BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

07-AQLG-431-RTS

In the Matter of the Application of Aquila, Inc.,)
d/b/a Aquila Networks-KGO, For Approval of)
The Commission to Make Certain Changes) DOCKET NO. _____
in its Rates For Natural Gas Service)

Direct Testimony of Donald A. Murry, Ph.D.

On behalf of Aquila Networks – Kansas Gas Operations

Cost of Capital

October 2006

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DIRECT TESTIMONY OF
DONALD A. MURRY

POSITION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME.

A. My name is Donald A. Murry.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am a Vice President and economist with C. H. Guernsey & Company. I work out of the Oklahoma City office and the Tallahassee office. I am also a Professor Emeritus of Economics on the faculty of the University of Oklahoma.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have a B. S. in Business Administration, and a M.A. and a Ph.D. in Economics from the University of Missouri - Columbia.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.

A. From 1964 to 1974, I was an Assistant and Associate Professor and Director of Research on the faculty of the University of Missouri - St. Louis. For the period 1974-98, I was a Professor of Economics at the University of Oklahoma, and since 1998 I have been Professor Emeritus at the University of Oklahoma. Until 1978, I also served as Director of the University of Oklahoma's Center for Economic and Management Research. In each of these positions, I directed and performed academic and applied research projects related to energy and regulatory policy. During this time, I also served on several state and national committees associated with energy policy and regulatory matters, published,

and presented a number of papers in the field of regulatory economics in the energy industries.

Q. WHAT IS YOUR EXPERIENCE IN REGULATORY MATTERS?

A. I have consulted for private and public utilities, state and federal agencies, and other industrial clients regarding energy economics and finance and other regulatory matters in the United States, Canada, and other countries. In 1971-72, I served as Chief of the Economic Studies Division, Office of Economics of the Federal Power Commission. From 1978 to early 1981, I was Vice President and Corporate Economist for Stone & Webster Management Consultants, Inc. I am now a Vice President with C. H. Guernsey & Company. In all of these positions I have directed and performed a wide variety of applied research projects and conducted other projects related to regulatory matters. I have assisted both private and public companies and government officials in areas related to the regulatory, financial, and competitive issues associated with the restructuring of the utility industry in the United States and other countries.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE OR BEEN AN EXPERT WITNESS IN PROCEEDINGS BEFORE REGULATORY BODIES?

A. Yes, I have appeared before the U.S. District Court-Western District of Louisiana, U.S. District Court-Western District of Oklahoma, District Court-Fourth Judicial District of Texas, U.S. Senate Select Committee on Small Business, Federal Power Commission, Federal Energy Regulatory Commission, Interstate Commerce Commission, Alabama Public Service Commission, Alaska Public Utilities Commission, Arkansas Public Service Commission, Colorado Public Utilities Commission, Florida Public Service Commission, Georgia Public Service Commission, Illinois Commerce Commission, Iowa Commerce Commission, Kansas Corporation Commission, Kentucky Public Service

Commission, Louisiana Public Service Commission, Maryland Public Service Commission, Mississippi Public Service Commission, Missouri Public Service Commission, Nebraska Public Service Commission, New Mexico Public Service Commission, New York Public Service Commission, Power Authority of the State of New York, Nevada Public Service Commission, North Carolina Utilities Commission, Oklahoma Corporation Commission, South Carolina Public Service Commission, Tennessee Public Service Commission, Tennessee Regulatory Authority, The Public Utility Commission of Texas, the Railroad Commission of Texas, the State Corporation Commission of Virginia, and the Public Service Commission of Wyoming.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. Aquila Inc. ("Aquila, Inc.") retained me to analyze the current cost of capital and recommend a rate of return and capital structure that is appropriate for the Kansas Gas Operations, a division of Aquila, Inc. In this testimony, I will refer to the Kansas Gas Operations, as "Aquila Networks – KGO," just "Aquila" or the "Company" in this proceeding.

Q. ARE YOU SPONSORING ANY EXHIBITS WITH YOUR TESTIMONY?

A. Yes. I am sponsoring an exhibit that I have attached to my testimony which includes Schedules DAM-1 through DAM-29.

Q. WAS THIS EXHIBIT PREPARED EITHER BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes, it was.

SUMMARY OF TESTIMONY

Q. CAN YOU SUMMARIZE YOUR ANALYSIS AND TESTIMONY IN THIS CASE?

A. First, I studied the current economic environment, taking note especially of the recent economic expansion and the accompanying inflationary pressures. This environment, in turn, has caused the Federal Reserve to repeatedly raise interest rates, with the direct consequence of increasing utility capital costs generally. Moreover, this environment has created an atmosphere of anticipated, continued interest rate increases according to consensus forecasts.

For my analysis of the cost of capital of Aquila Networks - KGO, I considered the appropriate capital structure, the cost of debt, and the cost of common stock, and in the analysis of each of these factors the restructuring of Aquila, Inc. I identified a group of LDCs that provided a basis for analyzing the cost of capital of an LDC similar to Aquila. For example, in my determination of the appropriate capital structure for ratemaking in this proceeding, I noted that the Aquila Networks - KGO division capital structure. Although this common stock equity is lower than the average of the group of LDCs that I studied, this is the appropriate capital structure for Aquila. This is the permanent capital that supports Aquila's assets that provide the gas distribution service to the Kansas customers. The appropriate cost of debt for this proceeding is the embedded cost of long-term debt of Aquila of 7.13 percent.

For the measurement of common stock equity of Aquila, I also relied extensively upon the measured costs of common equity of the comparable companies. The common, market-based Discounted Cash Flow ("DCF") method and Capital Asset Pricing Model ("CAPM") were useful for estimating the cost of the comparable utilities. I could not use the DCF to analyze the cost of common for Aquila, Inc. because of the recent history of negative earnings, no dividends and no forecasted dividends. I also reviewed the financial

statistics of Aquila, Inc. and the comparable LDCs. This comparison demonstrated that analysts distinguish between Aquila, Inc. and the comparable LDCs, which confirms that the capital structure of the Kansas operating division is appropriate for ratemaking rather than the capital structure of the parent company.

I noted that *Value Line* is predicting that comparable companies will earn an average of 11.8 percent on common stock in 2006. *Value Line* also is predicting that the gas distribution sector will earn 11.8 percent on common stock equity in the period 2009 to 2011. As a comparison, *Value Line* predicts that Aquila, Inc. will again experience a loss in 2006 and for the fourth year will not pay a dividend.

To interpret the DCF and CAPM analyses, in addition to noting the relatively high risk of LDCs in current markets, I also evaluated several specific business risk factors of Aquila. Taking these risk factors into account I determined a recommended allowed return for Aquila in this proceeding. Based on this analysis, I am recommending an allowed return for the Company in this proceeding in the range of 11.75 to 12.25 percent, but I think that realistically the midpoint of this range, or 12.0 percent is the minimal level necessary for Aquila to maintain an acceptable probability of acquiring capital. This common equity return results in a recommended return on total capital of 9.60 percent.

I tested my recommended return to verify that it was sufficient to attract and maintain capital, and at the same time, to determine that my recommendation would not produce an excessive return to common stock holders. As a straight-forward measure, I compared the After-Tax Interest Coverage for Aquila at my minimal recommended return level, which is 2.73. This is much lower than the average coverage for the comparable utilities, which is 3.62 times, and lower than the coverage for every one but

one of the comparable utilities. From this comparison, it is apparent that my minimal recommended allowed return for Aquila is conservative in current markets.

UTILITY REGULATION

Q. DID THE POLICIES AND PROCEDURES OF UTILITY REGULATION AFFECT YOUR COST OF CAPITAL TESTIMONY IN ANY WAY?

A. Yes. I based my analysis and recommendations on my interpretation of the role of regulation in the natural gas distribution industry. Because of the nature of the industry, analysts have recognized the likely presence of market power in a franchised utility market. Economies of scale at the distribution or retail level of utility service indicate that the duplication of facilities by more than one firm may be economically inefficient. This is the principal economic rationale for utility regulation, and I used this as a guide for my analysis and recommendations in this proceeding. Consequently, I predicated my analysis on the objective to set an allowed return in a regulatory proceeding that is sufficient to allow a utility to recover the costs of providing service, but not higher than necessary to attract and maintain invested capital that provides utility service. As an economist, I believe that these analytical objectives are consistent with the legal standard of a "fair rate of return" in regulation.

Q. WHAT DID YOU MEAN WHEN YOU MENTIONED THE "LEGAL STANDARD" THAT YOU USED TO MEASURE A "FAIR RATE OF RETURN?"

A. I am using the term "fair rate of return" in a manner that is consistent with my understanding of the return that meets the standards set by the United States Supreme Court decision in *Bluefield Water Works and Improvement Company vs. Public Service*

Commission, 262 U.S. 679 (1923) ("Bluefield"), as further modified in *Federal Power Commission vs. Hope Natural Gas Company, 320 U.S. 591 (1944) ("Hope")*. As I understand these decisions, they characterize a "fair rate of return" as one that provides earnings to investors similar to returns on alternative investments in companies of equivalent risk.

Q. AS AN ECONOMIST, WHAT IS YOUR INTERPRETATION OF THE TERM A "FAIR RATE OF RETURN"?

A. As I use it, the term a "fair rate of return" means the return is sufficient to enable a company to operate successfully, maintain its financial integrity, attract capital, and compensate investors for the risks associated with the provision of natural gas service. Throughout my analysis, I was very sensitive to both the financial and business risks of Aquila in providing gas distribution service in Kansas.

ECONOMIC ENVIRONMENT

Q. WHAT DID YOU DETERMINE ARE THE CURRENT ECONOMIC FACTORS THAT ARE IMPORTANT FOR SETTING THE COST OF CAPITAL IN THIS PROCEEDING?

A. The key factors in the current economic environment that affect investors are expectations regarding inflation and interest rates. Forecasts of inflation and interest rates affect investors' expectations of returns and their evaluations of the risks and returns on alternative investments. For these reasons, I reviewed both the current and forecasted levels of inflation and interest rates.

Q. WHAT ABOUT THE CURRENT ECONOMIC ENVIRONMENT DID YOU FIND IMPORTANT FOR YOUR ANALYSIS OF THE COST OF CAPITAL IN THIS PROCEEDING?

A. Entering the third quarter of 2006, economic activity is continuing to expand although at a decelerating rate. As shown on Schedule DAM-1, the consensus forecast, as provided by *Blue Chip Financial Forecasts ("Blue Chip"),* predicts real GDP growth of 2.6 percent in the third and fourth quarter of 2006 and 2.75 percent for the first half of 2007. This compares to 3.2 percent for 2005. The economy is also showing signs of increasing inflation after several years of stable prices. The consensus forecast for December-over-December core Consumers' Price Index ("CPI") growth (which excludes food and energy costs) is 2.8 percent for 2006. The Federal Open Market Committee ("FOMC"), in the minutes from its August 8, 2006 Committee Meeting, stated:

> Headline inflation continued to move up, on balance, in recent months, and consumer prices increased at a faster pace in the second quarter than over the previous twelve months. Consumer energy prices, while declining slightly in June, surged during the second quarter, on net. Core consumer prices also continued to rise, boosted by an acceleration in shelter costs, particularly those for owner-occupied residences, and some pass-through of energy cost increases. Higher oil prices showed through in producer prices for a variety of energy-intensive intermediate goods. Rising import prices, higher domestic rates of capacity utilization, and strong global demand for materials were factors underlying an acceleration in core prices for intermediate materials.

Q. YOU MENTIONED INFLATION LEVELS. CAN YOU ELABORATE UPON RECENT AND FORECASTED INFLATION RATES, AND WHY THEY WERE IMPORTANT TO YOUR ANALYSIS?

A. The Consumer Price Index increased 0.2 percent in August 2006 following a 0.4 percent increase in July. Core CPI increased 0.2 percent in August for the second consecutive

month. The expected 2.8 percent rate of core inflation for 2006 is almost double that of the 1.5% rate of three years ago. This large increase reveals a broadening of inflationary pressures in the economy. As shown in Schedule DAM-1, *Blue Chip* is forecasting the CPI to increase in a range between 2.6 percent and 4.9 percent for the remainder 2006. Increasing inflationary pressures are troubling to the financial markets and have the full attention of Federal policymakers. On August 22nd, Chicago Fed President Michael Moskow cautioned, "More rate hikes may still be necessary to cut inflation." As cited by *Blue Chip*[1], he also indicated that inflation is probably too high rather than economic growth being too low.

Manufacturing activity is continuing to increase nationwide, putting pressure on the labor markets, and health care and post-retirement costs continue to be a concern. Consumer spending, which accounts for two thirds of economic activity, has been increasing, albeit slowly, weighted down by sluggish sales of autos and housing related goods. Housing markets and construction activity are softening throughout the country, at least in part because of rising interest rates. Schedule DAM-2 shows the historical trends of GDP growth, unemployment and inflation statistics, and these statistics, which reveal the inflationary pressures, are illustrative of what the Federal Reserve evaluates when considering monetary policy.

Q. HOW HAS THIS ECONOMIC ACTIVITY AFFECTED INTEREST RATES?

A. The state of the economy and economic expectations are important background for my cost of capital analysis because increasing inflationary pressures almost certainly lead to actions by the Federal Reserve to increase interest rates. For example, the Federal Open

[1] *Blue Chip Financial Forecasts,* September 1, 2006.

Market Committee ("FOMC") has raised interest rates 17 times since June 2004. Although the FOMC recently has forgone raising short-term rates, it has indicated it will remain vigilant regarding inflation concerns. In its August 8, 2006 press release[2], the FOMC stated:

> ...the Committee judges that some inflation risks remain. The extent and timing of any additional firming that may be needed to address these risks will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.

Q. CAN YOU SUMMARIZE WHAT YOU FOUND TO BE THE SIGNIFICANT INTEREST RATE DEVELOPMENTS?

A. As the economy expands, the Federal Reserve has signaled it will raise interest rates as necessary to keep inflation at bay. Regarding the outlook for inflation and Federal Reserve action, the Richmond Federal Reserve Bank President, Andrew Lacker, recently described the inflation outlook as, "...borderline acceptable and perhaps even beyond." Fed Chairman Ben Benanke also has stated, "there are some upside inflation risks in the economy" and "...some additional firming of policy might yet be needed."

