Exhibit No:_____
Issue: Cost of Capital
Witness: Donald A. Murry
Type of Exhibit: Rebuttal Testimony
Case No.: GR-2004-0072

REBUTTAL TESTIMONY

OF

DONALD A. MURRY, Ph.D.

BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

ON BEHALF OF THE

AQUILA NETWORKS-MPS AND

AQUILA NETWORKS-L&P

OPERATING DIVISIONS

OF

AQUILA, INC.

FEBRUARY 2004

State of Oklahoma)
) ss
County of Oklahoma)

AFFIDAVIT OF DONALD A. MURRY

Donald A. Murry, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony and schedules entitled "Rebuttal Testimony of Donald A. Murry"; that said testimony was prepared by him and/or under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge, information, and belief.

Donald A Murry

Subscribed and sworn to before me this 10th day of February, 2004.

Carolyn S. Hanes
Notary Public
01019787

My Commission expires:

Dec. 4, 2005

NOTARY SEAL PUBLIC
CAROLYN S. HANES
Oklahoma County
Notary Public in and for
State of Oklahoma
My commission expires Dec. 4, 2005.

C. H. GUERNSEY & COMPANY

ENGINEERS - ARCHITECTS – CONSULTANTS

OKLAHOMA CITY, OKLAHOMA

BEFORE THE MISSOURI PURLIC SERVICE COMMISSION

CASE NO.: GR – 2004-0072

Rebuttal Testimony

of

Donald A. Murry, Ph.D

Q. WHAT IS YOUR NAME?

A. My name is Donald A. Murry.

Q. ARE YOU THE SAME DONALD A. MURRY WHO FILED DIRECT TESTIMONY PREVIOUSLY IN THIS PROCEEDING BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION ("COMMISSION")?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. I have prepared rebuttal testimony in response to the direct testimony of Commission Staff ("Staff") witness, Mr. David Murray in the cases involving Aquila Networks-MPS and Aquila Networks-L&P, also referred to as "Aquila" or the "Company."

Q. WHAT IS THE NATURE OF YOUR REBUTTAL TESTIMONY OF STAFF WITNESS DAVID MURRAY?

A. My rebuttal testimony addresses the general inadequacy of Mr. Murray's recommendation for Aquila Networks and the apparent reasons for his reaching an inordinately low recommended return. My rebuttal testimony addresses his

methodological weaknesses and incorrect, mechanical calculations. Together these probably accounted for his recommendation of an extremely low, unsupported allowed return for Aquila Networks. This recommendation, in light of his own analysis, is particularly surprising. He should have been able to tell from his analysis of the returns, capital structure and interest coverages of his comparable companies that his recommendation was inadequate and out of line with the current market conditions. It is clear from his testimony that he ignored important findings from his analysis. In short, his recommendations regarding the overall cost of capital, if adopted by the Commission, will imperil the financial health of the Company. Furthermore, he had clear evidence of this from his reported analysis.

Q. WHEN YOU REFERRED TO METHODOLOGICAL PROBLEMS CONCERNING MR. MURRAY'S TESTIMONY, TO WHAT DID YOU REFER?

A. He ignored his interest coverage tests of adequacy of his recommended return. He ignored the returns and capital structures of his comparable companies. The most obvious problem is his selection of comparable companies. These companies do not fit the total revenue criterion that he said he used to select them. A second significant methodological problem is his use of the capital structure of Aquila, Inc. He used this capital structure when more accurate data regarding the capital structures of the Missouri gas affiliates were available. These results alone render his analysis unreliable, even before one begins to analyze the analytical errors in his analysis.

Q. IN WHAT AREAS OF HIS TESTIMONY DID MR. MURRAY HAVE ANALYTICAL OR MECHANICAL PROBLEMS IN HIS ANALYSIS?

A. Mr. Murray made basic analytical mistakes in his Discounted Cash Flow ("DCF") analysis. These diminish the reliability of his analysis. In addition, he also made mistakes in his Capital Asset Pricing Model ("CAPM") analysis. These are more readily obvious than the mistakes in his DCF analysis. This transparency is useful because it means that one can correct these errors and recalculate his CAPM estimate.

Q. YOU STATED THAT MOST OF STAFF WITNESS DAVID MURRAY'S COMPARABLE GAS UTILITY COMPANIES DID NOT FIT HIS TOTAL REVENUE SELECTION CRITERION. WHAT COMPANIES THAT HE CHOSE FAILED TO MEET HIS OWN CRITERIA?

