Exhibit No.:
Issues: Fuel Costs
Witness: John C. Browning
Sponsoring Party: Aquila Networks-MPS & L&P
Case No.: ER-

Before the Public Service Commission
of the State of Missouri

Direct Testimony

of

John C. Browning

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
DIRECT TESTIMONY OF JOHN C. BROWNING
ON BEHALF OF AQUILA , INC.
D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
CASE NO. ER-_____

Q. Please state your name and business address.

A. My name is John C. Browning. My business address is 10750 East 350 Highway, Kansas City, Missouri 64138.

Q. By whom are you employed and in what capacity?

A. I am employed by Aquila, Inc. ("Aquila") in the position of Vice President, Resource Operations.

Q. Please briefly describe your education and work experience.

A. I graduated from the University of Kansas in 1970 with a bachelor's degree in engineering. My employment with Missouri Public Service began immediately after graduation. Between 1970 and 1989, I held various management positions at the Sibley Generating Station. In 1989, I was promoted to the position of Director of Coal-fired Generation and in 1993, was promoted to Vice President, Missouri Generation. In all of these positions, I was responsible for the operations and maintenance of the coal-fired generation as well as the combustion turbines. In 1997, I was promoted to my current position and have responsibility for the generation dispatch, next-day scheduling, procurement of coal and natural gas for power plant consumption and for the Technical Services group which supports these operations. The Resource Operations group provides services to Aquila Networks-US operations in Kansas, Colorado and Missouri. The services include

economic dispatch of power generation plants, purchase of the most economical energy available in the marketplace to supplement generation, sales of excess generation into the marketplace in an effort to maximize the value of the generation assets, and the procurement of fuel for generation.

Q. Have you previously filed testimony before the Missouri Public Service Commission ("Commission")?

A. Yes. I filed testimony in Case No. ER-93-37 concerning the rebuild and coal conversion programs at the Sibley Generating Station and in Case No. ER-97-394 concerning off-system sales.

Q. What is the purpose for your direct testimony?

A. My testimony will present information to support Aquila's position in this case regarding the cost of natural gas and coal used for generation in Aquila's power plants.

Q. Are you sponsoring any schedules?

A. Yes. I am sponsoring schedules JCB-1 and JCB-2 which graphically depict historical natural gas prices.

Q. How is your testimony organized?

A. My testimony covers two topics: I will first discuss the setting of prices for natural gas used for power generation. Second, I will discuss the coal supply related contracts for power generation. I will also discuss the test burn process that is currently underway to select the second coal that will be used in a blending operation at both the Sibley and Lake Road generating stations.

Natural Gas Pricing for Generation

Q. Please describe Aquila's Missouri electric utility operations.

A. Aquila provides electric service in western and north-central Missouri to approximately 256,000 retail and 5 wholesale customers. In 2002, Aquila had a summer peak load of 1729 MW and supplied 7,708,961 MW of energy to its system. Aquila provided this capacity and energy from its 20 generating units and purchases under its purchase power contracts as well as purchases of energy through the short-term spot market.

Q. Please describe Aquila's generation resources.

A. Aquila's generating resources consist of three coal-fired steam units at the Sibley Generating Station ("Sibley"), an 8% share in each of the three coal-fired steam units at the Jeffrey Energy Center ("JEC"), four natural gas/no. 2 oil-fired combustion turbines at the Greenwood Station, two natural gas-fired combustion turbines at the KCI Station, one natural gas-fired combustion turbine at the Ralph Green Station, one no. 2 oil-fired combustion turbine at the Nevada Station, four steam units and three combustion turbines at the Lake Road Plant and a partial ownership interest in the Iatan Generating Station. Unit-specific operating data and net energy produced in 2002 are shown in Table 1.