Q. DID YOU STUDY THE RECENT AND FORECASTED BOND RATES?

A. Yes. Bond prices have decreased substantially in 2006, thereby raising yields on bonds to their highest level since 2002. As shown on Schedule DAM-3, the 30-year Treasury Bond and the Baa-corporate rate are currently about 5.0 percent and 6.6 percent, respectively. Most significantly, as shown in Schedule DAM-4, analysts expect long-term bond rates to continue rising. The *Value Line* forecasts for the Aaa-corporate rate and the 10-year Treasury rate are for continuing increases to 6.7 percent and 5.5 percent respectively through 2009.

[2] Federal Reserve Release, August 8, 2006.

Q. WHY ARE THESE ECONOMIC CONDITIONS IMPORTANT TO THIS PROCEEDING?

A. The rates set in this proceeding will be in effect during a period of rising inflation and interest rates. Because of its restructuring and capital requirements, Aquila, Inc. will be in the market to acquire permanent capital to support continued and expanded utility service during this period. Rising inflation and rising interest rates adversely affect the cost of a gas utility's debt. This increases the risk to common stockholders that they will achieve their anticipated returns on investment. The combination of the high cost of short-term debt--which funds natural gas purchases--and high natural gas prices, significantly increases business risk to investors.

SELECTION OF COMPARABLE COMPANIES

Q. WHAT CRITERIA DID YOU USE TO SELECT THE UTILITIES THAT YOU IDENTIFIED AS COMPARABLE TO AQUILA NETWORKS – KGO FOR YOUR ANALYSIS?

A. I selected a group of local gas distribution utilities for comparative analysis that have typical risks that healthy LDCs face. I first selected the comparable companies from a group of gas distribution companies reported by *Value Line.* Second, because of the importance of size in determining the cost of capital of a utility, I limited the group of distribution companies to firms with a market capitalization of less than $2 billion. Third, I excluded companies that do not pay a dividend. Fourth, I eliminated those companies that are not primarily gas distributors, and finally, I limited this group to LDCs that are not actively involved in a merger.

Q. WOULD YOU EXPLAIN WHY YOU DID NOT USE AQUILA, INC.'S FINANCIAL CRITERIA TO SELECT A GROUP OF COMPARABLE COMPANIES FOR YOUR ANALYSIS?

A. Aquila, Inc. is still in the process of restructuring itself to a utility-only business. Selecting companies with similar financial characteristics to a financially viable utility provides a benchmark for comparison and aids in the interpretation of the statistics of Aquila Networks-KGO. Methodologically, I used this set of comparable companies as a representative "sample" of the gas distribution sector and, by inference, representative of the cost of capital of a utility with these financial characteristics. For this reason, it is important to determine the risks and the associated costs of common stock equity of gas distribution utilities that are similar to Aquila Networks-KGO, I selected this group of companies by holding some key characteristics constant when I selected the companies for comparison. Using a group of comparable companies analytically is also consistent with the regulatory objective of determining the cost of investing in securities of equivalent risks.

Q. WHAT COMPANIES DID YOU SELECT AS COMPARABLE TO AQUILA NETWORKS-KGO AND THEREFORE SUITABLE FOR YOUR ANALYSIS?

A. Using the set of criteria mentioned above, I determined that eight primarily natural gas companies were similar in key respects to Aquila Networks-KGO. This group includes: Laclede Group, New Jersey Resources, NICOR, Inc., Northwest Natural Gas, Piedmont Natural Gas, South Jersey Industries, Southwest Gas and WGL Holdings, Inc.

CAPITAL STRUCTURE

Q. WHAT IS THE APPROPRIATE CAPITAL STRUCTURE FOR AQUILA IN THIS PROCEEDING?

A. As I have illustrated in Schedule DAM-5, the Company has a total capitalization of $273,050,946 at June 30, 2006. The Long-Term Debt is $134,540,892, or 49.27 percent of total capital, and the Common Equity is $138,510,054 or 50.73 percent of total capital.

Q. YOU DID NOT INCLUDE ANY SHORT-TERM DEBT IN THIS CAPITAL STRUCTURE THAT YOU ARE RECOMMENDING FOR AQUILA. WHY DID YOU NOT INCLUDE SHORT-TERM DEBT IN YOUR RECOMMENDED CAPITAL STRUCTURE?

A. I only included components of capital in the capital structure that are part of the permanent capital that supports physical utility assets providing utility services currently and during the period that the rates set in this proceeding will be in effect.

Q. IS THIS CAPITAL STRUCTURE THAT YOU ARE RECOMMENDING IN THIS PROCEEDING, THE CURRENT CAPITAL STRUCTURE OF AQUILA, INC.?

A. No. The restructuring of Aquila, Inc., which includes the sale of non-domestic investments and most non-regulated businesses, has affected significantly its current capital structure. Because this restructuring has been on-going, the current capital structure is a carry-over from prior more diverse company. This is less representative of a LDC capital structure than the divisional capital structure. For example, Aquila, Inc. is still in the process of moving proceeds from the sales of various businesses to pay down outstanding debt and restructuring. This is not representative of the permanent capital that supports the utility service in Kansas.

Q. HOW DOES THE CURRENT CAPITAL STRUCTURE OF AQUILA, INC. COMPARE TO THE CAPITAL STRUCTURE OF A TYPICAL LDC?

A. As I illustrate in Schedule DAM-6, according *Value Line,* Aquila, Inc.'s current common equity ratio is only 43.0 percent. This is a lower common equity ratio than all of the comparable LDCs except Southwest Gas. Aquila, Inc.'s common equity ratio is also much lower that the average common stock equity ratio for the group of comparable LDCs, which is 54.7 percent. Notably, following the present restructuring, *Value Line* is also predicting that Aquila, Inc.'s common equity ratio will be 53.5 percent by the 2009-11 time period. This is closer to the common equity ratio of a regulated LDC in current markets, and it provides further evidence that the current, low common equity during this period of restructuring is not appropriate for setting rates of Aquila Networks-KGO. Of course, it is also important that the rates set in this proceeding are likely to run, at least, into the forecast period.

Q. DID YOU STUDY THE CHANGES IN AQUILA, INC.'S COMMON EQUITY RATIO IN RECENT YEARS?

A. Yes. As Schedule DAM-7 shows, I compared Aquila, Inc.'s growth in common shares outstanding, as reported by *Value Line,* to the growth of common shares outstanding of the comparable LDCs. Obviously, Aquila, Inc.'s growth in common shares outstanding has been much higher than any of the comparable distribution utilities during this period. This is not surprising, however, because Aquila, Inc.'s restructuring has required a de-leveraging of its balance sheet. This makes the issuance of common stock a more attractive vehicle to acquire the capital needed for plant expansion and to reduce debt.

Q. FROM YOUR ANALYSIS OF THE COMPANY, DO YOU BELIEVE THAT THE COMMON EQUITY RATIO OF AQUILA, INC. WILL APPROACH THE LEVEL PREDICTED BY *VALUE LINE?*

A. Yes. As Aquila, Inc.'s restructuring leads to primarily utility operations, it is only logical that analysts would expect the company to acquire a capital structure that is characteristic of that industry sector.

COST OF LONG-TERM DEBT

Q. FROM YOUR ANALYSIS, WHAT IS THE APPROPRIATE COST OF LONG-TERM DEBT FOR AQUILA IN THIS PROCEEDING?

A. As shown in Schedule DAM-8, the weighted average cost of long-term debt that is appropriate for Aquila in this proceeding is 7.13 percent. This is the cost of long-term debt that Aquila, Inc. used to acquire the long-term assets that provide utility service to Kansas customers. This, however, is a conservative cost of long-term debt because of Aquila, Inc.'s policy of assigning investment grade costs to debt issues in order to protect ratepayers from the capital costs of the non-regulated businesses.

FINANCIAL RISK

Q. YOU STATED PREVIOUSLY THAT YOU INVESTIGATED THE "FINANCIAL RISK" OF AQUILA NETWORKS-KGO. WHAT DO YOU MEAN BY THE TERM FINANCIAL RISK?

A. Financial risk to the common stock holders of a company is the risk that they incur because the claims of the debt instruments must be paid prior to any returns accruing to common stock. In general, the lower the common stock equity ratio, the greater is the relative prior obligation owed to debt holders. Consequently, all things equal, the risk

faced by holders of a company's common stock is greater if the common equity ratio is smaller.

Q. IS FINANCIAL RISK AN IMPORTANT CONSIDERATION IN THIS PROCEEDING?

A. Yes. Financial risk is an important determinant of the required return. It is especially important in this proceeding because of the differential between the common equity ratios of the parent Aquila, Inc. and the operating division, Aquila Networks-KGO. Notably, the average common equity ratio of the comparable companies of 54.7 percent is higher than the common equity component of the Aquila Networks-KGO.

Q. DID YOU COMPARE THE FINANCIAL RISK OF AQUILA, INC. TO THAT OF A MORE TYPICAL LDC?

A. Yes. I think that one can reveal the financial risk of Aquila, Inc. by comparing credit measures of the comparable LDCs with those of Aquila, Inc. I have illustrated this comparison in Schedule DAM-9 using *Value Line's* measure of "Financial Strength." *Value Line* ranks Aquila, Inc. a "C", placing it in the group second from the bottom of all companies that *Value Line* ranks. None of the comparable LDCs have a financial strength rating that low, and only Southwest has a rating as low as a "B" which is average for all companies that *Value Line* follows. *Value Line* rates four of the gas distribution companies "A". Also, as that schedule shows, Standard & Poor's rates Aquila, Inc.'s credit a B, which is four levels below investment grade. All of the other gas utilities have investment grade credit ratings of "BBB" or above, and six of the eight are "A" rated or above. As noted previously, greater financial risk means that in order to invest, investors will look for higher compensating common stock returns. Consequently, by using the

capital structure of the operating division in Kansas in this proceeding to determine the allowed return, I can use the estimated cost of the comparable LDCs as a guide for determining a recommended allowed return because the capital structure of the operating division in Kansas is closer to the industry norm.

BUSINESS RISK

Q. YOU ALSO STATED THAT YOU INVESTIGATED THE "BUSINESS RISK" OF AQUILA. HOW DID YOU DEFINE BUSINESS RISK?

A. Business risk is the exposure of the returns to common stockholders resulting from the vagaries of business operations. In many respects, the most important business risks for LDCs are: competition from other fuels; rising gas costs that reduce sales; the impact of rising inflation and interest rates; and any uncertainty with the recovery of the costs of purchased gas. High gas costs, for example, lead to increased working capital and short-term debt requirements needed to pay suppliers until the LDC recovers gas costs through rates. Rising short-term interest rates add to the LDCs costs. Furthermore, LDCs face rising, unanticipated bad debt expenses and accounts receivable in these markets. In my analysis, I considered these and other general business risks.

Q. DO YOU BELIEVE THAT BUSINESS RISK IS AN IMPORTANT CONSIDERATION IN THIS PROCEEDING?

A. Yes. Business risk is also a prime determinant of the required rate of return. The business risks that I have described above are risk factors that are common to the natural gas industry, and Aquila Networks-KGO undoubtedly faces similar business risks.

Q. DID YOU DETERMINE ANY MEASURES OF BUSINESS RISK THAT PERTAIN SPECIFICALLY TO THE OPERATIONS OF AQUILA, INC.?

A. Yes. I reviewed several indices of business risk of Aquila, Inc. as reported by financial analysts. Although these measures in some respects combine financial and business risks together as a common measure, they are likely to be closer to business risk than the credit measures mentioned previously. I compared the measures for Aquila, Inc. with those for the group of comparable companies.

Q. ARE YOU AWARE IF AQUILA NETWORKS – KGO HAS SOME OF THE RISKS THAT AFFECT THE LDC SECTOR?

A. Yes. I understand, for example, that in Aquila's service territory customer usage has declined both absolutely and per customer and irrigators have reduced usage because of gas costs. This is precisely the type of business risk that has impacted the industry generally. Apparently, a complicating problem in Kansas, an energy producing state, is a decline in the quality and quantity of local gas production, which, of course, increases gas costs. This, of course, is a business risk unique to the production area utilities.

Q. YOU IDENTIFIED ADDITIONAL RISK MEASURES OF AQUILA, INC. WHAT DID THESE ADDITIONAL MEASURES OF RISK SHOW?

A. These measures also show very clearly the sharp risk distinction between Aquila, Inc. and the comparable LDCs. I have illustrated several key statistics from *Value Line* and Standard & Poor's in Schedule DAM-10 that make this distinction very apparent. As this schedule shows very clearly, analysts view Aquila, Inc. quite differently from these comparable LDCs. *Value Line* measures of "Safety", "Price Stability", "Price Growth" and "Earnings Predictability," show that analysts perceive Aquila, Inc.'s common stock to be a much more risky investment than the common stock of the other, comparable LDCs. For example, the "Safety" rank is "a measurement of potential risk associated with

individual common stocks. The value shows where an individual stock is in relation to the entire universe of *Value Line's* stocks.[3]" Stocks ranked 1 (Highest) and 2 (Above Average) are likely to outpace the year-ahead market. Those ranked 4 (Below Average) and 5 (Lowest) are likely to under perform most stocks over the next 12 months. *Value Line* rates Aquila, Inc. "5," while the lowest ranking that it gives to any on the comparable LDCs is a "3." Also, in its "Business Profile", Standard & Poor's ranks Aquila, Inc. an "8," which is much more risky than any of the comparable LDCs, which average only a "2.4."

Q. ARE YOU AWARE OF ANY OTHER SPECIFIC BUSINESS RISKS THAT MAY BE UNIQUE TO AQUILA NETWORKS -KGO?

A. One business risk factor that could be important for ratemaking going forward is the effect of Aquila, Inc.'s recent restructuring. Of course, economies of scale are one of the benefits of company size, and this has been a driving factor in the mergers and acquisitions in the natural gas distribution sector in recent years. As Aquila, Inc. has disposed of several operating companies in recent years, the reallocation of centralized costs over a smaller customer and utility plant base could be a risk to common stock holders. That is, if the allocation of these costs reduces the likelihood of their recovery, this is a risk to common equity of Aquila Networks -KGO.