A. Of the eight companies that he selected as comparable natural gas distribution companies, six companies did not meet the total revenue selection criterion that he set out in his Schedule 11, or had other problems of compatibility. The companies that failed to meet the selection criterion are AGL Resources, New Jersey Resources, Peoples Energy, Piedmont Natural Gas, South Jersey Industries, and WGL Holdings.

Q. YOU STATED THAT THESE COMPANIES FAILED TO MEET THE TOTAL REVENUE SELECTION CRITERION. WHY IS THIS THE CASE?

A. Mr. Murray's Schedule 11 cites the "Edward Jones Natural Gas Summary", September 30, 2003, as the source of the revenue data for these companies. Apparently, he relied on this summary without investigating the sources of the

revenues of his comparable companies. In response to the following Data Request No. ILA-0181,

> Reference Schedule 11 of the Direct Testimony of David Murray. Please explain Mr. Murray's rationale for including the following companies with distribution revenues less than ninety percent of their total revenues according to either the 10K Reports or annual reports:
>
> a. New Jersey Resources
> b. Piedmont Natural Gas
> c. South Jersey Industries
> d. WGL Holdings

he responded, "Please see Mr. Murray's Schedule 11 for the criteria that he used to include New Jersey Resources, Piedmont Natural Gas, South Jersey Industries and WGL Holdings"

Q. DOES AGL RESOURCES HAVE DISTRIBUTION REVENUES BELOW NINETY PERCENT?

A. Because of customer choice, it is difficult to compare the revenues of AGL Resources to the revenues of other gas distribution companies. For example, according to AGL's 2002 Annual Report: "AGL Resources' wholesale service segment records its energy marketing and risk management revenue on a net basis."

Q. YOU SAID THAT NEW JERSEY RESOURCES ("NJR") ALSO FAILED TO MEET MR. MURRAY'S SELECTION CRITERIA. WHY DID YOU MAKE THAT STATEMENT?

A. NJR's 2003 Annual Report shows natural gas distribution revenues of $760 million out of $2,544 million total revenue in 2003. In 2002, the distribution revenue was $775 million out of $1,832 million total revenue. In other words,

NJR's revenues from gas distribution operations amounted to only 30 percent in 2003 and 42 percent in 2002 of total revenue.

Q. YOU ALSO SAID THAT PEOPLES ENERGY FAILED TO MEET MR. MURRAY'S SELECTION CRITERION. IS THIS CORRECT?

A. Yes. Peoples Energy's 2003 Annual Report states that for 2003 gas distribution revenues accounted for $1,512 million out of $2,138 million total, or 70 percent of total revenue. In 2002, distribution revenues contributed $1,067 million out of $1,482 million total revenue, or 72 percent of total revenue.

Q. YOU ALSO SAID THAT PIEDMONT NATURAL GAS FAILED TO MEET MR. MURRAY'S SELECTION CRITERION. WHY IS THIS THE CASE?

A. Piedmont has an ownership interest in a marketing partnership with AGL Resources to sell gas to retail customers in Georgia under its retail choice program. Piedmont's 2002 Annual report states in Note No 10 under its "Notes to Consolidated Financial Statements" that "operating revenues and operating income shown in the consolidated financial statements represent utility operations only."

Q. YOU STATED THAT SOUTH JERSEY INDUSTRIES DID NOT MEET MR. MURRAY'S SELECTION CRITERION. WHY DID YOU MAKE THIS STATEMENT?

A. South Jersey's 2002 Annual Report reports revenues from Gas Utility Operations as $417 million out of $505 million total revenue in 2002. This is 82 percent of total revenue.

Q. YOU STATED THAT WGL HOLDINGS ALSO FAILED TO MEET MR. MURRAY'S SELECTION CRITERION. WHY DID YOU MAKE THIS STATEMENT?

A. WGL's 2003 Annual Report shows that the revenues of the regulated utility operations were $1,313 million out of $2,064 million total revenue in 2003, or 64 percent. Likewise, it reports that utility revenues were $939 million out of $1,585 million total revenue in 2002, or 59 percent. Both years, WGL fell far short of Mr. Murray's selection criterion.

Q. DO YOU BELIEVE MR. MURRAY'S NINETY PERCENT MINIMUM FOR DISTRIBUTION REVENUES IS A REASONABLE CRITERION FOR SELECTING COMPARABLE COMPANIES IN THIS PROCEEDING?

A. No, I do not.

Q. WHY IS THE NINETY PERCENT REVENUE REQUIREMENT UNREASONABLE?

A. Because gas company revenues are so weather sensitive, they are very volatile, especially in current markets. Weather affects both the amount of gas sold and the price of natural gas, especially during peak periods, and both of these factors are significant determinants of total revenues. Gas distribution companies may see total revenues swing dramatically from year to year.