Table 1: Aquila Generating Units

Unit	Capability MW	Fuel Type	Net 2002 Generation MWH
Sibley #1	54	Coal	346,859
Sibley #2	54	Coal	307,695
Sibley #3	405	Coal	2,406,855
Jeffrey Energy Center	178	Coal	1,221,490
Ralph Green #3	74	Gas	14,673
Greenwood #1	64	Gas/No. 2	25,873
Greenwood #2	64	Gas/No. 2	27,260
Greenwood #3	64	Gas/No. 2	26,489
Greenwood #4	64	Gas/No. 2	26,365
KCI #1	15	Gas	275
KCI #2	18	Gas	280
Nevada	20	No. 2	(157)
Aries (Tolling contract)	500/200	Gas	1,248,116
Lake Road #1	20	Coal/No. 2/Gas	43,739
Lake Road #2	25	Coal/No. 2/Gas	7,995
Lake Road #3	10	Coal/No. 2/Gas	1,684
Lake Road #4	97	Coal/Gas	629,968
Lake Road #5	63	Coal/No. 2	(558)
Lake Road #6	21	No. 2	40
Lake Road #7	21	No. 2	78
Iatan	121	Coal	729,187
Total	1952/1652		7,064,206

Q. In Table 1, Aries is identified as a tolling contract. Please explain.

A. Aquila has contracted for 500 MW of capacity from the Aries Power Plant from April through September and 200 MW of capacity from October through March of each year for the period 2002 – May 2005. Although the Aries plant is not owned by Aquila, the Resource Operations group purchases the gas consumed at the Aries plant under our tolling agreement Aries converts the gas into electrical energy at a guaranteed heat rate.

Q. Does gas play an important part in the generation fuel mix for Aquila?

A. Yes. With the signing of the Aries contract, gas has become a hugely important fuel in the Aquila system. As can be seen in Table 1, the total system capacity includes 918 MW of gas-fired generation (summer) which represents 47 % of the total installed capacity for serving native load and 20% of total energy generated. Because of this increased reliance on natural gas-fired generation, Aquila's financial health hinges on getting its gas costs recovered through rates.

Q. Did you review any materials in connection with the preparation of your direct testimony?

A. I reviewed the testimony of a number of witnesses who filed testimony in Commission Case No. ER-2001-672, Aquila's most recent electric rate case. I specifically reviewed the direct testimony of V. William Harris, a regulatory auditor with the Commission staff; Kwang Y. Choe, the Regulatory Economist of the Procurement Analysis department with the Commission staff; James A. Busch, the Public Utility Economist for the Office of Public Counsel; and Maurice Brubaker, a consultant with Brubaker and Associates testifying on behalf of the Sedalia Industrial Energy Users' Association.

Q. As you discuss gas prices, what will be the basis for discussion?

A. All pricing will refer to the New York Mercantile Exchange ("NYMEX") commodity prices at the Henry Hub. This is the most widely used index in the gas industry. The NYMEX price does not include basis or transportation cost which must be added to the commodity to determine the actual cost at the plant.

Q. Would you please provide a brief summary of the positions taken on gas prices in the testimony that you reviewed?

A. Yes. Witness Harris believes that a four-year average gas price for each month should be used in determining the gas price set in rates. Witness Choe testified that he found no systematic correlation between the prices in the NYMEX futures market and the actual prices at the time of closing and drew the conclusion that natural gas futures markets are not an accurate predictor of actual future natural gas prices and should not be used in setting rates. Witness Busch testified that natural gas fuel cost should be based on a three-year average of natural gas prices adjusted for any basis differential. The three year average utilizes the actual settlement prices of the NYMEX for two years and then includes a 12-month NYMEX futures strip price in the average calculation. Two of the months in the actual price portion of the calculation were discarded by Mr. Busch as being "anomalies" with lower prices substituted for the calculation. Witness Brubaker states that, in his view, actual historical data is not suitable for setting rates for the future. His recommendation was to use a 12-month strip of NYMEX futures prices, since he felt that those prices would be more representative of what gas prices would be in the future. He qualified the recommendation by saying that, if any "abberational" prices should occur (abberational meaning high prices) during the true-up period, they should not be incorporated into rates.