Q. IN YOUR OPINION, HAS THIS RESTRUCTURING INCREASED THE RISK TO THE COMMON EQUITY OF AQUILA NETWORKS -KGO?

A. No, I believe that the restructuring has not increased the cost of common equity of Aquila Networks -KGO. In fact, as Schedule DAM-11 shows, the Operations & Maintenance

[3] "How to Invest in Common Stocks: The Complete Guide to Using the Value Line Investment Survey," (2003: Value Line Publishing, Inc., New York), p. 41.

Expenses per Customer and the Net Plant per Customer for Aquila Networks – KGO are within the range of my comparable companies. Of course, these metrics may require further interpretation; utilities with a more concentrated service territory may have lower costs per customer than more rural systems. Consequently, I also compared Aquila Networks – KGO to Kansas Gas Service. This comparison also demonstrates that the restructuring of Aquila, Inc. has not adversely affected the cost per customer of Aquila Networks – KGO and increased the risks to common equity.

Q. FROM A RATEMAKING STANDPOINT, SHOULD THE HIGHER RISK OF AQUILA, INC. INFLUENCE THE COST OF CAPITAL OF THE UTILITY OPERATING DIVISIONS?

A. Aquila, Inc. has tried to isolate the impact of the credit and risk problems of the parent from the regulated utility, and this is sound policy in my opinion. Nonetheless, I think recognizing this risk differential is important as a background for this analysis of Aquila's cost of capital. For example, this sharp distinction in the risk of Aquila, Inc. and the comparable LDCs is further confirmation that Aquila, Inc.'s high risk capital structure is inappropriate for ratemaking for Aquila Networks – KGO in this proceeding.

Q. IN YOUR OPINION, SHOULD THIS RISK DIFFERENTIAL BETWEEN AQUILA, INC. AND THE TYPICAL LDCS CHANGE IN THE FUTURE?

A. In the future, as Aquila, Inc. evolves as a parent company of a group of regulated utilities, this risk differential noted by analysts should diminish. In fact, Aquila, Inc. should experience the economies of scale that afford cost savings to a utility operating division. Typically, a utility operating division flows those lower costs through to rates, and that is the potential inherent benefit in this type of capital structure. The mergers and

combinations of utilities in recent years is evidence that it is an industry trend to seek these economies.

Q. WHEN YOU REVIEWED THE COMMON STOCK EARNINGS OF THE COMPANIES THAT YOU STUDIED, WHAT DID THIS SHOW?

A. The recent common stock losses of Aquila, Inc., which fortunately are improving, set it apart from the positive earnings and earnings growth of the group of comparable gas distribution utilities. I have shown this comparison in Schedule DAM-12. Similarly, comparing the percentage returns on common equity of Aquila, Inc. to the comparable utilities confirms this risk differential. For example, *Value Line* estimates the average return on common stock equity for this group of companies in 2006 at 11.8 percent, with a high for New Jersey Resources of 16.0 percent. With its financial difficulties, Southwest Gas, at a return to common equity of 9.5 percent, is the only one of these LDCs that has returns in the single digits. I have demonstrated this comparison in Schedule DAM-13.

Q. WERE AQUILA, INC.'S LOSSES AND LOW FORECASTED COMMON STOCK EARNINGS IMPORTANT TO YOUR ANALYSIS IN ANY OTHER WAYS?

A. Because analysts and investors are not anticipating a positive return from an investment in Aquila, Inc., this renders a DCF analysis of Aquila, Inc. using earnings growth rates unreliable.

Q. WHEN YOU REVIEWED THE COMMON STOCK DIVIDENDS, WHAT DID YOU DETERMINE?

A. This comparison provided more evidence confirming the financial distinction between the comparable gas distribution utilities and Aquila, Inc. at this point in time. As I have

illustrated in Schedule DAM-14, each of the comparable gas distribution utilities has paid a dividend in each of the last five years. This is in contrast to Aquila, Inc. which has not paid a dividend since 2002. Moreover, *Value Line* predicts that it will pay no dividends through the period 2009-11.

Q. IS IT IMPORTANT TO YOUR ANALYSIS THAT AQUILA, INC. HAS NOT PAID A DIVIDEND IN RECENT YEARS AND THAT *VALUE LINE* FORECASTS THAT IT WILL NOT PAY A DIVIDEND IN THE 2009-11 PERIOD?

A. Yes. Because analysts and investors are not anticipating a dividend from Aquila, Inc. analytical methods based on the near-term return on investment through dividends, such as the DCF, will not produce meaningful results.

COST OF COMMON STOCK

Q. YOU ALSO STATED PREVIOUSLY THAT YOU CALCULATED THE COST OF COMMON STOCK EQUITY FOR A COMPARABLE GROUP OF GAS DISTRIBUTION COMPANIES. WHAT METHODS DID YOU USE?

A. I used the two most common methods for estimating the cost of common stock in regulatory proceedings, the Discounted Cash Flow and the Capital Asset Pricing Model. The DCF analysis, which is probably the most commonly referenced method in regulatory proceedings, and the CAPM, which provides a longer-term perspective to the analysis compliment on another.

For comparative purposes, I set out to apply each of these methods to estimate the cost of common stock of Aquila, Inc. and each of the comparable companies. As a result of the sharp risk differentials observed previously, this comparison is especially

important analytically, and because of the difficulty in assessing the growth statistics of Aquila, Inc. I found those estimates are not reliable. The CAPM for Aquila, Inc. incorporates the greater risk differential. Consequently, these results require interpretation in this context.

Of course, just mechanically applying either of these methods is a sterile analysis, so I investigated the assumptions underlying the methods in order to interpret the results if these assumptions remained satisfied in this case. I also reviewed academic literature related to the use of these two techniques. In this way, I interpreted the results in the context of their strengths and weaknesses of these methods, and, to put them into perspective, I evaluated these calculations in the context of current market conditions.

DISCOUNTED CASH FLOW METHOD

Q. YOU MENTIONED THAT YOU USED THE DCF METHOD FOR DETERMINING COST OF COMMON STOCK. CAN YOU DEFINE THE DCF METHODOLOGY FOR MEASURING COST OF COMMON EQUITY?

A. Yes. The DCF calculation of the investor's required rate of return can be expressed by the following formula:

$$K = D/P + g$$

Where:
- K = cost of common equity
- D = dividend per share
- P = price per share and
- g = rate of growth of dividends, or alternatively, common stock earnings.

In this expression K is the capitalization rate required to convert the stream of future returns into a current value.

Q. YOU MENTIONED THE UNDERLYING ASSUMPTIONS OF THE COST OF CAPITAL MODELS. WHAT ASSUMPTIONS UNDERLYING THE DCF METHOD ARE IMPORTANT WHEN ESTIMATING THE COST OF COMMON STOCK EQUITY IN PRACTICE?

A. As an example of underlying assumptions of the DCF, David Parcell stated in *The Cost of Capital—A Practitioner's Guide,*[4] that the general DCF model has the following four key assumptions:

1. Investors evaluate common stocks in the classical economic framework.
2. Investors discount the expected cash flows at the same rate (K) in every future period.
3. K corresponds only to the specific steam[sic] of future cash flows.
4. Dividends, rather than earnings, constitute the source of value.

These key assumptions are important; when not realized in practice, they can lead to incorrect measures of the cost of common equity. In turn, this may lead to misinterpretation of the results using the DCF method.

Q. WHAT DO YOU SEE AS STRENGTHS OF THE DCF METHOD?

A. I believe that its principal strength is its theoretically soundness. Recognizing that an investor expects a return on investment in the form of dividends and capital gains, the DCF implies that the investor is willing to pay a market price that is equal to the present value of that stream of earnings to acquire the common stock. Using these market relationships, an analyst can estimate the opportunity cost of an investor's funds, which is consistent with the regulatory objective of setting an allowed return equal to the returns to investments of equivalent risk. As a market-based measure recognizing investors' expectations, the DCF relates the market price information and the company's dividend

[4] Parcell, David, *The Cost of Capital—A Practitioner's Guide,* Society of Utility and Regulatory Analysts, 1997, pp. 8-5, 8-6.

and earnings performance to determine the value that investors place on anticipated returns.

Another common advantage in regulation is that the DCF is the most common method analysts use to measure the cost of common equity in regulatory proceedings. Consequently, persons involved in regulatory proceedings are familiar with it.

WEAKNESSES OF THE DCF

Q. WHEN USED IN A UTILITY RATE PROCEEDING, WHAT DO YOU SEE AS IMPORTANT WEAKNESSES OF THE DCF METHOD?

A. The DCF has both conceptual and data issues that may lead to misinterpretation of the calculated results. Either or both can create problems in a ratemaking proceeding.

Q. YOU STATED THAT CONCEPTUAL PROBLEMS OF THE DCF MAY LEAD TO MISINTERPRETATION OF THE CALCULATED RESULTS. WHAT CONCEPTUAL PROBLEMS OF THE DCF MAY BE IMPORTANT WHEN AN ANALYST USES IT TO ESTIMATE THE COST OF CAPITAL IN A RATE PROCEEDING?

A. A significant problem of the DCF method which can lead to a misinterpretation in a rate proceeding is the very nature of the DCF method. The DCF estimates the marginal cost of common stock equity of a company, and often analysts applying the data do not recognize the theoretical significance of this. That is, the DCF provides an estimate of the minimal return necessary to attract marginal, or incremental, investment in the common stock equity. However, the method does not account for any other factors that may affect the ability of the company to earn that return.

Q. IN REGULATORY PRACTICE, WHY IS THE MARGINAL COST NATURE OF THE DCF SIGNIFICANT?

A. Analysts interpreting the results of the DCF calculations may not recognize their context or what they truly represent. Consequently, the DCF-based calculations may be misleading. For example, the DCF calculated cost of common equity result does not provide any cushion in the estimation of the cost of capital. When using these results as a basis for a recommended allowed return in a regulatory proceeding, the bare-bones calculations may not provide a regulated company a reasonable likelihood to earn its allowed return. In fact, this misunderstanding of the DCF results can virtually assure that a regulated company will not have the opportunity to earn its allowed return.

Q. IN YOUR EXPERIENCE IS IT COMMON FOR REGULATORS AND ANALYSTS TO RECOGNIZE THIS CHARACTERISTIC OF THE DCF METHOD?

A. Yes, it is. Regulators and analysts often apply adjustments to compensate for the marginal cost nature of the DCF adjustment. For example, some analysts specifically apply a flotation adjustment. The flotation adjustment specifically recognizes that the measurement of the market-based DCF estimate of the cost of capital does not always incorporate the costs of issuing common stock, i.e., legal fees, investment banker fees and publication costs of a prospectus. Some analysts also apply an adjustment for "market pressure" associated with the sale of securities. This also is a direct recognition that an analyst should recognize the effects of market activities not encompassed in the current DCF estimate when setting rates for a future time period.

Q. RECOGNIZING THE MARGINAL COST NATURE OF THE DCF AND THE NEED OF A REGULATED UTILITY TO BE ACTIVE IN THE FINANCIAL MARKETS, DO YOU RECOMMEND CALCULATING A FLOTATION ADJUSTMENT?

A. No, I believe that focusing on the high end of the DCF results is adequate compensation for the regulated utility, and I believe that these are results that fall within the distribution of estimated cost of common equity. This also provides market measured estimates of the cost of such factors as flotation costs and other market effects. This, in my opinion, directly recognizes the marginal cost nature of the DCF method.

Q. TO YOUR KNOWLEDGE, HAVE REGULATORY COMMISSIONS RECOGNIZED THESE LIMITATIONS OF THE DCF WHEN USED IN RATE PROCEEDINGS TO DETERMINE THE COST OF COMMON EQUITY?

A. Yes. Regulatory bodies have recognized some of these difficulties. In one example addressing these factors directly, the Indiana commission in a 1990 decision recognized that the assumptions underlying the DCF model rarely, if ever, hold true.[5] This commission stated that an "...unadjusted DCF result is almost always well below what any informed financial analyst would regard as defensible and therefore requires an upward adjustment based largely on the expert witness' judgment."[6]

Q. HAVE ANALYSTS PERFORMED STUDIES REGARDING WHICH DATA USED IN A DCF ANALYSIS ARE MOST LIKELY TO CAPTURE INVESTORS' EXPECTATIONS ABOUT THE FUTURE RETURNS?

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[5] Phillips, Charles F., Jr. and Robert G. Brown, *Chapter 9: The Rate of Return,* The Regulation of Public Utilities: Theory and Practice, (1993: Public Utility Reports, Arlington, VA) p. 423.
[6] Ibid, *In re Indiana Michigan Power Company,* 116 PUR4th 1, 17 (Ind. 1990).

A. Yes. As early as 1982, published academic studies showed that analysts' forecasts were superior to historical trended growth rates as predictors of growth rates for DCF analyses.

Q. CAN YOU CITE SOME OF THE STUDIES THAT DEMONSTRATED THAT INVESTORS LOOK TO ANALYSTS' FORECASTS WHEN MAKING INVESTMENT DECISIONS?

A. Yes. A number of authors have addressed the merits of analysts' forecasts in a DCF analysis of the cost of capital. For example, in a well-known financial textbook Brigham and Gapenski explain that analysts' growth rate forecasts are the best source for growth measures in a DCF analysis. They state:

> Analysts' growth rate forecasts are usually for five years into the future, and the rates provided represent the average growth rate over the five-year horizon. Studies have shown that analysts' forecasts represent the best source for growth for DCF cost of capital estimates.[7]

Research reported in the academic literature supports this position also. For example, Vander Weide and Carleton found:

> ...overwhelming evidence that the consensus analysts' forecast of future growth is superior to historically oriented growth measures in predicting the firm's stock price....Our results are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions.[8]

As to the use of the DCF in utility regulatory proceedings, Timme and Eisemann examined the effectiveness of using analysts' forecasts rather than historical growth rates. They concluded:

> The results show that all financial analysts' forecasts contain a significant amount of information used by investors in the determination of share prices not found in

[7] Brigham, Eugene F., Louis C. Gapenski, and Michael C. Ehrhardt, "Chapter 10: The Cost of Capital," Financial Management Theory and Practice, Ninth Edition (1999: Harcourt Asia, Singapore), p. 381.