Q. WHY IS THE FAILURE OF MR. MURRAY TO MEET HIS SELECTION CRITERION IMPORTANT?

A. It indicates that these companies are not truly comparable to the small Missouri gas distribution companies. By not recognizing this lack of comparability, Mr.

Murray apparently made no compensation in his analysis and his recommendation. Moreover, he compounded this non-comparability of his "comparable" companies by selecting companies as large as $5 billion in total capitalization as comparable to these Missouri gas operating divisions.

Q. DO YOU HAVE ANY OTHER CONCERNS ABOUT MR. MURRAY'S SELECTION OF COMPARABLE COMPANIES IN HIS ANALYSIS?

A. Yes. Mr. Murray used a narrow definition of gas distribution companies, i.e., of "distribution revenues to total revenues greater than or equal to 90 percent," that he cited in Schedule 11.

Q. OTHER THAN THE PROBLEMS THAT YOU MENTIONED, ARE THERE OTHER REASONS TO AVOID SELECTING LARGE COMPANIES AS COMPARABLE COMPANIES IN AN ANALYSIS OF SMALLER COMPANIES?

A. Yes, analysts agree that small companies are normally more risky than large companies because of lower economies of scale and scope in operations and less liquidity. Smaller companies have a narrower, less diverse customer base with a smaller geographic market. They also have more limited access to capital markets and relatively higher financial costs. Mr. Murray provides no evidence that he makes any adjustment for the risk differential associated with size.

Q. WHAT ARE THE CONSEQUENCES OF MR. MURRAY'S CALCULATIONS USING COMPANIES THAT ARE NOT COMPARABLE TO THE AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P?

A. It is apparent that by using a group of noncomparable companies in his analysis, his results are not reliable.

Q. PLEASE DISCUSS IN GREATER DETAIL THE PROBLEMS WITH THE CAPITAL STRUCTURE THAT MR. MURRAY USED IN HIS ANALYSIS.

A. He stated, page 21, lines 18-19, of his direct testimony that he used the parent company's, Aquila, Inc.'s, capital structure in this proceeding, "Because the debt and equity are generated from the parent company…." This position has two major inconsistencies. First, the capital of the parent company, Aquila, Inc. includes the capital supporting the non-utility businesses and international operations of Aquila, Inc. These assets do not support the Missouri gas utility operations. Furthermore, Aquila has stated its intentions and taken actions to return to the core utility business. Consequently, Aquila, Inc.'s capital structure does not represent the capital used to support the services provided by Aquila Networks to Missouri natural gas customers in the past or in the future. Most importantly, the Aquila capital structure is not the capital structure that will support the assets of Aquila Networks during the period when the rates set in this proceeding are in effect. Second, this capital structure is inconsistent with the principle set forth by the Company in this rate application, namely to isolate and to protect the utility ratepayers from the risks and costs of the non-regulated operations of Aquila. Using Aquila, Inc.'s capital structure with its higher financial risk violates this straightforward regulatory principle, as well.

Q. ARE YOU AWARE OF ANY OTHER REASONS WHY THE PARENT'S CAPITAL STRUCTURE SHOULD NOT BE USED AS A SURROGATE FOR THE CAPITAL STRUCTURE OF AQUILA NETWORKS?

A. Yes. Superior information exists that more closely links the costs of capital used for serving the Missouri customers to the assets used to serve the customers. This is the divisional capital structure used by Aquila Networks that takes into account the relevant risks of these utility operations and was predicated on utility industry standards. Moreover, contrary to Mr. Murray's recommended use of Aquila, Inc.'s capital structure, the Company's divisional capital structure isolates the utility ratepayers from the risks of the non-utility operations. Use of the parent company's capital structure exposes ratepayers to higher financial risk.

Q. YOU STATED THAT THE DIVISIONAL CAPITAL STRUCTURE WAS SUPERIOR TO THE AQUILA, INC. CAPITAL STRUCTURE FOR THIS CASE. ARE THERE ANY OTHER REASONS THAT YOU BELIEVE THAT THIS IS THE CASE?

A. Yes, there are. Aquila has maintained a capital allocation, or assignment, process since 1988 that was designed to separate the capital costs of the divisions from the other operations of Aquila, Inc. This is especially important because of the significant international operations, the non-regulated operations and the utility operations in other states. The target capital structure for the natural gas operating divisions was consistent with realistic targets at that time, and as I indicated in my direct testimony, it is still appropriate today. The capital structures of the operating divisions were known when they were blended into the parent corporation, and the process tracks capital changes. The resulting capital structure is superior to either the use of Aquila, Inc.'s capital structure or a purely hypothetical capital structure.