Q. What conclusions have you drawn from the review of this testimony?

A. There's clearly no consensus among these witnesses as to what the proper technique should be to determine future gas prices. In fact, the various methods recommended are at extreme odds with one another.

Q. Do the witnesses agree on anything with respect to natural gas pricing?

A. Yes. They all agree that prices are highly volatile.

Q. Did any of the methods recommended by the witnesses accurately predict the actual gas prices that have occurred since the testimony was filed?

A. No. The gas prices that were referred to as aberrations and anomalies occurred again during this past winter. Spot prices were as high as $20 per MMBtu. The 2002 settled NYMEX strip averaged $3.22 per MMBtu, which is some $0.40 higher than what was calculated using the techniques suggested by the witnesses. Even more disturbing is that gas prices started an upward trend in early 2002 that has continued into the first quarter of 2003 (see schedule JCB-1). The three most recent months of February, March, and April 2003 all settled over $5.00 per MMBtu. Every industry forecast that I have read indicates that there is no relief in sight. The high gas prices that we have seen and expect to see in the future are neither anomalies nor aberrations. They are the result of the cold, hard realities of our existing natural gas marketplace.

Q. Are there any portions of the previously referenced witnesses' testimony that you do agree with?

A. Yes. Each witness has made valid points concerning natural gas pricing. I do agree that NYMEX futures are not good indicators of actual future prices. The NYMEX responds irrationally to short-term events such as storage reports, hurricanes and short-term weather patterns. The near months are actually the most volatile with the out months being more stable but less meaningful because of a lack of trading volume. Historical prices have been less useful than in past years because of the extreme volatility experienced in the most recent years (see

schedule JCB-2). It is impossible to look at JCB-2 and find any period of time that could be considered "normal". The trend line on JCB-2 is much more indicative of what is really happening than an arithmetic average. Within a few months, at current prices, the trend line will reach $5.00/MMBtu. The same trend line on JCB-1 is already at $6.00/MMBtu. Historical prices are a function of the specific economic and supply/demand balances that exist at the time the prices are settled. Since today's and the future gas marketplace are not the same as any in the recent past, using historical averages will not accurately reflect future prices.

Q. Are there any alternatives that can be used to assist in determining future prices?

A. Yes. Gas prices are a function of a number of different variables, including rig counts, the rate of decline of production in existing gas fields, gas transmission constraints, the growth in gas consumption, particularly with the addition of newly constructed gas-fired power plants, and the state of the economy with a look forward to any recovery that may be in the foreseeable future. A careful and objective analysis of all of the basic components that influence the gas markets is the best way available to forecast future prices. While this type of analysis certainly is only as good as the assumptions made in the study, there are highly qualified industry analysts who provide forecasts for future prices. I would prefer to use a careful analysis over the irrational fluctuations of the NYMEX futures market or trying to estimate future prices based on historical prices that were the result of economic and social factors that no longer exist.

Q. Have you reviewed any analytical studies in an effort to determine an appropriate future gas price in this case?

A. Yes.

Q. What studies did you review and what were the conclusions?

A. The following is a summary by analyst:

Cambridge Energy Research Associates stated in their March 20, 2003 Monthly Briefing that they forecast the average Henry Hub spot price to be $5.80/MMBtu through 2003 and $5.35/MMBtu for 2004. Factors considered include historically low storage ending this winter and a 1.5 billion cubic feet decline in production in 2003. CERA assumes economic growth of 1.7%, normal summer weather and limited relief from fuel switching.

Stephen Smith Energy Associates forecast, in the March 19, 2003 issue of Gas Daily, a 2003 average Henry Hub price of $5.10/MMBtu with prices ranging between $4 and $7. Stephen Smith Energy Associates believe that gas prices need to remain high for demand destruction to continue and allow adequate storage injections for next winter. They also note that production has declined an average of 6% in each of the last six quarters.