[8] Vander Weide, James H. and Willard T. Carleton, "Investor Growth Expectations: Analysts vs. History," *The Journal of Portfolio Management,* Spring 1988, pp. 78-82.

the historical growth rate....The results provide additional evidence that the historical growth rates are poor proxies for investor expectations; hence they should not be used to estimate utilities' cost of capital.[9]

Q. ARE YOU AWARE OF ANY OTHER EMPIRICAL INFORMATION THAT FOCUSES ON THE IMPORTANCE OF COMMON STOCK EARNINGS?

A. Yes. In an "event analysis", a colleague and I compared the market reactions of announced dividends and common stock earnings that were likely to be a surprise to the market. That is, for a group of electric utilities we compared the market reactions to dividend announcements and common stock earnings announcements. Specifically, we looked at the price impact of both earnings announcements and dividend announcements that exceeded *Value Line's* projected levels. Among these companies there were 8 dividend announcements and 19 common stock announcements that exceeded analyst's expectations during the period from September 2001 to December 2003. By developing ratios of a utility's common stock price to the Dow Jones Utility Index, we statistically isolated the impact of these announcements, and linked them to contemporaneous price changes. As Schedule DAM-15 shows, the impact on market prices of the unexpected earnings per share announcement in these cases is dramatic and obvious, and the impact of unexpected dividend announcements is seemingly less so.

Q. WHEN DEVELOPING YOUR DCF ANALYSIS, WHAT DID YOU LEARN ABOUT THE RECENT COMMON STOCK EARNINGS AND DIVIDEND PAYMENTS OF THE COMPANIES THAT YOU STUDIED?

A. I reviewed the dividend and earnings history of the companies studied. As I have illustrated in Schedule DAM-16, the dividends have grown at a lower rate than earnings

[9] Timme, Stephen G. and Peter C. Eisemann, "On the Use of Consensus Forecasts of Growth in the Constant Growth Model: The Case of Electric Utilities," *Financial Management*, Winter 1989, pp. 23-35.

per share in recent years, but this is not surprising in light of the increased competition in the gas distribution industry. Under these increasingly competitive circumstances, prudent boards of directors are likely to conserve cash and refrain from increasing dividends even as earnings grow. Although this relationship may change eventually following the tax reduction on dividends in 2003, the data that I reviewed concerning the comparable LDCs does not yet show this impact.

Q. HOW DID YOU DETERMINE COMMON STOCK PRICES FOR YOUR DCF ANALYSIS?

A. Of course, I was interested in current market valuations; however, recognizing that rates from this proceeding will be in effect for a number of years, I also examined prices over a longer time period. I obtained common stock prices for the past year reported by the *Wall Street Journal.* I also selected current prices from a recent two-week period as reported by *YAHOO! Finance.*

Q. PLEASE EXPLAIN THE FINDINGS FROM YOUR DCF ANALYSIS.

A. Because of the unavailability of DCF estimates for Aquila, Inc., in this analysis I concentrated on the results of the comparable LDCs as cost of common equity benchmarks. Also in this analysis, for a dividend growth rate I combined historical and forecasted dividend growth rates and used the common stock prices for the past year. This produced low estimates for the comparable companies. I show the results of this DCF calculation in Schedule DAM-17. These results are on the average for the group between 6.23 percent and 7.04 percent. However, these results are so close to the current level of short-term debt rates and the coupon bond rate of even investment grade utilities that they are not credible measures for the cost of common equity of Aquila in this

proceeding. I also used a current common stock share price in a DCF calculation, and it also produced non-credible results for ratemaking. As Schedule DAM-18 shows, these results are 6.40 percent to 6.45 percent on the average which are lower than the current yield on Moody's Baa corporate bonds of 6.59 percent. Schedules DAM-19 and DAM-20 combine the historical and forecasted earnings per share growth rates showing that this DCF produced an extremely high range of estimates. It ranges from a low of 3.64 percent for NICOR to a high of 11.85 percent for the South Jersey Industries when I used the 52-week share prices. After removing NICOR because of its negative growth rate, the model produces an average for the group of 9.75 percent to 10.57 percent. The high-end of the projected earnings per share growth rate DCFs for the comparable LDCs of 10.00 percent and 9.42 percent are probably the most relevant for Aquila in this proceeding. Using the 52-week prices, Southwest Gas is the highest DCF result at 12.26 percent and using recent prices it is 11.49 percent. I have illustrated these results in Schedules DAM-21 and DAM-22.

CAPITAL ASSET PRICING MODEL

Q. YOU STATED THAT YOU USED THE CAPITAL ASSET PRICING MODEL IN YOUR ANALYSIS. WHAT IS THE CAPITAL ASSET PRICING MODEL?

A. The Capital Asset Pricing Model is a risk premium method that measures the cost of capital based on an investor's ability to diversify by combining securities of various risks into an investment portfolio. It measures the risk differential, or premium, between a given portfolio and the market as a whole. The diversification of investments reduces the investor's total risk. However, some risk is non-diversifiable, e.g., market risk, and investors remain exposed to that risk. The theoretical expression of the CAPM model is:

$$K = R_F + \beta (R_M - R_F)$$

Where:
- K = the required return.
- R_F = the risk-free rate.
- R_M = the required overall market return; and
- β = beta, a measure of a given security's risk relative to that of the overall market.

In this expression, the value of market risk is the differential between the market rate and the "risk-free" rate. Beta is the measure of the volatility, as a measure of risk, of a given security relative to the risk of the market as a whole. By estimating the risk differential between an individual security and the market as a whole, an analyst can measure the relative cost of that security compared to the market as a whole.

Q. IN YOUR OPINION, WHAT ARE THE ADVANTAGES WHEN USING THE CAPM IN A RATEMAKING PROCEEDING?

A. The CAPM, as a risk premium method, provides a longer-term, more stable perspective of the cost of capital when applied in ratemaking than that of the more volatile DCF analysis. The CAPM takes current debt costs as a basis, or benchmark, for measuring the cost of common stock, which provides this analytical stability. In this way, the CAPM links the incremental cost of capital of an individual company with the risk differential between that company and the market as a whole. Although this is a rather imprecise method, it is a good tool for assessing the general level of the cost of a security.

Q. HOW CAN YOU TELL THAT THE CAPM IS A MORE STABLE MEASURE OF THE COST OF CAPITAL?

A. The CAPM results are likely to be similar for companies in the same industry with similar financial characteristics. In addition, the results are not likely to vary a great deal over time.

Q. WHAT PROBLEMS DO YOU PERCEIVE TO BE IMPORTANT WHEN ONE USES THE CAPM IN A RATEMAKING PROCEEDING?

A. The cost of capital calculations for a company are sensitive to the beta used in the analysis. This beta is a single measure of risk, so, consequently, the CAPM will not incorporate any risks not included in the measures of market volatility. Also, a number of analysts have shown that the CAPM overestimates the cost of capital of companies with betas greater than one and underestimates the cost of capital of companies with betas less than one. In regulation this is important, because most utilities have beta estimates less than one. For example, all of the comparable LDCs except NICOR have *Value Line* betas between 0.75 and 0.85. NICOR has a *Value Line* beta of 1.20. Also, notably Aquila, Inc. has a beta of 1.50.

Q. PLEASE EXPLAIN THE CAPM METHODOLOGY THAT YOU USED IN YOUR ANALYSIS.

A. I applied two different, but complementary, approaches to estimate a CAPM cost of capital. One of these methods examines the historical risk premium of common stock over high grade corporate bonds. The other integrates the risk premium of common stocks to long-term government bonds in recent markets. This method requires an adjustment for the bias because of company size that I mentioned previously. The financial literature has recognized this bias as an empirical problem for a long time, but correcting for this bias is a recent analytical development.

Q. YOU STATED THAT THE FINANCIAL LITERATURE RECOGNIZES THAT THE CAPM METHOD MAY REQUIRE AN ADJUSTMENT FOR A COMPANY'S SIZE. WHAT IS THE NATURE OF THIS RECOGNIZED BIAS?

A. R. W. Banz[10] and M. R. Reinganum[11] in the 1980s, for example, is a good reference pointing out this size bias. Reinganum examined the relationship between the size of the firm and its price-earnings ratio, finding that small firms experienced average returns greater than those of large firms that had equivalent risk as measured by the beta. Of course, the beta is the distinguishing measure of risk in the CAPM. Banz confirmed that beta does not explain all of the returns associated with smaller companies; hence, the CAPM would understate their cost of common equity. In the same time frame, Fama and French confirmed that the Banz analysis consistently rejected the central CAPM hypothesis that beta sufficed to explain investors' expected returns.[12]

Q. WHAT DID YOU MEAN WHEN YOU SAID THAT THE CAPM METHOD REQUIRES AN ADJUSTMENT?

A. Although repeated studies showed that the CAPM method possesses a bias that understates the expected returns of small companies, this remained only an empirical observation without a clear remedy. However, now Ibbotson Associates, which is the common source of data for the risk premium used in CAPM analyses, has developed an adjustment for this bias. Ibbotson Associates discusses the problem as follows:

> One of the most remarkable discoveries of modern finance is that of the relationship between firm size and return. The relationship cuts across the entire size spectrum but is most evident among smaller companies, which have higher returns on average than larger ones. Many studies have looked at the effect of firm size on return. [13]

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[10] Banz, R.W., "The Relationship Between Return and Market Value of Common Stock," *Journal of Financial Economics*, March 1981, pp. 3-18.

[11] Reinganum, M. R., "Misspecification of Capital Asset Pricing: Empirical Anomalies Based on Earnings, Yields, and Market Values," *Journal of Financial Economics*, March 1981, pp. 19-46.

[12] Fama, Eugene F., and Kenneth R. French, "The CAPM is Wanted, Dead or Alive," *The Journal of Finance*, Vol. LI, No. 5, pp. 1947-1958.

[13] Chapter 7: Firm Size and Return, "Ibbotson Associates' Stocks, Bonds, Bills, and Inflation: 2006 Yearbook Valuation Edition," edited by James Harrington and Michael Barad, p. 129.

To account for this empirical bias against smaller companies, Ibbotson Associates has prescribed quantitative adjustments to the CAPM, which it publishes in the same data source used by many analysts to estimate the risk premium in their CAPM analyses.

Q. DID YOU APPLY THE ADJUSTMENT RECOMMENDED BY IBBOTSON ASSOCIATES IN YOUR ANALYSIS?

A. Yes. In my CAPM analysis, I followed the method recommended by Ibbotson Associates to compensate for this inherent data bias.

Q. HAVE ANY REGULATORY COMMISSIONS ACCEPTED THIS SIZE ADJUSTMENT TO THE CAPM IN RATE PROCEEDINGS WHEN DETERMINING THE COST OF COMMON EQUITY?

A. Yes. The Minnesota Public Utilities Commission has done so in an Interstate Power and Light Company case. The Commission observed:

> The Administrative Law Judge takes comfort from the fact that Ibbotson Associates is a widely-recognized statistical reporting firm that has a national reputation. He considers it to be in the same general category as Standard & Poor's or Moody's. There is no indication that the report in question was prepared for IPL, or the utility industry, to bolster arguments in rate cases. Instead, it appears that the report in question is part of an almanac-type yearbook that Ibbotson prepares without any particular focus on the utility industry. The Administrative Law Judge understands and shares the concerns of the Staff concerning the methodology used, and thinks the issue is worthy of pursuit in some other forum. But for purposes of this case, the Administrative Law Judge accepts the principal conclusion of the study – that size of a firm is a factor in determining risk and return.[14]

Q. PLEASE DESCRIBE THE RESULTS OF YOUR CAPM ANALYSIS.

A. My two CAPM studies provide comparative calculations, based on slightly different assumptions. In this way, they serve as benchmark comparisons to the DCF analysis that

[14] *In the Matter of the Petition of Interstate Power and Light Company for Authority to Increase its Electric Rates in Minnesota,* Docket No. E-001/GR-03-767, p. 7.

I had developed previously. Schedules DAM-23 and DAM-24 show the results of my CAPM analyses. Of course, because it is a risk premium analysis, I was able to estimate the cost of common equity of Aquila, Inc. in the current market. The results of the CAPM for Aquila, Inc. were 17.54 percent and 18.66 percent in current markets. However, as I mentioned previously, Aquila, Inc., is now essentially a regulated utility, but the recent restructuring still strongly influences its market-measured capital costs at this time. For this reason the averages of the CAPM results for the comparable LDCs of 12.68 percent and 12.98 percent are estimates of the cost of capital of Aquila for ratemaking in this proceeding.

Q. HAVE YOU PREPARED A SUMMARY OF THE RESULTS OF YOUR DCF AND CAPM ANALYSES?

A. Yes. Schedule DAM-25 illustrates a summary of the DCF and CAPM results. As I noted previously, the high end of the DCF results are the most reliable, and the averages for the comparable companies are 9.99 percent and 10.57 percent. The CAPM results for the comparable companies are 12.68 percent and 12.98 percent. As I noted previously, I believe that the 17.54 percent and 18.66 percent CAPM results for Aquila, Inc. are higher than necessary for ratemaking in this proceeding.

INTERPRETING THE DCF AND CAPM RESULTS

Q. WHAT DID YOU CONSIDER WHEN YOU INTERPRETED YOUR DCF AND CAPM RESULTS FOR THIS PROCEEDING?

A. I considered the recent and forecasted interest rates, returns on alternative investments, the actual returns to common stock of the comparable LDCs, the identifiable risks of Aquila and the limitations and biases of the DCF and CAPM methods.

Q. HOW ARE INTEREST RATES IMPORTANT TO YOUR INTERPRETATION OF THE DCF AND CAPM RESULTS?

A. Significantly, the levels of interest rates are a measure of the return that investors in utility equities might expect from alternative investments. Consequently, rising interest rates mean that investors will require higher returns from their common stock investments. Relatively speaking, if the risk premium between common stock and debt remains relatively constant, the returns to common stock investments must necessarily increase to attract and maintain capital, and this is an important consideration when establishing an allowed return. Additionally, utilities are capital intensive. Rising inflation and rising interest costs erode the earnings of utilities to a relatively greater extent than industrial companies and therefore are of greater concern to utility investors.

Q. YOU MENTIONED THE ACTUAL RETURNS OF THE COMPARABLE LDCS. WHAT ARE THE CURRENT AND FORECASTED RETURNS OF COMMON STOCK OF THE COMPARABLE LDCS?