Q. WHEN, IN YOUR OPINION, IS A HYPOTHETICAL CAPITAL STRUCTURE APPROPRIATE FOR UTILITY RATEMAKING PURPOSES?

A. Analysts generally recognize that a hypothetical capital structure is appropriate for ratemaking when the actual capital structure of a regulated utility is indeterminate or not representative of capital used to support the operating utility. It can serve to more accurately estimate the costs of supporting the utility as well as protecting the customers from the impact of costs from non-utility operations. For example, when applying the "rule" concerning use of the actual capital structure, Bonbright, *et.al*., in the well-known *Principles of Public Utility Rates*, page 309, advocate that

> … if the existing capital structure is clearly unsound or is extravagantly conservative, the rule may need to be modified in the public interest. Actual cost of capital may then be disqualified in favor of legitimate cost. The diversification of utilities into nonregulated activities in recent years is one potential area where the rule may have to be modified. The firm's overall capital structure may not be reflective of a capital structure appropriate to the financing of a public utility as a consequence of risk differentials between regulated and nonregulated activities.

Another example, in a survey of techniques of regulatory practices, David Parcell, in *The Cost of Capital – A Practitioner's Guide* at page 4-22, stated that a hypothetical capital structure would be appropriate when "The utility is funded as part of a diversified organization whose overall capital structure reflects its diversified nature rather than its utility operations only." These stated principles are common among cost of capital analysts and the above statement characterizes Aquila's circumstances in this proceeding.

Q. HAS THE STAFF ADDRESSED THIS CONCEPT AS IT PERTAINS TO AQUILA?

A. Yes. The Staff, in a report to the Commission in December 2002, at page 21, specifically summarized the merits of using a hypothetical capital structure for Aquila, Inc. The Staff in that report stated as follows:

> To prevent or mitigate Aquila's higher cost of capital from being charged to Missouri ratepayers, the Commission can order the use of a hypothetical capital structure for ratemaking purposes to determine the appropriate mix of debt and equity that is appropriate for MPS and /or L&P. This capital structure *would not be dependent on* the capital structure currently in effect for Aquila. [Emphasis added].

Q. HAS THE COMMISSION EVER REJECTED THE USE OF AQUILA INC.'S CAPITAL STRUCTURE FOR RATEMAKING PURPOSES?

A. Yes. In its Report and Order on Remand in Case No. ER-93-37, page 38, the Commission rejected the use of the parent's capital structure for UtiliCorp, now Aquila, and stated:

> Because MoPub must raise capital through UtiliCorp, the use of UtiliCorp's consolidated capital structure may be a valid approach. However, this is not the best approach for this case because UtiliCorp is comprised of both operating divisions and unregulated subsidiaries, and its capital structure reflects that mix.

The Commission went on to affirm, page 38, that an assigned capital structure, in this case in an electric utility proceeding, would insulate the Missouri ratepayers from the impacts from the unregulated affiliates.

> Use of MoPub's assigned capital structure will help insulate it to some extent from UtiliCorp's unregulated subsidiaries, and the assigned capital structure is actually analogous to the capital structures of comparable electric companies.

Q. DID MR. MURRAY RECOGNIZE THE RISKS OF THE MISSOURI NATURAL GAS OPERATIONS OF AQUILA?

A. It appears that he did recognize that the risks of Aquila's natural gas operations were greater than the group of comparable gas companies that he analyzed. For example, he made an "…upwards adjustment of 32 basis points to take into consideration Aquila's additional risk as it relates to the comparable group," as stated on page 22, lines 9-10 of his direct testimony. However, this adjustment is inadequate. It does not link the capital costs of serving Missouri gas customers with the risks of utility operations in Missouri.

Q. SHOULD MR. MURRAY HAVE RECOGNIZED THAT HIS RECOMMENDED CAPITAL STRUCTURE IS INCONSISTENT WITH THE PRINCIPLES OF LINKING CAPITAL COSTS TO THE RISKS OF THE UTILITY OPERATIONS?

A. Yes, I think that he should have seen how his recommendation was inconsistent with the companies that he used as comparable companies. The inconsistency, or mismatch, in his recommended return on common stock and the recommended common stock equity ratio is obvious, and his own analysis shows this. Mr. Murray recommended a common stock equity ratio of 35.31 percent. As a comparison I have reproduced column (1) of his Schedule 20 in my Rebuttal Schedule DAM-1. This schedule shows that the average common stock equity ratio of the companies that he selected for his analysis as comparable to Aquila Networks was 49.68 percent. However, not one of the companies that he selected as comparable and to use as a ratemaking standard had an equity ratio close to the one that he is recommended for Aquila's Missouri gas operations.