Raymond James and Associates were quoted in the March 18, 2003 issue of Gas Daily as foreseeing a 2003 average price of $6.00/MMBtu. They believe that it will be difficult to replenish storage gas this summer and that without significant additional demand destruction, storage will be short of 'full' by over 1 trillion cubic feet. About 5 billion cubic feet/day of demand must be lost in order to get storage levels closer to normal prior to next winter. Raymond James and Associates also believes that if oil

prices hold anywhere above $30, gas prices must move back above $6 through the summer to encourage fuel-switching (demand destruction).

Energy and Environmental Analysis forecast, in the March 13, 2003 issue of Gas Daily, a Henry Hub spot price average of $6.50 in 2003 as well as in 2004 with prices averaging between $5 and $9 next winter. A factor cited in their forecast includes a very tight supply/demand balance with the need to replenish historically low storage creating an additional 2.7 billion cubic feet/day in demand this summer. They expect LNG imports to surpass the previous record established in 1979 and that storage will end the summer with 2.8 trillion cubic feet.

Jefferies & Co. was quoted in the March 11, 2003 issue of Gas Daily as forecasting an average US gas price of $5.00 in 2003 and $4.50 in 2004. They cited a sharp drop in gas production, reduced imports from Canada this spring and summer, and historically low gas storage levels heading into injection season. They also project storage at 2.6-2.7 trillion cubic feet heading in to next winter.

A.G. Edwards, in the March 6, 2003 issue of Gas Daily, forecast an average Henry Hub spot price of $5.25 in 2003 and $4.25 in 2004. They believe these prices will be maintained due to very tight supply and demand, low storage inventories, a drop in deliverability, decreased producing rig counts and production, an increase in demand and exports to Mexico, and less wide-scale demand destruction than in 2001.

Fitch Ratings believes, according to a March 5, 2003 report in the Dow Jones Newswires, that the 2003 average US gas price will be $4.50 and the 2004 average, $3.50. Low storage level is a factor and the current rig count does not support a near-term increase in gas production. They believe that demand destruction will bring prices down below the forward prices observed in late February through early March.

Lehman Brothers is quoted in the February 27, 2003 issue of Gas Daily as forecasting a 2003 average US gas price of $5.00 and a 2004 average US price of $4.50. Factors affecting these prices include a falling US supply as well as declining Canadian imports. Summer prices could reach $8.00 per MMBtu.

Q. What is your conclusion based on all of the analysts' forecasts?

A. Although there is a fairly wide range of estimates for 2003 ($4.50 to $6.50), there is a common theme: historically low storage levels coupled with supply shortfalls mean that gas prices will remain elevated through 2003 and into 2004. The average of all the estimates is $5.39/MMBtu for 2003. In this regard, the comments of Kelvin Simmons, Chairman of the Missouri Public Service Commission are noteworthy. Chairman Simmons, in the March 12, 2003 issue of Gas Daily, said that he foresees gas prices to be higher than last year due to low storage, the high cost of gas to be injected into storage this summer, high crude oil prices, and because gas production is 2.6% lower in the 1st 10 months of 2002 vs. 2001. The Missouri Public Service Commission is encouraging gas utilities to

consider purchasing strategies that incorporate storage, fixed price contracts and financial instruments to reduce exposure to upward price volatility.

Q. What is Aquila's recommendation in this case for the price of natural gas?

A. Actual NYMEX settlements for January and February 2003 were combined with the average of six of the above-mentioned analyst forecasts. Prices from Raymond James and Associates and Energy and Environmental Analysis were not used because they were substantially higher than the other forecasts. The 2003 average price of the remaining six forecasts was $5.11/MMBtu which, when combined with January and February actual settlements, yields a 12-month price of $5.14/MMBtu. This conservative value was used in the modeling work that is the basis for this rate case.