A. The average return on common equity of the comparable LDCs in 2006 *Value Line* estimates will range between 9.5 percent for Southwest Gas and 16.0 percent for New Jersey Resources. The average for the group is 11.8 percent. During the 2009-11 period, *Value Line* estimates that the average for the groups' common stock returns will increase to 11.8 percent. I have shown these *Value Line* estimates in Schedule DAM-26.

Q. WHAT OTHER MARKET EVIDENCE DID YOU REVIEW ABOUT RETURNS TO COMMON EQUITY IN ORDER TO PUT YOUR CAPM AND DCF ESTIMATES IN A CURRENT MARKET CONTEXT?

A. I reviewed the recent returns to common stock of some non-regulated industries to view returns to alternative equity investments. I illustrate some of these data in Schedule DAM-27. Although, as expected, the range in recent and expected earnings varies considerably, these data are difficult to interpret. However, one characteristic is relatively similar and important. For the most part, these non-regulated industries are experiencing an increase in common equity returns.

Q. YOU PREVIOUSLY DISCUSSED AN INCREASE IN BUSINESS RISK BECAUSE OF HIGH NATURAL GAS PRICES. HOW DO HIGH GAS PRICES INCREASE THE BUSINESS RISK TO INVESTORS OF AN LDC?

A. High natural gas prices create demand risk for the LDCs and their investors. That is, high prices cause customers to adjust their consumption patterns and LDCs' sales volumes will fall short of levels upon which regulators determined the tariffs. At higher prices, customers reduce their natural gas consumption, install more efficient equipment, and switch to alternative fuels. In addition, high natural gas prices will deter some new customers from even connecting to natural gas utility service. This reduction in gas volumes sold means that LDCs will not earn expected, allowed returns based on larger, anticipated volumes. Investors perceive this threat to projected returns as a business risk. High gas prices also cause receivables to increase. These reduced margins decrease returns to levels less than those anticipated by the allowed returns set by regulators. To investors this increases uncertainty and business risk.

RECOMMENDED RETURN

Q. FROM YOUR CAPM ANALYSIS OF AQUILA, INC. AND THE COMPARABLE COMPANIES, YOUR DCF OF THE COMPARABLE COMPANIES, THE

CURRENT COST OF CAPITAL AND ALTERNATIVE RETURNS, HOW DID YOU DETERMINE A RECOMMENDED RETURN FOR AQUILA IN THIS PROCEEDING?

A. As I noted, the CAPM estimates for Aquila, Inc., although it is now principally a regulated utility, are higher than necessary for ratemaking because of the market-effects of the capital restructuring. The CAPM results for the comparable LDCs by two different, confirming methods are very similar. These are 12.68 percent and 12.98 percent.

The DCF results for the comparable companies are very sensitive to assumptions about the current market, and they do not represent the relative risks of Aquila. Probably the actual returns of the comparable LDC group are very significant for ratemaking in this instance. This is a measure of the returns for similar investments in utilities in similar businesses. This group should earn an average return on common stock in 2006 of 11.8 according to *Value Line.* In light of rising interest rates, I recommend that the allowed return for Aquila be set in the range of 11.75 percent to 12.25 percent. Because of the uncertainties of the cost of raising capital to support utility service going forward, I believe that from the mid-point of this range, or 12.0 percent, to the upper end of the range, or 12.25 percent, is necessary for Aquila to attract capital in the current market. Looking at my recommendation from the perspective of investing in comparable LDCs, Aquila must at least be able to provide the same returns to existing and prospective common equity holders as its peer LDCs. That is precisely what the group of comparable companies represents, and my recommendation is in line with their current and forecasted earnings on common stock.

Q. WHAT IS THE TOTAL COST OR CAPITAL THAT YOUR RECOMMENDED ALLOWED RETURN ON COMMON EQUITY REPRESENTS?

A. A 12.0 percent on common stock, which I recommend as a minimal return, will produce a total cost of capital of 9.47 percent for Aquila. The upper end of my range or 12.25 percent will result in a total cost of capital of 9.73 percent. I have illustrated these total cost of capital estimates in Schedule DAM-28.

FINANCIAL INTEGRITY TEST

Q. YOU STATED PREVIOUSLY THAT YOU TESTED THE ADEQUACY AND APPROPRIATENESS OF YOUR RETURN RECOMMENDATION. HOW DID YOU TEST YOUR RECOMMENDED ALLOWED RETURN FOR AQUILA FOR ITS ADEQUACY AND APPROPRIATENESS?

A. As a direct measure of the financial integrity of my recommended allowed return range, I compared the After-Tax Interest Coverage ratios of Aquila, if it should achieve my recommended allowed return, to the coverages of the comparable LDCs. The After-Tax Interest Coverage is a measure that implies the likelihood that a company will have sufficient funds to meet its fixed interest obligations. Therefore, this is a measure that shows the likelihood of Aquila meeting its fixed interest obligations should it earn at my recommended allowed return level. The higher the coverage ratio the greater the likelihood that the allowed return will provide funds to meet the fixed interest obligations. Of course, because of the various business risks that can occur, the Company has no guarantee that it will earn this return. If it does earn at this level, this comparison shows how its interest coverage will compare to the comparable LDCs. For my analysis, I

simply determined if my recommended allowed return would result in interest coverage similar to the comparable LDCs.

Q. ASSUMING AQUILA ACHIEVES YOUR RECOMMENDED ALLOWED RETURN, HOW WOULD THE AFTER-TAX INTEREST COVERAGE RATIO FOR AQUILA COMPARE TO THE COVERAGES OF THE COMPARABLE LDCS?

A. The After-Tax Interest Coverage ratio of Aquila that would result from the minimal recommended allowed return on common equity of 12.0 percent is just 2.73 times. By comparison, the average After-Tax Interest Coverage of the comparable companies is a much higher, and less risky, 3.62 times. Only Southwest Gas would have a coverage lower than Aquila at this recommended level. By any measure, the coverage of my minimally recommended allowed return is extremely low.

Q. DID YOU DETERMINE IF THE UPPER END OF YOUR RECOMMENDED ALLOWED RETURN WOULD PROVIDE AN AFTER-TAX INTEREST COVERAGE THAT IS CLOSER TO THE COVERAGE LEVELS OF THE COMPARABLE LDCS?

A. If Aquila earns at the upper end of my recommended allowed return, this will reduce the measured coverage risk of Aquila *vis-a-vis* the comparable LDCs. However, even at the upper-end of my recommended range, the After-Tax Interest Coverage is still only 2.77 times. Consequently, a return at the upper end of allowed return range will not move Aquila above the low end of the coverages of the comparable LDCs. This test of my recommended allowed return range, especially in light of the uncertainty of Aquila

achieving this return, verifies that my recommended return is conservative. I have shown these comparisons in Schedule DAM-29.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

STATE OF OKLAHOMA)
)ss:
COUNTY OF OKLAHOMA)

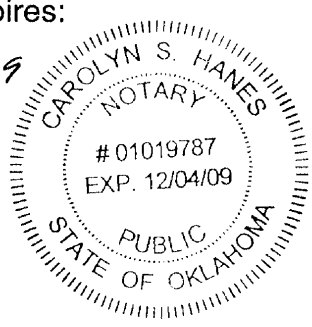
Donald A. Murry, being first duly sworn, deposes and says that he is Donald A. Murry, referred to in the foregoing document entitled "Direct Testimony of Donald A. Murry" before the State Corporation Commission of the State of Kansas and the statements therein were prepared by him or under his direction and are true and correct to the best of his information, knowledge and belief.

Donald A. Murry

SUBSCRIBED AND SWORN to before me this 11th day of October, 2006.

Notary Public

My Appointment Expires:
12-4-2009



Aquila Networks KGO

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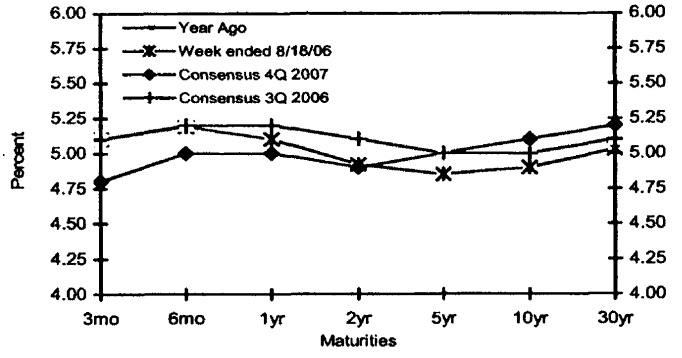
Consensus Forecasts Of U.S. Interest Rates And Key Assumptions[1]

	History								Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month			Latest Q	3Q	4Q	1Q	2Q	3Q	4Q
Interest Rates	Aug 18	Aug 11	Aug 4	Jul 28	Jul.	Jun.	May	2Q 2006	2006	2006	2007	2007	2007	2007
Federal Funds Rate	5.23	5.25	5.27	5.24	5.24	4.99	4.94	4.91	5.3	5.3	5.3	5.2	5.0	4.9
Prime Rate	8.25	8.25	8.25	8.25	8.25	8.02	7.93	7.90	8.3	8.3	8.3	8.2	8.0	7.9
LIBOR, 3-mo.	5.42	5.42	5.48	5.49	5.49	5.40	5.18	5.22	5.4	5.5	5.4	5.3	5.2	5.1
Commercial Paper, 1-mo.	5.22	5.21	5.26	5.25	5.24	5.12	4.95	4.96	5.3	5.4	5.4	5.3	5.2	5.0
Treasury bill, 3-mo.	5.10	5.08	5.10	5.10	5.08	4.92	4.84	4.83	5.1	5.2	5.1	5.1	4.9	4.8
Treasury bill, 6-mo.	5.19	5.17	5.18	5.22	5.27	5.17	5.01	5.03	5.2	5.3	5.3	5.2	5.1	5.0
Treasury bill, 1 yr.	5.10	5.09	5.10	5.17	5.22	5.16	5.00	5.02	5.2	5.2	5.2	5.2	5.1	5.0
Treasury note, 2 yr.	4.92	4.93	4.96	5.06	5.12	5.12	4.97	4.99	5.1	5.1	5.1	5.1	5.0	4.9
Treasury note, 5 yr.	4.85	4.87	4.89	4.98	5.04	5.07	5.00	4.99	5.0	5.1	5.1	5.1	5.0	5.0
Treasury note, 10 yr.	4.90	4.94	4.96	5.05	5.09	5.11	5.11	5.07	5.0	5.1	5.1	5.1	5.1	5.1
Treasury note, 30 yr.	5.03	5.04	5.05	5.10	5.13	5.15	5.20	5.14	5.1	5.2	5.2	5.2	5.2	5.2
Corporate Aaa bond	5.70	5.76	5.76	5.83	5.85	5.89	5.95	5.89	5.9	6.0	6.1	6.1	6.1	6.1
Corporate Baa bond	6.61	6.65	6.65	6.72	6.76	6.78	6.75	6.74	6.7	6.9	7.0	7.0	7.0	7.0
State & Local bonds	4.39	4.45	4.49	4.55	4.61	4.60	4.59	4.59	4.6	4.7	4.8	4.8	4.8	4.8
Home mortgage rate	6.52	6.55	6.63	6.72	6.76	6.68	6.60	6.60	6.6	6.7	6.7	6.7	6.7	6.7
	History								Consensus Forecasts-Quarterly Avg.					
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Key Assumptions	2004	2004	2005	2005	2005	2005	2006	2006	2006	2006	2007	2007	2007	2007
Major Currency Index	86.5	81.9	81.3	83.5	84.7	85.8	84.9	82.2	81.6	80.8	80.2	79.8	79.7	79.6
Real GDP	3.1	2.6	3.4	3.3	4.2	1.8	5.6	2.5	2.6	2.6	2.7	2.8	2.9	3.0
GDP Price Index	2.1	3.2	3.5	2.4	3.3	3.3	3.3	3.3	2.8	2.5	2.6	2.4	2.3	2.3
Consumer Price Index	2.1	3.6	2.3	3.8	5.5	3.3	2.2	4.9	3.4	2.6	2.6	2.5	2.4	2.4

[1]Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Definitions reported here are same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the U.S. Federal Reserve Board's Major Currency Index is from FRSR H.10 and G.5. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS).

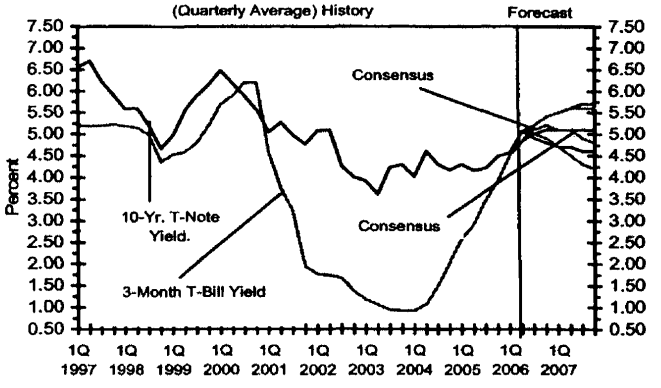
U.S. Treasury Yield Curve

Week ended August 18, 2006 and Year Ago vs.
3Q 2006 and 4Q 2007 Consensus forecasts



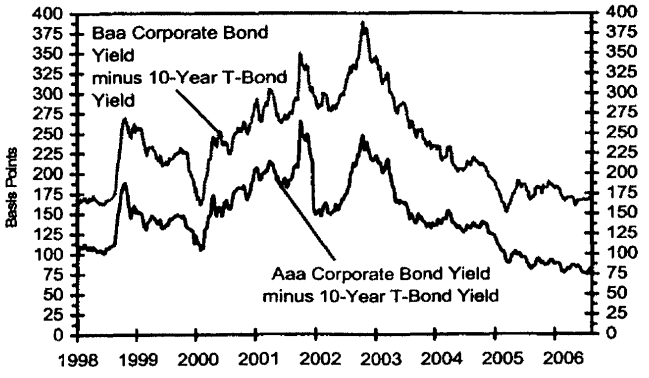
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) History — Forecast