Q. WHY IS MR. MURRAY'S CAPITAL STRUCTURE RECOMMENDATION SO IMPORTANT IN THIS PROCEEDING?

A. Mr. Murray ignored the financial risk associated with his capital structure, and this is a very important consideration in setting an allowed return in this proceeding. The greater the financial risk, the higher the return on a common equity will be necessary to attract and retain investors.

Q. HAVE THE OPERATING DIVISIONS OF AQUILA, INC., INSULATED THE MISSOURI RATEPAYERS FROM THE IMPACTS OF THE COSTS OF THE UNREGULATED AFFILIATES?

A. Yes. The debt costs of the Missouri operating divisions are capped at the debt costs of a BBB utility. Also, in my direct testimony I developed a recommended cost of common stock equity based on the earnings of a group of healthy natural gas utilities with similar financial characteristics to Aquila's Missouri operating divisions.

Q. HOW CAN YOU SAY THAT MR. MURRAY IGNORED THE FINANCIAL RISK OF THE MISSOURI GAS OPERATIONS OF AQUILA?

A. Mr. Murray recommended an allowed return on common stock of 9.72 percent with a common stock equity ratio of 35.31 percent. However, his comparable companies earned an average return of 11.50 percent in 2003 according to his Schedule 20 with a common stock equity ratio average of 49.68 percent. These equity levels and returns of his comparable companies are not consistent with his recommendation. He recommended a much lower return of 9.72 with a much lower common stock equity ratio. I have illustrated this comparison in Rebuttal Schedule DAM-2.

Q. YOU STATED PREVIOUSLY THAT MR. MURRAY COMMITTED ANALYTICAL ERRORS THAT AFFECTED HIS DCF ANALYSIS. WHAT ERRORS WERE YOU REFERRING TO IN THIS STATEMENT?

A. Mr. Murray relied on DCF results of large gas utilities that are not comparable to the two Aquila Networks divisions in Missouri, and these analytical results are not acceptable regulatory standards. In addition he averaged historical growth rates that cannot be representative of the future expectations of investors to produce unrealistically low estimates of the cost of capital for these non-comparable companies.

Q. WHAT WERE YOU REFERRING TO WHEN YOU STATED THAT MR. MURRAY MADE ERRORS IN HIS CAPM CALCULATIONS?

A. Mr. Murray made three obvious mistakes is his CAPM analysis. Each caused him to underestimate the cost of common stock using this method. Taken together, these errors are significant. It is important, however, that they are readily identifiable and correctable.

Q. CAN YOU EXPLAIN THESE ERRORS IN THE CAPM ANALYSIS THAT ARE IMPORTANT, BUT SUBJECT TO CORRECTION?

A. Yes. First, Mr. Murray used a negative risk premium to calculate his CAPM. This assumption is contrary to the basic theoretical construct of the CAPM and without any precedent or theoretical justification. At minimum, if Mr. Murray thought for some reason that the “risk premium” actually was negative, he should have explained why such a theoretical anomaly occurred. Second, he selected an incorrect risk premium from the source he cited. Apparently he erred by

selecting the wrong number from the page that he cited as a reference. Third, he failed to make a recommended adjustment for empirical bias when the data that he used in his CAPM called for this adjustment. The authors of the data source that he cited recommended this correction, and he just ignored their recommendation.

Q. YOU SAID THAT MR. MURRAY USED A NEGATIVE RISK PREMIUM IN HIS CAPM ANALYSIS. PLEASE EXPLAIN THE SIGNIFICANCE OF THIS.

A. It is an illogical assumption, and it will lead to meaningless calculations. In his Schedule 17, Mr. Murray identified a short-term risk premium of -0.34 percent. However, a negative risk premium in a CAPM analysis is not logical. It implies that the investors in the common stocks of the analyzed companies, in this case Mr. Murray's comparable companies, believe that these common stocks are less risky investments than U.S. Treasury bonds.