Coal Supply

Q. Describe the Aquila owned and operated coal-fired generation plants and types of coal being burned.

A. Aquila operates two coal-fired generating plants in Missouri. These are the Sibley Generating Station just northeast of Kansas City and the Lake Road Plant located in St. Joseph (see Table 1). Both of these plants receive western coal by rail and they both use blends of low Btu sub-bituminous coal from the Powder River Basin and higher Btu bituminous coals.

Q. Why are blends of coal used in these plants?

A. Both of these plants utilize boilers that require coals with certain chemical properties to operate properly. The lower Btu coals do not burn well in the boilers, so a second coal of higher heat content is blended with the low Btu coal to

improve combustion. By blending coals, Aquila can lower the fuel cost by burning as much of the inexpensive low Btu coal as possible while maintaining proper combustion with the help of the higher Btu coal.

Q. What are specific contract terms and prices for the low Btu coal?

A. In 2000, Aquila entered into a five-year coal supply agreement with Arch Coal Sales Company for low Btu coal from their Black Thunder Mine in Wyoming. This contract specifies that Arch will supply Aquila with 70% (approximately 780,000 tons/yr) of the Sibley Plant's annual need for low Btu coal through 2004. The coal price escalates on an annual basis. For 2003 and 2004, the contractual prices are $5.30 and $5.40/ton, fob the mine. In 2002, Aquila entered into a six-year coal supply agreement with Kennecott Coal Sales Company for annual fixed volumes of coal from their Antelope mine in Wyoming. The volumes to be supplied are 685,000 tons in 2003 and 2004 and 1.1 to 1.3 million tons per year for the period 2005 - 2008. Actual 2005 - 2008 volumes, within the specified range, will be per Aquila nominations. Aquila's plan is to allocate the Kennecott-supplied volumes so that this agreement will supply all of the low Btu coal at Lake Road for the entire 2003 - 2008 period and all of the low Btu coal for Sibley for 2005 - 2008. The Kennecott agreement will also supply the remaining 30% of low Btu coal not being supplied under the Arch - Black Thunder agreement in 2003 and 2004 at the Sibley Plant. The base price of coal to be supplied under the Kennecott agreement also escalates over the term of the contract. The price for Kennecott in 2003 and 2004 is $7.02/ton and $7.22/ton, fob the mine,

respectively. In 2005 - 2008, the price of coal is levelized at $7.71/ton, fob the mine.

Q. What are specific contract terms and prices for the higher Btu coal?

A. In 2000, Aquila entered into a contract with GENWAL Resources, Inc. to provide high Btu coal for the Sibley Plant from their Crandall Canyon mine in Utah. The original contract was for deliveries through calendar year 2002. In 2002, Aquila and GENWAL extended the contract to add volumes of 450,000 - 500,000 tons of coal for shipment in 2003 at a price of $22.65/ton fob the mine. In 2002, Aquila contracted with Arch Coal Sales Company for a high Btu coal supply for Lake Road from their Seminoe II mine in Wyoming. The contract was for deliveries through calendar year 2003 supplying a volume of 135,000 tons of coal for shipment in 2003 at a price of $22.00/ton, fob the mine.

Q. What are the plans for replacement or extension of the high Btu contracts that expire at the end of 2003?

A. Aquila began early planning to consider the extension of the current Seminoe II and GENWAL contracts. In discussions with the suppliers, we learned that during the timeframe 2003 - 2005 both the Seminoe II and GENWAL mines are projected to go through dramatic production transitions as the existing coal reserves at those properties are depleted. Specifically, GENWAL (the source of coal for Sibley 2000 to 2003) will reduce output to about one-third the current production level and, with other sales commitments they have already made, will have little of that coal to offer to the market. Seminoe II, the Lake Road source coal, has little coal reserve left and will be done in either 2004 or 2005. Because

of these depletion factors, Aquila began a search of alternate supplies from producers who would be able to supply contract coal through at least 2006 and perhaps as far forward as 2008.