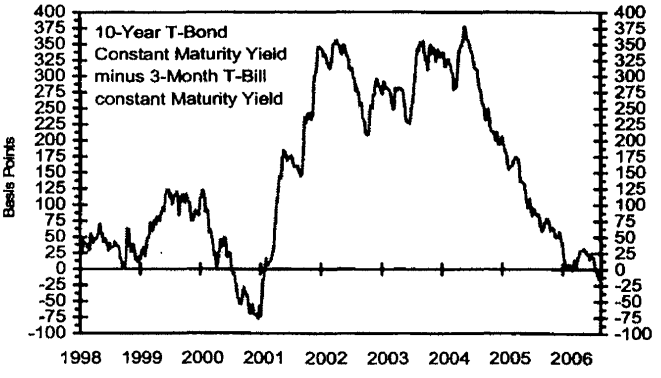
Corporate Bond Spreads

As of week ended August 18, 2006

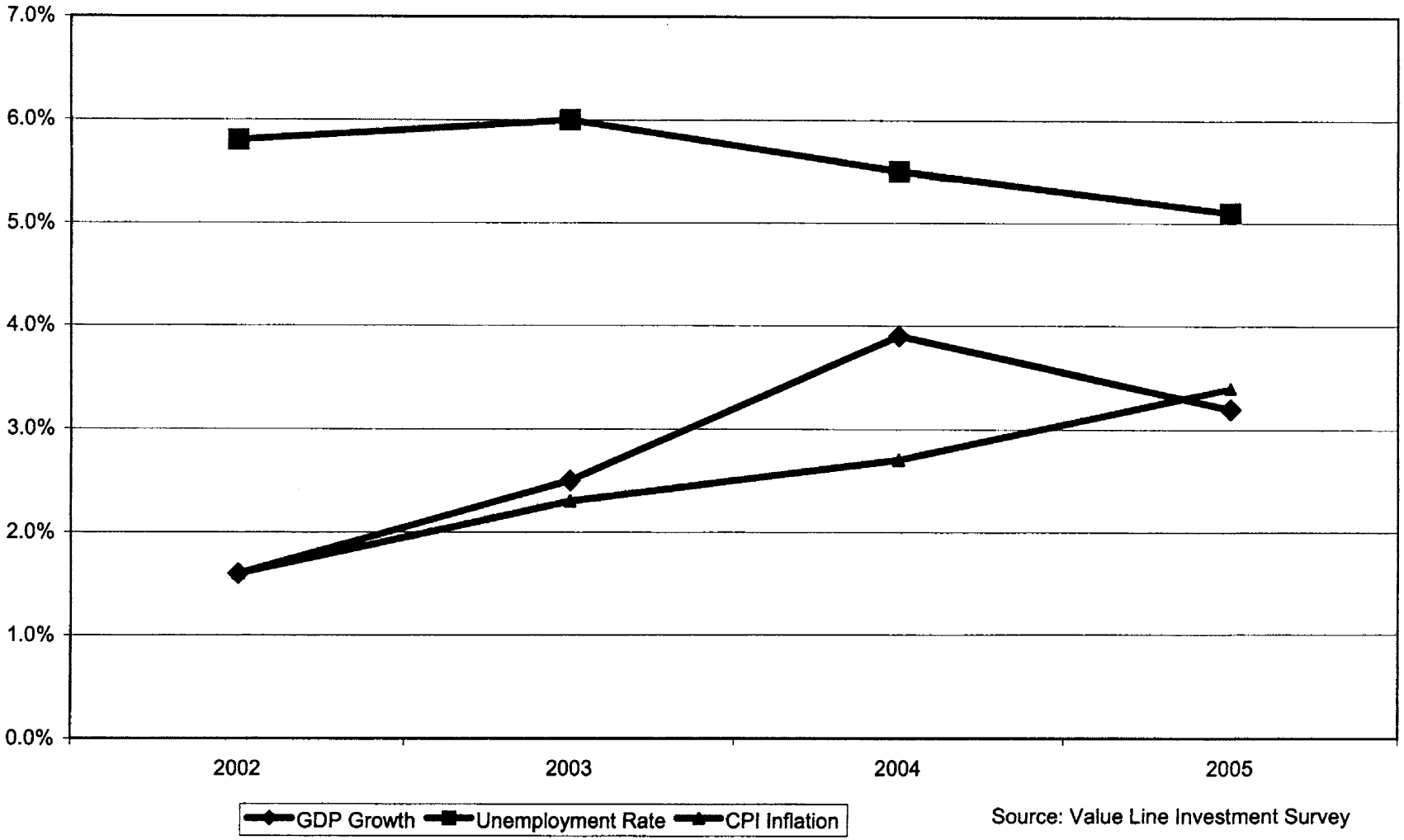


U.S. Treasury Yield Curve

As of week ended August 18, 2006

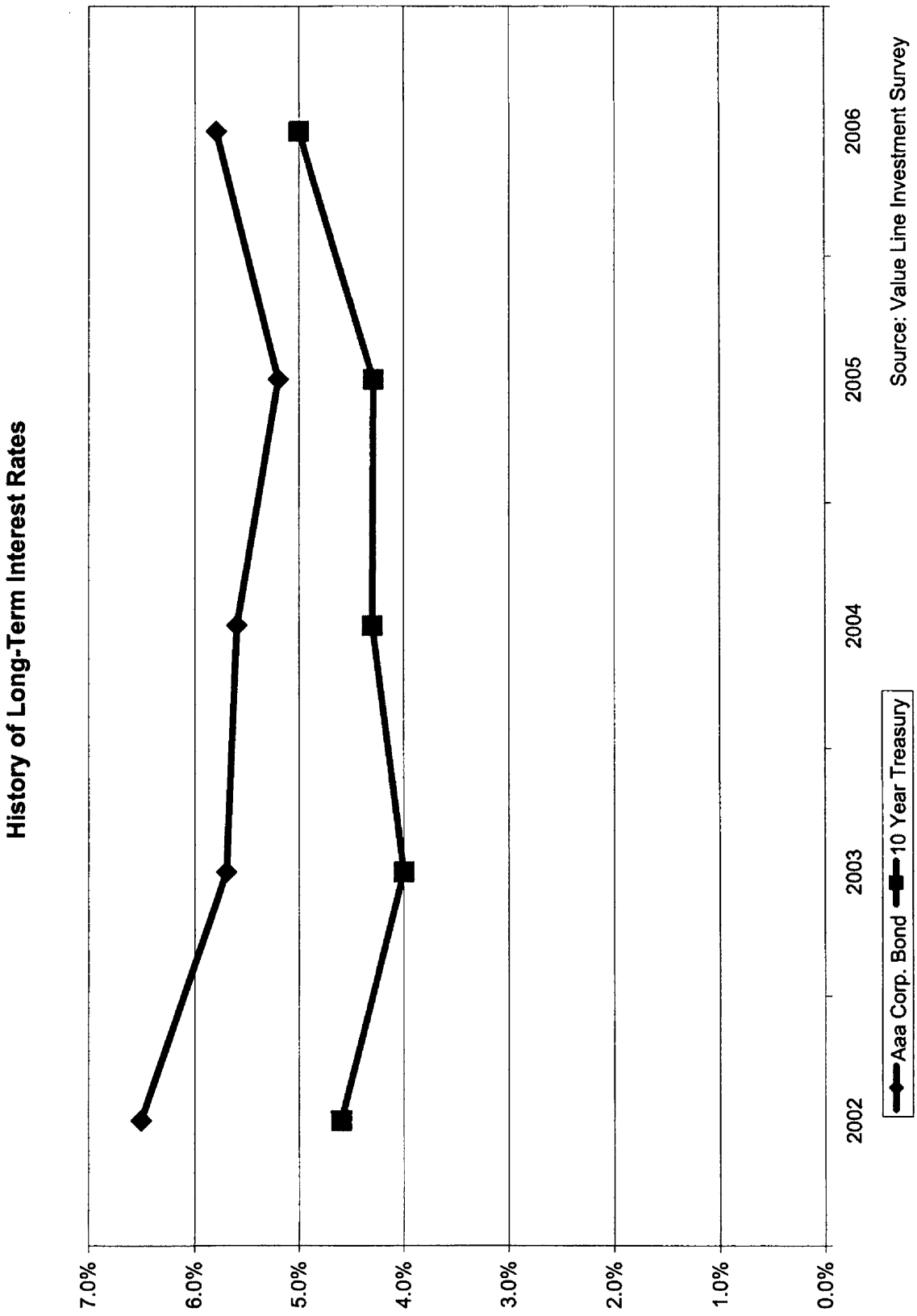


Historical Economic Indicators
2002 to 2005

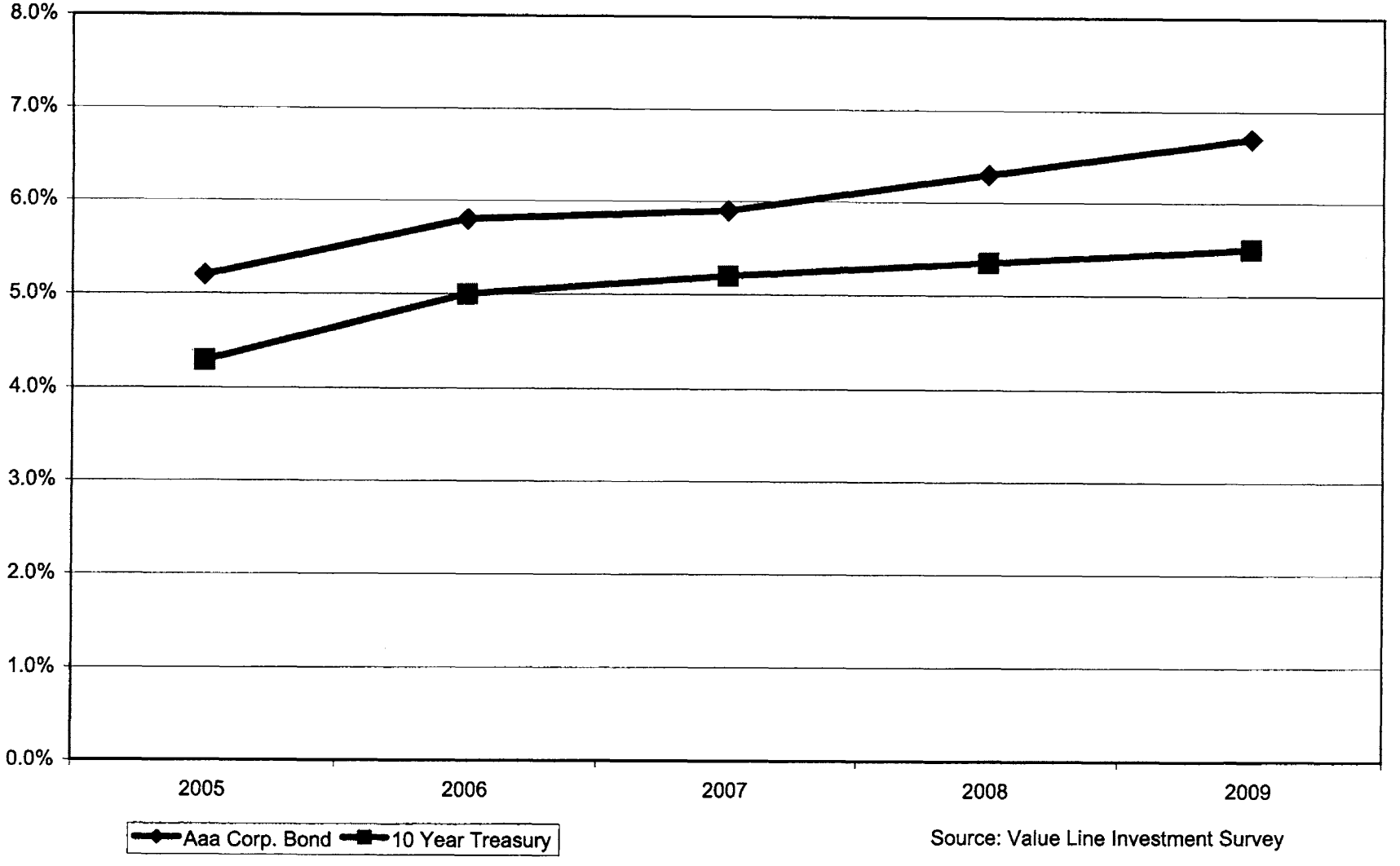


Source: Value Line Investment Survey

Schedule DAM - 2


History of Long-Term Interest Rates
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
2002
2003
2004
2005
2006
Aaa Corp. Bond
10 Year Treasury
Source: Value Line Investment Survey

Long-Term Interest Rate Forecasts



Source: Value Line Investment Survey

Schedule DAM - 4

Aquila Networks-KGO

Test Year Capital Structure

June 30, 2006

	Amount Outstanding	Percent of Total
Long Term Debt	$134,540,892	49.27%
Common Equity	$138,510,054	50.73%
Total Capitalization	$273,050,946	100.00%

Source :
Aquila Networks Work Papers

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Common Equity Ratios

Company	2002	2003	2004	2005	2006E	Forecast '09-'11
Aquila, Inc.	40.1%	37.2%	32.7%	40.9%	43.0%	53.5%
Laclede Group	52.3%	49.4%	48.3%	51.8%	51.0%	52.0%
New Jersey Resources	49.4%	61.9%	59.7%	58.0%	58.0%	63.0%
NICOR, Inc.	64.5%	60.3%	60.1%	62.5%	64.0%	68.0%
Northwest Natural Gas	51.5%	50.3%	54.0%	53.0%	53.0%	53.0%
Piedmont Natural Gas Company	56.1%	57.8%	56.4%	58.6%	56.5%	58.0%
South Jersey Industries	46.1%	49.0%	51.0%	55.1%	57.0%	60.0%
Southwest Gas	34.1%	34.0%	35.8%	36.2%	39.3%	43.5%
WGL Holdings, Inc.	52.4%	54.3%	57.2%	58.6%	59.0%	59.0%
Comparable Companies' Averages	50.8%	52.1%	52.8%	54.2%	54.7%	57.1%

Source: Value Line Investment Survey

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Common Shares Outstanding

Company	2002	2003	2004	2005	2006	Growth '02-'06
Aquila, Inc.	193.78	195.25	241.74	373.60	375.00	24.38%
Laclede Group	18.96	19.11	20.98	21.17	21.50	3.88%
New Jersey Resources	27.67	27.23	27.74	27.55	28.10	0.45%
NICOR, Inc.	44.01	44.04	44.10	44.18	44.50	0.24%
Northwest Natural Gas	25.59	25.94	27.55	27.58	27.75	2.40%
Piedmont Natural Gas	66.18	67.31	76.67	76.70	75.00	4.35%
South Jersey Industries	24.41	26.46	27.76	28.98	29.20	4.58%
Southwest Gas	33.29	34.23	36.79	39.33	41.50	6.18%
WGL Holdings, Inc.	48.56	48.63	48.67	48.65	48.70	0.05%
Comparable Companies Average	36.08	36.62	38.78	39.27	39.53	2.77%