Q. COULD YOU TELL IF MR. MURRAY INTENDED TO INTRODUCE THIS ILLOGICAL ASSUMPTION INTO HIS CAPM ANALYSIS?

A. This is not clear. Mr. Murray made precisely the same calculation in cases numbered ER-2004-0034 and HR-2004-0024. In those cases, he responded to a Data Request (Number 0629), as follows: "Mr. Murray is not recommending that a negative risk premium be used in determining the required return on equity in a regulatory proceeding." However, from his calculations, as illustrated in Schedule 17, it is apparent that this is exactly what he did. In this schedule he shows the results of estimating a CAPM cost of equity (4.91% = 5.13% + (0.66*-0.34%)). He also cites this 4.91 percentage at page 31, line 2 of his Direct Testimony. These

calculations imply that a rational investor would pass up a virtually certain return of 5.13 percent from an investment in U.S. Treasury bonds in favor of a less certain, or more risky return, of 4.91 percent from an investment in the common stocks of his comparable companies. This is an implausible consequence of Mr. Murray's incorrectly structured CAPM analysis.

Q. YOU STATED THAT MR. MURRAY SELECTED THE WRONG NUMBER FROM ONE OF HIS CITED SOURCES. CAN YOU EXPLAIN?

A. Yes. Mr. Murray did not select the correct number for a risk premium for his CAPM analysis from the source, Ibbotson Associates, which he cited in Schedule 17. He stated that the risk premium is 6.4 percent. In fact, the risk premium in the source that he cited is 7.0 percent. I have enclosed the appropriate table as my Rebuttal Schedule DAM-3.

Q. YOU STATED THAT MR. MURRAY IGNORED A METHODOLOGICAL RECOMMENDATION FROM ONE OF HIS SOURCES. PLEASE EXPLAIN.

A. Because of known biases in the data favoring large firms, Ibbotson Associates, which is the source that he used in his CAPM analysis, recommends making a size adjustment based on the market capitalization of the company when the data are used for a CAPM analysis. Ibbotson Associates, which he cited in this Schedule 17, even recommends the level of adjustment to compensate for this bias. Mr. Murray ignored the presence of this bias and Ibbotson Associates' recommended adjustment. This recommended change is also explained by Ibottson Associates in the attached schedule.

Q. YOU STATED THAT MR. MURRAY'S CAPM ANALYSIS WAS CORRECTABLE. DID YOU CORRECT THESE ANALYTICAL ERRORS AND RECALCULATE THE CAPM USING HIS METHODOLOGY?

A. Yes.

Q. WHEN YOU CORRECTED MR. MURRAY'S CAPM ANALYSIS, WHAT RESULTS DID HIS METHODOLOGY PRODUCE?

A. When calculated correctly, after correcting for these three errors, Mr. Murray's CAPM analysis produced an estimate of the cost of common stock for his comparable companies of 11.15 percent. Notably, the corrected CAPM produces a return on equity estimate of 13.65 percent for Aquila, Inc. I have shown these calculations using his methodology in Rebuttal Schedule DAM-4.

Q. WHY DID YOU STATE THAT THE RESULTS OF MR. MURRAY'S TESTIMONY IMPERILED THE FINANCIAL CONDITION OF THE COMPANY?

A. His recommended capital structure and his recommended return together, as shown by his own interest coverage analysis, show that he disregarded his analysis of financial integrity in addition to ignoring sound financial practice.

Q. WHAT FINANCIAL INTEGRITY MEASURES DID MR. MURRAY DISREGARD?

A. He calculated before tax interest coverage ratios to test the range of his rate of return recommendation, and he reported these in his Schedule 21. However, he either dismissed these results or misinterpreted them.

Q. WHAT IS THE EVIDENCE THAT HE DISMISSED OR MISINTERPRETED HIS FINANCIAL INTEGRITY MEASURES?

A. I have reproduced interest coverages from column (3) of Mr. Murray's Schedule 20 and the Pre-Tax Interest Coverage that he calculated on Schedule 21 using his return recommendation and illustrated this comparison in Rebuttal Schedule DAM-5. It shows that the average Pre-Tax Interest Coverage of his comparable companies is 3.66. As this schedule also shows, Mr. Murray's calculated pre-tax coverage using his recommended return for Aquila Networks would only be in the range of 2.25. As this schedule also shows, this is significantly below the average coverage for Staff Witness Murray's comparable companies.

Q. YOU MENTIONED THE FINANCIAL INFORMATION IN THE EDWARD JONES REPORT THAT MR. MURRAY CITED IN HIS SCHEDULE 11. DID THIS REPORT BY EDWARD JONES PRESENT INFORMATION REGARDING THE COMPANIES THAT MR. MURRAY SELECTED AS COMPARABLE COMPANIES?