Q. What process is used to select a new coal supplier?

A. The process is very critical in that an improper coal selection can have severe adverse impacts on plant operations. The process is further complicated by the desire to have one supplier for two plants with different types and sizes of boilers. While the most critical boilers are of the same "cyclone fired" design, each boiler has unique needs. Experience has taught us that ash viscosity, sodium, moisture, sulfur and heat contents must be within specific ranges for successful operation. Using this knowledge, we can screen candidate coals to identify those with the best chance for success.

Q. What were the results of your screening?

A. Of course, sulfur content is of utmost importance and must be less than 2% to satisfy environmental concerns. The low sulfur requirement limits options to coals mined in the western states. Further screening based on the physical and chemical properties narrowed the candidates to coals from five mines located in Colorado, Utah, and Wyoming.

Q. What is the next step in the selection process?

A. Test burns must be conducted to ensure that the selected coals will actually perform as expected and to assess the differences between the various coals. Test burns are being conducted at both Sibley and Lake Road plants.

Q. Are the test burns complete?

A. No. As of the date this testimony was prepared, four of the five coals have been tested. The fifth and final test will occur in mid-April. Once tests are complete, we will analyze and compare the results to develop the bid list.

Q. When will a new supplier be selected?

A. An RFP will be issued in early May. Bids should be returned by the end of May. Selection and contract negotiations will occur in June. We hope to have a contract in place during July 2003.

Q. Will the successful bid be the lowest cost coal on a dollars per ton basis?

A. Not necessarily. While all of the coals tested will have potential for use in our boilers, each one will have different degrees of suitability. The evaluation process will consider soot-blowing requirements, coal crusher operations and maintenance, emissions allowance expense, ash handling characteristics, and the propensity to foul the boiler over long-term operations. Issues like these can lead to not only increased O&M cost in the near term, but also premature need to replace major boiler components and an increase in forced outages leading to more purchase power expense.

Q. Will the selection of a new supplier affect your rail transport contracts?

A. Yes. The actual carrier and the term of service required will be determined by the coal supplier selection. Any new agreements for rail transport should be secured by August.