Source: Value Line Investment Survey

Aquila Networks-KGO

Embedded Cost of Long-Term Debt

As of June 30, 2006

SERIES	DATE OF MATURITY	INTEREST RATE	ALLOCATED AMOUNT	ANNUAL INTEREST
10 Yr 6.75% Note	10/15/2006	6.745%	$1,410,000	$95,105
15 Yr 8.20% Note	01/15/2007	9.114%	$13,397,405	$1,221,039
Sr 7.625% Note	11/15/2009	7.742%	$3,333,913	$258,112
Sr 7.95% Note	02/11/2011	8.010%	$19,717,554	$1,579,376
Sr 11.875% Note	07/01/2012	6.050%	$72,578,900	$4,391,023
30 Yr 8.27% Note	11/15/2021	8.502%	$9,216,421	$783,580
30 Yr 9.00% Note	11/15/2021	9.185%	$5,000,000	$459,250
30 Yr 8.00% Note	03/01/2023	8.129%	$9,886,699	$803,690
Totals			$134,540,892	$9,591,175
Embedded Cost of Debt				7.13%

Source: Aquila Networks Work Papers

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Financial Risk Statistics

Company	Value Line's Financial Strength	Standard & Poor's Credit Rating
Aquila, Inc.	C	B
Laclede Group	B+	A
New Jersey Resources	A	A+
NICOR, Inc.	A	AA
Northwest Natural Gas	A	AA-
Piedmont Natural Gas	B++	A
South Jersey Industries	B++	BBB+
Southwest Gas	B	BBB-
WGL Holdings, Inc.	A	AA-
Comparable Companies' Median	A	A

Sources:
Value Line Investment Survey
www2.standardandpoors.com

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Business Risk Statistics

Company	Value Line					Standard & Poor's
	Safety Rank	Timeliness Rank	Stock's Price Stability	Price Growth Persistence	Earnings Predictability	Business Profile
Aquila, Inc.	5	3	10	10	10	8
Laclede Group	2	4	95	55	65	3
New Jersey Resources	1	4	100	85	100	2
NICOR, Inc.	3	3	55	35	80	3
Northwest Natural Gas	1	3	100	55	75	1
Piedmont Natural Gas	2	4	100	75	80	2
South Jersey Industries	2	5	100	95	90	2
Southwest Gas	3	3	95	55	65	3
WGL Holdings, Inc.	1	4	100	70	60	3
Comparable Companies' Average	1.9	3.8	93.1	65.6	76.9	2.4

Sources:
Value Line Investment Survey
www2.standardandpoors.com

Schedule DAM - 10

Aquila Networks-KGO

Comparable Gas Companies

Comparative Company Metrics

Company	Customers	O&M	Net Plant	Cost per Customer O&M	Cost per Customer Net Plant
Laclede Group	630,000	$144,590,000	$679,453,000	$230	$1,078
New Jersey Resources	462,000	$108,071,000	$905,130,000	$234	$1,959
NICOR, Inc.	2,100,000	$254,800,000	$2,659,100,000	$121	$1,266
Northwest Natural Gas	617,001	$113,216,000	$1,916,281,000	$183	$3,106
Piedmont Natural Gas Company	1,051,000	$206,983,000	$1,939,075,000	$197	$1,845
South Jersey Industries	322,424	$81,036,000	$877,348,000	$251	$2,721
Southwest Gas	1,713,000	$314,437,000	$2,489,147,000	$184	$1,453
WGL Holdings, Inc.	1,012,105	$237,332,000	$1,969,683,000	$234	$1,946
Other LDC's					
Kansas Gas Service*	628,693	$121,548,945	$799,682,914	$193	$1,272
Aquila - KGO *	106,950	$24,189,436	$94,774,837	$226	$886

* Represents adjusted test year as filed in most recent rate case.

Sources: Company 10-K Reports

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Earnings per Share

Company	2002	2003	2004	2005	2006E	Forecast '09-'11	Growth '06-'11
Aquila, Inc.	-2.35	-1.09	-0.99	-0.40	-0.20	0.05	NMF
Laclede Group	1.18	1.82	1.82	1.90	2.15	2.50	16.3%
New Jersey Resources	2.09	2.38	2.55	2.65	2.80	3.30	17.9%
NICOR, Inc.	2.88	2.11	2.22	2.27	2.45	2.80	14.3%
Northwest Natural Gas	1.62	1.76	1.86	2.11	2.22	2.85	28.4%
Piedmont Natural Gas Company	0.95	1.11	1.27	1.32	1.30	1.75	34.6%
South Jersey Industries	1.22	1.37	1.58	1.71	1.85	2.35	27.0%
Southwest Gas	1.16	1.13	1.66	1.25	1.85	2.25	21.6%
WGL Holdings, Inc.	1.14	2.30	1.98	2.11	1.85	2.35	27.0%
Comparable Companies' Averages	1.53	1.75	1.87	1.92	2.06	2.52	23.4%

Source: Value Line Investment Survey

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Returns on Common Equity

Company	2002	2003	2004	2005	2006E	Average '02-'06
Aquila, Inc.	-28.3%	-15.7%	-21.2%	-11.4%	-6.8%	-16.7%
Laclede Group	7.8%	11.6%	10.1%	10.9%	11.0%	10.3%
New Jersey Resources	15.7%	15.6%	15.3%	17.0%	16.0%	15.9%
NICOR, Inc.	17.5%	12.3%	13.1%	12.5%	13.0%	13.7%
Northwest Natural Gas	8.5%	9.0%	8.9%	9.9%	10.0%	9.3%
Piedmont Natural Gas Company	10.6%	11.8%	11.1%	11.5%	12.0%	11.4%
South Jersey Industries	12.5%	11.6%	12.5%	12.4%	13.0%	12.4%
Southwest Gas	6.5%	6.1%	8.3%	6.4%	9.5%	7.4%
WGL Holdings, Inc.	7.2%	14.0%	11.7%	12.0%	10.0%	11.0%
Comparable Companies' Averages	10.8%	11.5%	11.4%	11.6%	11.8%	11.4%

Source: Value Line Investment Survey

Aquila Networks

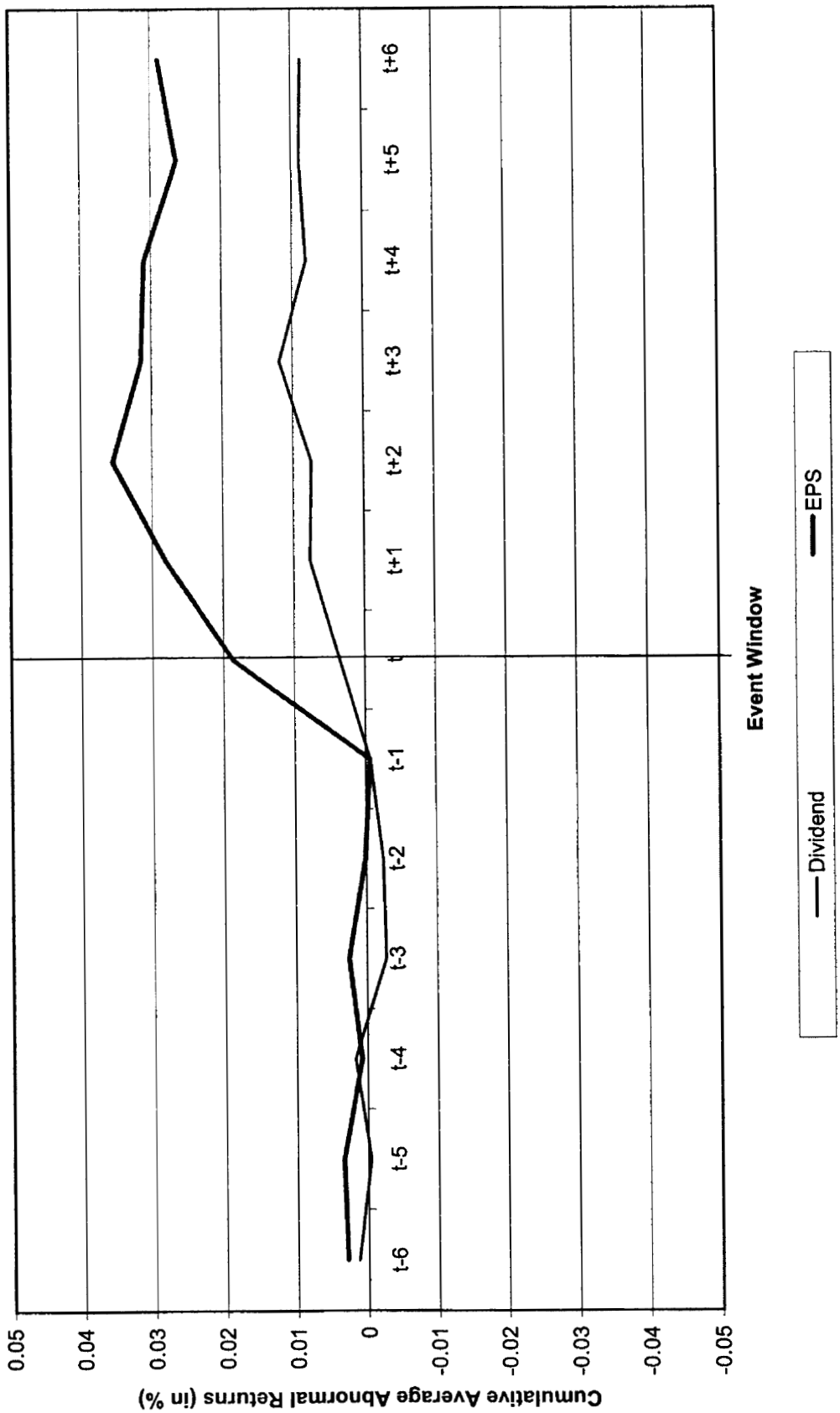
Comparable Gas Companies

Comparison of Dividends per Share

Company	2002	2003	2004	2005	2006E	Growth '02-'06	Forecast '09-'11
Aquila, Inc.	0.78	0.00	0.00	0.00	0.00	-100.00%	0.00
Laclede Group	1.34	1.34	1.35	1.37	1.40	1.11%	1.50
New Jersey Resources	1.20	1.24	1.30	1.36	1.45	4.82%	1.70
NICOR, Inc.	1.84	1.86	1.86	1.86	1.86	0.18%	2.02
Northwest Natural Gas	1.26	1.27	1.30	1.32	1.38	2.19%	1.70
Piedmont Natural Gas Company	0.80	0.82	0.85	0.91	0.96	4.90%	1.17
South Jersey Industries	0.75	0.78	0.82	0.86	0.92	5.17%	1.15
Southwest Gas	0.82	0.82	0.82	0.82	0.82	0.00%	0.82
WGL Holdings, Inc.	1.27	1.28	1.30	1.32	1.35	1.54%	1.48
Comparable Companies' Averages	1.16	1.18	1.20	1.23	1.27	2.49%	1.44

Source: Value Line Investment Survey

Stock Price Responses to Positive Dividend and EPS Announcements Greater than Expected
(Cumulative Average Abnormal Returns)



Aquila Networks-KGO

Comparable Gas Companies

Discounted Cash Flow Growth Rate Summary

	Value Line 2001 TO 2010 Estimate			Value Line Five Year Historical			Projections Value Line		S & P
	EPS	DPS	Book Value	EPS	DPS	Book Value	EPS	DPS	EPS
Laclede Group	6.77%	1.26%	6.22%	4.5%	0.5%	2.5%	5.0%	2.0%	4.0%
New Jersey Resources	6.06%	4.21%	6.72%	8.5%	3.0%	7.0%	4.5%	4.5%	5.0%
NICOR, Inc.	-0.55%	1.59%	3.27%	-3.5%	3.5%	1.5%	4.0%	1.5%	3.0%
Northwest Natural Gas	5.48%	3.48%	3.68%	5.0%	1.0%	3.5%	7.0%	4.0%	5.0%
Piedmont Natural Gas Company	6.53%	4.91%	4.47%	5.0%	5.0%	6.5%	6.0%	5.5%	4.0%
South Jersey Industries	8.26%	5.02%	8.76%	11.5%	2.5%	13.0%	7.0%	6.0%	6.0%
Southwest Gas	7.50%	0.00%	3.68%	-0.5%	0.0%	3.0%	9.0%	0.0%	3.0%
WGL Holdings, Inc.	4.34%	1.83%	3.31%	6.0%	1.5%	3.0%	1.5%	2.0%	3.0%
Comparable Companies' Averages	5.55%	2.79%	5.01%	4.56%	2.13%	5.00%	5.50%	3.19%	4.13%

Sources:
Value Line Investment Survey
Standard & Poor's Earnings Guide

Aquila Networks-KGO

Comparable Gas Companies

Dividend Growth Rate Discounted Cash Flow Using 52-Week Share Prices

	Share Prices		2006	52 Week Yields		2000-02	2009-11E	Growth	Cost of Capital	
	Low	High	Dividend	Low	High	DPS	DPS	Rate	Low	High
Laclede Group	28.60	35.65	1.40	3.93%	4.90%	1.34	1.50	1.26%	5.19%	6.16%
New Jersey Resources	40.68	51.39	1.45	2.82%	3.56%	1.17	1.70	4.21%	7.03%	7.77%
NICOR, Inc.	37.42	44.40	1.86	4.19%	4.97%	1.75	2.02	1.59%	5.77%	6.56%
Northwest Natural Gas	32.83	39.63	1.38	3.48%	4.20%	1.25	1.70	3.48%	6.96%	7.68%
Piedmont Natural Gas Company	21.26	26.17	0.96	3.67%	4.52%	0.76	1.17	4.91%	8.58%	9.43%
South Jersey Industries	25.63	30.80	0.92	2.99%	3.59%	0.74	1.15	5.02%	8.01%	8.61%
Southwest Gas	25.12	33.95	0.82	2.42%	3.26%	0.82	0.82	0.00%	2.42%	3.26%
WGL Holdings, Inc.	27.04	33.49	1.35	4.03%	4.99%	1.26	1.48	1.83%	5.87%	6.83%
Comparable Companies' Averages	29.82	36.94	1.27	3.44%	4.25%	1.14	1.44	2.79%	6.23%	7.04%