A. Yes. The Edward Jones report that Mr. Murray used to select his comparable companies included financial information concerning these companies. For example, as I have illustrated in Rebuttal Schedule DAM-6, the average common stock equity of Mr. Murray's comparable companies, as reported by Edward Jones, was 50.13 percent. The return on common stock equity reported by Edward Jones is 11.91 percent. The interest coverage reported by Edward Jones was 3.68 percent. I have also compared his recommended return with those of his comparable companies as shown in the report that he used to select his comparable companies. Remarkably, my recommended common stock equity, my recommended return on common stock equity, and my recommended before

tax interest coverage are very close to the average statistics of Mr. Murray's comparable companies.

Q. HAVE YOU COMPARED YOUR RECOMMENDED ALLOWED RETURN, COMMON STOCK EQUITY AND INTEREST COVERAGES TO THOSE OF MR. MURRAY AND THE EDWARD JONES REPORT?

A. Yes. I made this comparison, which I have illustrated in Rebuttal Schedule DAM-7. As this schedule shows, Mr. Murray's recommended return on common stock, common stock equity, and pretax interest coverage for both Aquila Networks – MPS Aquila Networks-L&P are extremely low when compared to the Edward Jones Report, and the numbers that he cited in his own Schedule 20. In comparison, my recommended returns on common stock, common equity ratio and interest coverages are very similar to the averages for Mr. Murray's comparable companies, as reported by Edward Jones.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Aquila Networks – MPS and SJLP

Summary of Rebuttal Schedules

Rebuttal Schedule R-1:	Comparison of Common Equity Ratios
Rebuttal Schedule R-2:	Comparison of Returns on Common Equity
Rebuttal Schedule R-3:	Table C-1 from Ibbotson Associates 2003 SBBI Yearbook: Valuation Edition
Rebuttal Schedule R-4:	Capital Asset Pricing Model
Rebuttal Schedule R-5:	Comparison of Before Tax Coverage Ratios
Rebuttal Schedule R-6:	Edward Jones' Key Financial Statistics
Rebuttal Schedule R-7:	Comparison of Key Financial Statistics

Aquila Networks - MPS & SJLP

Comparison of Common Equity Ratios

For Staff Witness Murray's Comparable Gas Utility Companies

Company Name	Year 2002 Common Equity to Total Capital Ratio
AGL Resources	41.70%
Cascade Natural Gas	40.90%
New Jersey Resources	49.40%
Northwest Natural Gas Corporation	51.50%
Peoples Energy Corporation	59.30%
Piedmont Natural Gas Company	56.10%
South Jersey Industries, Inc.	46.10%
WGL Holdings, Inc.	52.40%
Average	49.68%
Witness Murray's Proposed Equity Ratio	35.31%

Source: Direct Testimony of Staff Witness David Murray, Schedule 20

Aquila Networks - MPS & SJLP

Returns on Common Equity

For Staff Witness Murray's Comparable Gas Utility Companies

Company Name	2003 Projected Return on Common Equity
AGL Resources	13.50%
Cascade Natural Gas	7.50%
New Jersey Resources	15.00%
Northwest Natural Gas Corporation	9.00%
Peoples Energy Corporation	12.00%
Piedmont Natural Gas Company	10.50%
South Jersey Industries, Inc.	12.50%
WGL Holdings, Inc.	12.00%
Average	11.50%
Witness Murray's Proposed Return On Equity	9.72%

Source: Direct Testimony of Staff Witness David Murray, Schedule 20

Table C-1
Key Variables in Estimating the Cost of Capital

	Value
Yields (Riskless Rates)[1]	
Long-term (20-year) U.S. Treasury Coupon Bond Yield	4.8%
Intermediate-term (5-year) U.S. Treasury Coupon Note Yield	2.6
Short-term (30-day) U.S. Treasury Bill Yield	1.2
Equity Risk Premium[2]	
Long-horizon expected equity risk premium: large company stock total return minus long-term government bond income returns	7.0
Intermediate-horizon expected equity risk premium: large company stock total returns minus intermediate-term government bond income returns	7.4
Short-horizon expected equity risk premium: large company stock total returns minus U.S. Treasury bill total returns	8.4

Size Premium[3]

Decile	Market Capitalization of Smallest Company (in millions)		Market Capitalization of Largest Company (in millions)	Size Premium (Return in Excess of CAPM)
Mid-Cap, 3-5	$1,144.452	-	$5,012.705	0.82%
Low-Cap, 6-8	$314.174	-	$1,143.845	1.52
Micro-Cap, 9-10	$0.501	-	$314.042	3.53
Breakdown of Deciles 1-10				
1-Largest	$11,636.618	-	$293,137.304	–0.32
2	$5,018.316	-	$11,628.735	0.42
3	$2,686.479	-	$5,012.705	0.66
4	$1,691.463	-	$2,680.573	0.95
5	$1,144.452	-	$1,691.210	1.16
6	$791.917	-	$1,143.845	1.48
7	$521.400	-	$791.336	1.35
8	$314.174	-	$521.298	2.06
9	$141.529	-	$314.042	2.56
10-Smallest	$0.501	-	$141.459	5.67
Breakdown of the 10th Decile				
10a	$64.798	-	$141.459	3.98
10b	$0.501	-	$64.767	9.16