Q. How should these yet to be determined coal costs be treated in this rate case?

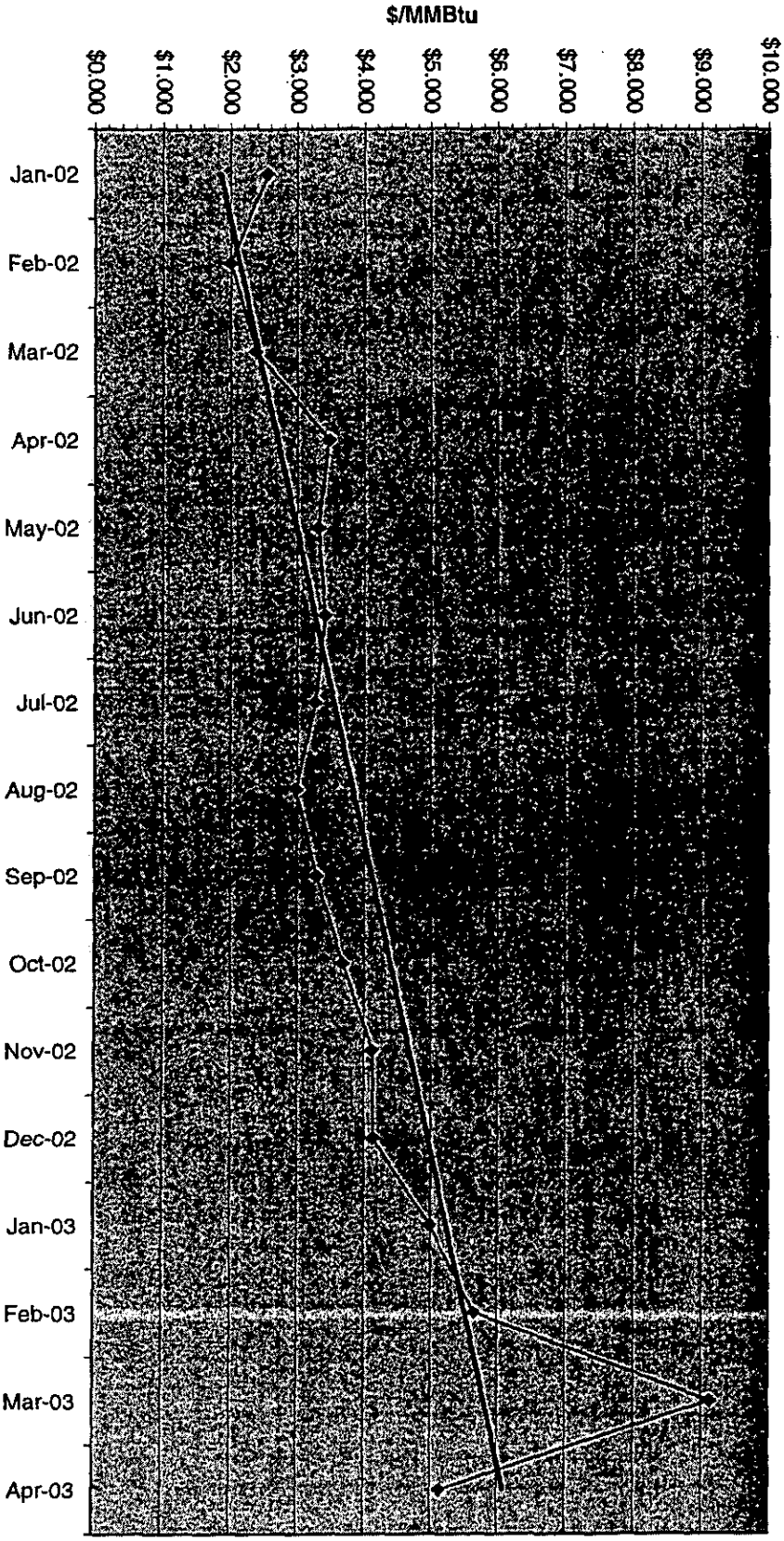
A. Once the costs for the coal and rail transport are known, the new contract with known costs should be included in the case.

Q. Are any other coal costs expected to change in the near future?

A. Yes. The coal contract for Iatan expires in 2003. Kansas City Power & Light Company is going through a test burn program similar to ours. As a co-owner of this plant, Aquila will see its fuel cost change when the new supply contract becomes effective. We expect to know the new costs later this summer. We would also ask that this new contract and any other costs related to it be included in the cost of service of this case.