Sources:
Value Line Investment Survey
Wall Street Journal

Aquila Networks-KGO

Comparable Gas Companies

Dividend Growth Rate Discounted Cash Flow Using Current Share Prices

	Share Prices		Current	Current Yields		2000-02	2009-11E	Growth	Cost of Capital	
	Low	High	Dividend	Low	High	DPS	DPS	Rate	Low	High
Laclede Group	32.02	32.65	1.40	4.29%	4.37%	1.34	1.50	1.26%	5.55%	5.63%
New Jersey Resources	48.09	48.75	1.45	2.97%	3.02%	1.17	1.70	4.21%	7.18%	7.22%
NICOR, Inc.	42.90	43.46	1.86	4.28%	4.34%	1.75	2.02	1.59%	5.87%	5.92%
Northwest Natural Gas	37.64	38.12	1.38	3.62%	3.67%	1.25	1.70	3.48%	7.10%	7.14%
Piedmont Natural Gas Company	25.51	25.92	0.96	3.70%	3.76%	0.76	1.17	4.91%	8.61%	8.67%
South Jersey Industries	28.51	28.94	0.92	3.18%	3.23%	0.74	1.15	5.02%	8.20%	8.25%
Southwest Gas	32.92	33.49	0.82	2.45%	2.49%	0.82	0.82	0.00%	2.45%	2.49%
WGL Holdings, Inc.	30.22	30.63	1.35	4.41%	4.47%	1.26	1.48	1.83%	6.24%	6.30%
Comparable Companies' Averages	34.73	35.25	1.27	3.61%	3.67%	1.14	1.44	2.79%	6.40%	6.45%

Sources:
Value Line Investment Survey
Yahoo! FINANCE

Aquila Networks-KGO

Comparable Gas Companies

Earnings Growth Rate Discounted Cash Flow Using 52-Week Share Prices

	Share Prices		2006	52 Week Yields		2000-02	2009-11E	Growth	Cost of Capital	
	Low	High	Dividend	Low	High	EPS	EPS	Rate	Low	High
Laclede Group	28.60	35.65	1.40	3.93%	4.90%	1.39	2.50	6.77%	10.70%	11.66%
New Jersey Resources	40.68	51.39	1.45	2.82%	3.56%	1.94	3.30	6.06%	8.88%	9.62%
NICOR, Inc.	37.42	44.40	1.86	4.19%	4.97%	2.94	2.80	-0.55%	3.64%	4.42%
Northwest Natural Gas	32.83	39.63	1.38	3.48%	4.20%	1.76	2.85	5.48%	8.96%	9.68%
Piedmont Natural Gas Company	21.26	26.17	0.96	3.67%	4.52%	0.99	1.75	6.53%	10.20%	11.05%
South Jersey Industries	25.63	30.80	0.92	2.99%	3.59%	1.15	2.35	8.26%	11.25%	11.85%
Southwest Gas	25.12	33.95	0.82	2.42%	3.26%	1.17	2.25	7.50%	9.92%	10.77%
WGL Holdings, Inc.	27.04	33.49	1.35	4.03%	4.99%	1.60	2.35	4.34%	8.37%	9.33%
Comparable Companies' Averages	29.82	36.94	1.27	3.44%	4.25%	1.62	2.52	5.55%	8.99%	9.80%
Comparable Companies' Averages without NICOR				3.33%	4.15%			6.42%	9.75%	10.57%

Sources:
Value Line Investment Survey
Wall Street Journal

Aquila Networks-KGO

Comparable Gas Companies

Current Discounted Cash Flow Using Earnings Growth Rates

	Share Prices		Current	Current Yields		2000-02	2009-11E	Growth	Cost of Capital	
	Low	High	Dividend	Low	High	EPS	EPS	Rate	Low	High
Laclede Group	32.02	32.65	1.40	4.29%	4.37%	1.39	2.50	6.77%	11.06%	11.14%
New Jersey Resources	48.09	48.75	1.45	2.97%	3.02%	1.94	3.30	6.06%	9.03%	9.08%
NICOR, Inc.	42.90	43.46	1.86	4.28%	4.34%	2.94	2.80	-0.55%	3.73%	3.78%
Northwest Natural Gas	37.64	38.12	1.38	3.62%	3.67%	1.76	2.85	5.48%	9.10%	9.15%
Piedmont Natural Gas Company	25.51	25.92	0.96	3.70%	3.76%	0.99	1.75	6.53%	10.24%	10.30%
South Jersey Industries	28.51	28.94	0.92	3.18%	3.23%	1.15	2.35	8.26%	11.44%	11.49%
Southwest Gas	32.92	33.49	0.82	2.45%	2.49%	1.17	2.25	7.50%	9.95%	9.99%
WGL Holdings, Inc.	30.22	30.63	1.35	4.41%	4.47%	1.60	2.35	4.34%	8.75%	8.81%
Comparable Companies' Averages	34.73	35.25	1.27	3.61%	3.67%	1.62	2.52	5.55%	9.16%	9.22%
Comparable Companies' Averages without NICOR				3.52%	3.57%			6.42%	9.94%	9.99%

Sources:
Value Line Investment Survey
Yahoo! FINANCE

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Comparable Gas Companies

Projected Growth Rate Discounted Cash Flow Using 52-Week Share Prices

	Share Prices		2006	52 Week Yields		EPS Estimates		Cost of Capital	
	Low	High	Dividend	Low	High	Value Line	S&P	Low	High
Laclede Group	28.60	35.65	1.40	3.93%	4.90%	5.00%	4.00%	7.93%	9.90%
New Jersey Resources	40.68	51.39	1.45	2.82%	3.56%	4.50%	5.00%	7.32%	8.56%
NICOR, Inc.	37.42	44.40	1.86	4.19%	4.97%	4.00%	3.00%	7.19%	8.97%
Northwest Natural Gas	32.83	39.63	1.38	3.48%	4.20%	7.00%	5.00%	8.48%	11.20%
Piedmont Natural Gas Company	21.26	26.17	0.96	3.67%	4.52%	6.00%	4.00%	7.67%	10.52%
South Jersey Industries	25.63	30.80	0.92	2.99%	3.59%	7.00%	6.00%	8.99%	10.59%
Southwest Gas	25.12	33.95	0.82	2.42%	3.26%	9.00%	3.00%	5.42%	12.26%
WGL Holdings, Inc.	27.04	33.49	1.35	4.03%	4.99%	1.50%	3.00%	5.53%	7.99%
Comparable Companies' Averages	29.82	36.94	1.27	3.44%	4.25%	5.50%	4.13%	7.32%	10.00%

Sources:
Value Line Investment Survey
Wall Street Journal
Standard & Poor's Earnings Guide

Aquila Networks-KGO

Comparable Gas Companies

Projected Growth Rate Discounted Cash Flow Using Current Share Prices

	Share Prices		Current	Current Yields		EPS Estimates		Cost of Capital	
	Low	High	Dividend	Low	High	Value Line	S&P	Low	High
Laclede Group	32.02	32.65	1.40	4.29%	4.37%	5.00%	4.00%	8.29%	9.37%
New Jersey Resources	48.09	48.75	1.45	2.97%	3.02%	4.50%	5.00%	7.47%	8.02%
NICOR, Inc.	42.90	43.46	1.86	4.28%	4.34%	4.00%	3.00%	7.28%	8.34%
Northwest Natural Gas	37.64	38.12	1.38	3.62%	3.67%	7.00%	5.00%	8.62%	10.67%
Piedmont Natural Gas Company	25.51	25.92	0.96	3.70%	3.76%	6.00%	4.00%	7.70%	9.76%
South Jersey Industries	28.51	28.94	0.92	3.18%	3.23%	7.00%	6.00%	9.18%	10.23%
Southwest Gas	32.92	33.49	0.82	2.45%	2.49%	9.00%	3.00%	5.45%	11.49%
WGL Holdings, Inc.	30.22	30.63	1.35	4.41%	4.47%	1.50%	3.00%	5.91%	7.47%
Comparable Companies' Averages	34.73	35.25	1.27	3.61%	3.67%	5.50%	4.13%	7.49%	9.42%

Sources:
Value Line Investment Survey
Standard & Poor's Earnings Guide
Yahoo! FINANCE

Aquila Networks-KGO

Comparable Gas Companies

Size Adjusted Capital Asset Pricing Model

	Risk Free Return	Beta	Equity Risk Premium	Adjusted Equity Risk Premium	Size Premium	Cost of Equity
Aquila, Inc.	5.08%	1.50	7.10%	10.65%	1.81%	17.54%
Laclede Group	5.08%	0.85	7.10%	6.04%	1.81%	12.93%
New Jersey Resources	5.08%	0.80	7.10%	5.68%	1.81%	12.57%
NICOR, Inc.	5.08%	1.20	7.10%	8.52%	1.02%	14.62%
Northwest Natural Gas	5.08%	0.75	7.10%	5.33%	1.81%	12.22%
Piedmont Natural Gas Company	5.08%	0.80	7.10%	5.68%	1.02%	11.78%
South Jersey Industries	5.08%	0.70	7.10%	4.97%	1.81%	11.86%
Southwest Gas	5.08%	0.85	7.10%	6.04%	1.81%	12.93%
WGL Holdings, Inc.	5.08%	0.80	7.10%	5.68%	1.81%	12.57%
Comparable Companies' Average	5.08%	0.84	7.10%	5.99%	1.61%	12.68%

Sources :
Value Line Investment Survey
Ibbotson Associates 2006 SBBI Yearbook: Valuation Edition
Federal Reserve Statistical Release

Aquila Networks-KGO

Comparable Gas Companies

Historical Capital Asset Pricing Model

	Market Total Returns	Long-Term Corporate Bonds Return	Risk Premium	Beta	Adjusted Risk Premium	Aaa Corporate Bonds Return	Cost of Equity
Aquila, Inc.	14.85%	6.20%	8.65%	1.50	12.98%	5.68%	18.66%
Laclede Group	14.85%	6.20%	8.65%	0.85	7.35%	5.68%	13.03%
New Jersey Resources	14.85%	6.20%	8.65%	0.80	6.92%	5.68%	12.60%
NICOR, Inc.	14.85%	6.20%	8.65%	1.20	10.38%	5.68%	16.06%
Northwest Natural Gas	14.85%	6.20%	8.65%	0.75	6.49%	5.68%	12.17%
Piedmont Natural Gas Company	14.85%	6.20%	8.65%	0.80	6.92%	5.68%	12.60%
South Jersey Industries	14.85%	6.20%	8.65%	0.70	6.06%	5.68%	11.74%
Southwest Gas	14.85%	6.20%	8.65%	0.85	7.35%	5.68%	13.03%
WGL Holdings, Inc.	14.85%	6.20%	8.65%	0.80	6.92%	5.68%	12.60%
Comparable Companies' Average	14.85%	6.20%	8.65%	0.84	7.30%	5.68%	12.98%

Sources :
Value Line Investment Survey
Ibbotson Associates 2006 SBBI Yearbook: Valuation Edition
Federal Reserve Statistical Release

Aquila Networks-KGO

Comparable Gas Companies

Summary of Financial Models' Analysis

	Comparable Gas Companies Low	High
Current Discounted Cash Flow Analysis	7.49%	9.99%
52-Week Discounted Cash Flow Analysis	7.32%	10.57%
Capital Asset Pricing Model	12.68%	12.98%
Aquila, Inc. CAPM Range	17.54%	18.66%

Sources: Schedules DAM-15 through DAM-23

Aquila Networks-KGO

Comparable Gas Companies

Comparison of Current and Forecasted Returns on Common Equity

Company	2006E	Forecast '09-'11
Aquila, Inc.	-6.8%	1.5%
Laclede Group	11.0%	9.5%
New Jersey Resources	16.0%	14.5%
NICOR, Inc.	13.0%	13.0%
Northwest Natural Gas	10.0%	10.5%
Piedmont Natural Gas Company	12.0%	13.0%
South Jersey Industries	13.0%	13.0%
Southwest Gas	9.5%	9.5%
WGL Holdings, Inc.	10.0%	11.0%
Comparable Companies' Averages	11.8%	11.8%

Source: Value Line Investment Survey

Aquila Networks-KGO

Recent Increase in Returns on Common Equity

By Industry Group

Industry	2004	2005	2006E	Percent Increase 2004-2006
Building Materials	15.30%	16.00%	16.00%	0.70%
Cement & Aggregates	14.50%	19.50%	22.50%	8.00%
Chemical/Diversified	16.20%	19.70%	19.50%	3.30%
Healthcare Information	7.20%	6.80%	7.00%	-0.20%
Household Products	34.60%	40.30%	19.50%	-15.10%
Insurance (Life)	9.60%	10.80%	11.00%	1.40%
Machinery	16.50%	19.20%	20.00%	3.50%
Railroad	9.30%	11.50%	11.50%	2.20%
Tire & Rubber	6.80%	18.90%	17.00%	10.20%

Sources: Value Line Investment Survey

Aquila Networks-KGO

Proposed Cost of Capital

	Percent of Total	Embedded Cost Low	Embedded Cost High	Cost of Capital Low	Cost of Capital High
Long Term Debt	49.27%	7.13%	7.13%	3.51%	3.51%
Common Equity	50.73%	11.75%	12.25%	5.96%	6.21%
Total Capital	100.00%			9.47%	9.73%

Source :
Source: Aquila Networks Work Papers

Aquila Networks-KGO

Comparable Gas Companies

Comparison of After-Tax Times Interest Earned Ratios

Aquila Networks-KGO	@12.0% ROE	2.73
	@12.25% ROE	2.77
Laclede Group		2.81
New Jersey Resources		4.35
NICOR, Inc.		6.43
Northwest Natural Gas		2.79
Piedmont Natural Gas Company		3.44
South Jersey Industries		4.09
Southwest Gas		1.84
WGL Holdings, Inc.		3.23
Comparable Companies' Average		3.62

Source : Value Line Investment Survey