87% | 47.73% | 1.90 x * | 1.22 x | 7.50% | BBB+ |
| Pinnacle West Capital | 48.04% | 50.58% | 4.20 x * | 1.32 x | 8.50% | BBB |
| Puget Energy Inc. | 39.47% | 56.69% | 2.20 x * | 1.35 x | 8.50% | BBB- |
| Southern Co. | 40.72% | 53.49% | 4.50 x * | 2.37 x | 14.50% | A |
| **Average** | **46.35%** | **48.68%** | **3.12 x** | **1.60 x** | **9.58%** | **BBB+** |

Sources: SEC 10Qs for columns (1) and (2)
The Value Line Investment Survey: Ratings and Reports, June 3, July 1, and August 12, 2005 for columns (3) and (5).
C.A. Turner Utility Reports, September 2005 for column (4).
Standard & Poor's RatingsDirect for column (6).

Notes: * As of March 31, 2005.

**SCHEDULE 18**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

## Public Utility Revenue Requirement

## or

## Cost of Service

The formula for the revenue requirement of a public utility may be stated as follows :

Equation 1 : **Revenue Requirement = Cost of Service**

or

Equation 2 : **R R = O + ( V - D ) R**

The symbols in the second equation are represented by the following factors :

| | | |
|---|---|---|
| R R | = | Revenue Requirement |
| O | = | Prudent Operating Costs, including Depreciation and Taxes |
| V | = | Gross Valuation of the Property Serving the Public |
| D | = | Accumulated Depreciation |
| ( V - D ) | = | Rate Base (Net Valuation) |
| ( V - D ) R | = | Return Amount ($$) or Earnings Allowed on Rate Base |
| R | = | i L + d P + k E or Overall Rate of Return (%) |
| i | = | Embedded Cost of Debt |
| L | = | Proportion of Debt in the Capital Structure |
| d | = | Embedded Cost of Preferred Stock |
| P | = | Proportion of Preferred Stock in the Capital Structure |
| k | = | Required Return on Common Equity (ROE) |
| E | = | Proportion of Common Equity in the Capital Structure |

**SCHEDULE 19**

**AQUILA, INC.**
**CASE NO. HR-2005-0450**

**Weighted Cost of Capital as of June 30, 2005**
**For Aquila, Inc. d/b/a Aquila Networks L&P**

| Capital Component | Percentage of Capital | Embedded Cost | Weighted Cost of Capital Using Common Equity Return of: 8.50% | 9.00% | 9.50% |
|---|---|---|---|---|---|
| Common Stock Equity | 36.16% | ----- | 3.07% | 3.25% | 3.43% |
| Long-Term Debt | 63.84% | 7.281% | 4.65% | 4.65% | 4.65% |
| Short-Term Debt | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| | **100.00%** | | **7.72%** | **7.90%** | **8.08%** |

Notes:

See Schedule 9 for the Capital Structure Ratios.

See Schedule 10 for the Embedded Cost of Long-Term Debt.

**SCHEDULE 20**

Schedule 21

Is Deemed

Highly Confidential

In Its Entirety