Q. Does this conclude your testimony?

A. Yes.

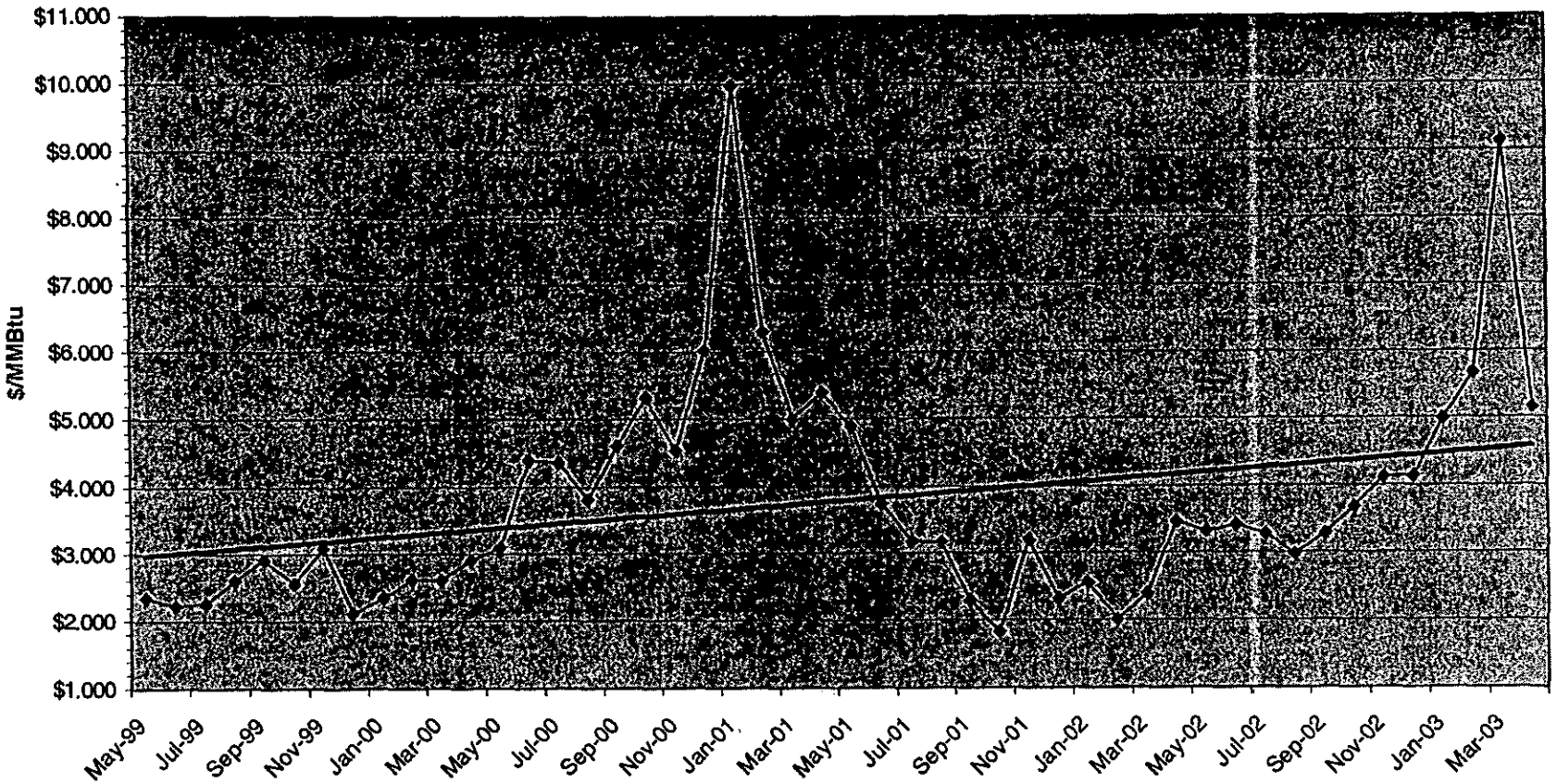


NYMEX Settled Price
January 2002 to Present

Schedule JCB-1

Schedule JCB-2

NYMEX Settled Prices
Four Year History



BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the matter of Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks-L&P, for authority to file tariffs increasing electric rates for the service provided to customers in the Aquila Networks-MPS and Aquila Networks-L&P area	))))))	Case No. ER-_____

County of Jackson)
) ss
State of Missouri)

AFFIDAVIT OF JOHN C. BROWNING

John C. Browning, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of John C. Browning;" that said testimony was prepared by him and 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.

John C. Browning

Subscribed and sworn to before me this 12th day of June, 2003.

Linda C. Howell
Notary Public
Linda C. Howell

My Commission expires:

Linda C.Howell
Notary Public-Notary Seal
State of Missouri
Jackson County
My Commission Expires: May4, 2004