1 As of December 31, 2002. Maturities are approximate.

2 Expected risk premia for equities are based on the differences of historical arithmetic mean returns from 1926–2002 using the S&P 500 as the market benchmark.

3 See chapter 7 for complete methodology.

Note: Examples on how these variables can be used are found in Chapters 3 and 4

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Capital Asset Pricing Model

For Staff Witness Murray's Comparable Gas Utility Companies

Company	Risk Free Rate	Company's Value Line Beta	Market Risk Premium	Size Premium	CAPM Cost of Common Equity
AGL Resources	5.13%	0.75	7.00%	0.82%	11.20%
Cascade Natural Gas	5.13%	0.65	7.00%	3.53%	13.21%
New Jersey Resources	5.13%	0.65	7.00%	1.52%	11.20%
Northwest Natural Gas Corporation	5.13%	0.60	7.00%	1.52%	10.85%
Peoples Energy Corporation	5.13%	0.75	7.00%	0.82%	11.20%
Piedmont Natural Gas Company	5.13%	0.70	7.00%	0.82%	10.85%
South Jersey Industries, Inc.	5.13%	0.50	7.00%	1.52%	10.15%
WGL Holdings, Inc.	5.13%	0.65	7.00%	0.82%	10.50%
Average	5.13%	0.66	7.00%	1.42%	11.15%
Aquila, Inc.	5.13%	1.00	7.00%	1.52%	13.65%

Sources: Direct Testimony of Staff Witness David Murray, Schedule 17, Rebuttal Schedule R-3

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Before Tax Coverage Ratios

For Staff Witness Murray's Comparable Gas Utility Companies

Company Name	Pre-Tax Interest Coverage Ratio
AGL Resources	2.90
Cascade Natural Gas	2.60
New Jersey Resources	6.10
Northwest Natural Gas Corporation	3.10
Peoples Energy Corporation	4.70
Piedmont Natural Gas Company	3.70
South Jersey Industries, Inc.	3.40
WGL Holdings, Inc.	2.80
Average	**3.66**
Standard & Poor's BBB Median Interest Coverage	**2.85**
Witness Murray's Proposed Interest Coverage (High)	**2.25**

Source: Direct Testimony of Staff Witness David Murray, Schedules 20 and 21

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Staff Witness Murray's Comparable Gas Utility Companies

Financial Statistics Reported by Edward Jones

Company	Equity Ratio	Return on Equity	Interest Coverage
AGL Resources	39.00%	13.70%	2.42
Cascade Natural Gas Corporation	42.00%	7.40%	3.93
New Jersey Resources Corporation	54.00%	16.50%	6.30
Northwest Natural Gas Company	50.00%	8.50%	3.41
Peoples Energy Corporation	60.00%	12.30%	3.04
Piedmont Natural Gas Company	58.00%	10.70%	2.98
South Jersey Industries	45.00%	13.20%	3.91
WGL Holdings	53.00%	13.00%	3.46
Average	50.13%	11.91%	3.68

Source: Staff Response to Data Request No. ILA-0179

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Comparison of Key Financial Statistics

Statistic	(1) Staff's Proposed Level	(2) Edward Jones' Comparable Companies' Averages	(3) Staff's Comparable Companies' Averages	(4) Missouri Public Service Proposed Level	(5) St. Joseph Light & Power Proposed Level
Common Equity Ratio	35.31%	50.13%	49.68%	50.00%	50.00%
Return On Equity	9.72%	11.91%	11.50%	12.00%	12.00%
Interest Coverage Ratio	2.25	3.68	3.66	3.70	3.54

Sources:
Column (1) - Direct Testimony of Staff Witness David Murray, Schedules 21 & 23
Column (2) - Rebuttal Schedule R-6
Column (3) - Direct Testimony of Staff Witness David Murray, Schedule 20
Column (4) - Direct Testimony of Aquila Networks - MPS & SJLP Witness Donald A. Murry, Schedule 22
Column (5) - Direct Testimony of Aquila Networks - MPS & SJLP Witness Donald A. Murry, Schedule 23

Rebuttal Schedule R-7