Exhibit No.:
Issues: Fuel Expense
Witness: Jerry G. Boehm
Sponsoring Party: Aquila Networks-MPS & L&P
Case No.: ER-2004-0034 & HR-2004-0024 (Consolidated)

Before the Public Service Commission
of the State of Missouri

Surrebuttal Testimony

of

Jerry G. Boehm

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
SURREBUTTAL TESTIMONY OF JERRY G. BOEHM
ON BEHALF OF AQUILA, INC.
D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
CASE NOS. ER-2004-0034 AND HR-2004-0024 (CONSOLIDATED)

Q. What is the purpose of your testimony?

A. I am providing surrebuttal of Leon C. Bender's rebuttal testimony regarding the method used in developing the Company power spot market prices used in the production cost model.

Q. Are you sponsoring any schedules or data with this testimony?

A. Yes. One schedule is attached which demonstrates the results of a simple linear regression, comparing Company expenses provided to Staff to published historical natural gas market data. The nature of the regression will be discussed in more detail later in this testimony.

Q. Mr. Bender states in his rebuttal testimony (Page 2, Line 18 through20) that, "the spot purchased power prices used by Aquila are forecasted prices based upon forecasted events and forecasted gas prices ..." Do you agree with Mr. Bender's statement?

A. No.

Q. Please explain.

A. Mr. Bender took exception to the Company's use of a forecasting tool to develop purchase power prices. The tool that we identified as MIDAS is commonly used to create forecasts. Like the production model RealTime, used by the Staff and the Company to estimate operating cost, MIDAS is not

time direction dependent and can be used to forecast, back-cast, or estimate for any time period. The time period of the model is established using inputs. Our model inputs were weather-normalized input values associated with the test year. Our model result was an estimate that was locked to the case's test period. The fact that a forecasting model was used to develop a spot market estimate should be as acceptable as the Staff's and Company's use of other forecast models to weather normalize load and calculate production cost estimates.

Q. Do you agree with Mr. Bender's assertion that the Company's spot market power price model used inputs that were "not known and measurable?"

A. No. I disagree with Mr. Bender's assertion. In my direct testimony I describe in detail the source of each fundamental driver that can be used as an input to the MIDAS model. To review, power plant operational data is collected from Platt's BASECASE database, which has as its source, regional power demand is given from NERC through the collection of EIA-411 2002 data annually submitted by all load-serving utilities. This information is readily available within the utility industry.

Q. Mr. Bender stated that Staff attempted to verify the inputs to the Company's average spot purchase power cost estimation model. Did the Staff request a copy of the input files to the purchase power model?

A. No.

Q. Mr. Bender stated that the Staff does not have a licensing agreement to view the data. Does the MIDAS licensing agreement prevent the Staff from viewing the input data?

A. No. While the Staff does not have licensing rights to access the data, there is nothing preventing them from viewing the input information to the MIDAS model. Due to its size and formatting this information in its raw form may be difficult to interpret.

Q. In his rebuttal testimony (Page 3, Lines 1-3) Mr. Bender cites the response to Staff Data Request No. MPSC-32. Was Staff Data Request MPSC-32 a request for the input files to Company's average spot purchase power cost estimation model?

A. No. The request stated, "Please provide documentation in support of the methodology used to develop the purchased power prices and available MWs used in RealTime©. The Company provided a written explanation of the methodology used to develop the purchase power prices."

Q. Did Staff at any other time request access to MIDAS modeling information?

A. Yes. In Staff Data Request MPSC-164 Staff member Cary Featherstone requested information associated with the MIDAS files. In response the Company stated that the files were too voluminous to render to hardcopy. In subsequent discussions with Mr. Featherstone the Company offered to allow Staff the opportunity to review the information at the Company's Raytown offices. Viewing the information on a MIDAS licensed computer would provide the Staff with an opportunity to view the information in a format more

legible than a view of the raw data. It would also allow the Staff to select hardcopy outputs of items of interest.

Q. Do you agree with Mr. Bender's conclusion that the purchased power curve used in the rate case overstates estimated expenses? (Leon C. Bender, rebuttal testimony, page 4 lines 9 through 11.)

A. No.

Q. Please explain.

A. To highlight why I disagree with this conclusion, a simple regression was performed. A regression analysis is a useful math tool to test for the sanity of data trends. I chose the regression function within the Microsoft Excel program to determine the regression results. A regressive trend test was performed on the costs supplied by Mr. Bender for the years 2000, 2001 and 2002 relative to the average Platt's Gas Daily Henry Hub Price Index for the same years. Next, the average Henry Hub price of natural gas used in the model [$5.14] is used with the output of the linear regression to estimate Company purchase power expenses. (Surrebuttal Schedule JGB-1 attached) The regression would estimate an annual average cost for purchase power to be $38.87. This quick check is useful as an estimation tool and shows that the Company's $37.23 estimate is much closer to historically correlated energy cost than the Staff's estimate of $30.10. This test indicates that the Company's overall approach to developing production cost estimates is valid.

Q. How would you account for the differences between the Staff's expense estimate and the estimate proposed by the Company that Mr. Bender has discussed?

A. The primary difference between the Company and Staff expense estimates is based on the erroneous methods that the Staff uses to develop inputs to the production cost model. My understanding of the Staff method is that Company purchase expenses are used as an input to a model to estimate Company purchase expenses. On its face, this appears harmless. But it is wrong in that it takes the results of a process and uses them as the ingredients to the process. In simple terms, a production model mimics the process of production by taking ingredients, processing them and providing results. The results do not resemble the ingredients. Taking results and using them as ingredients is like taking a baked cake and sending it through the process of baking again. It will not work. The production cost model requires market commodity prices for an input in order to estimate Company expenses. The Company used market commodity price estimates for model inputs, both for spot power and natural gas. Therefore, the results of the simple regression given above show that the Company's overall method of expense estimation is more consistent with recent historical operational results than those based on the Staffs incorrectly developed model inputs.

Q. Does this conclude your testimony?

A. Yes.

Jerry G. Boehm Surrebuttal Schedule 1
Regression Test for Natural Gas Henry Hub Price Correlation to Average Spot Purchased Power Cost

Year	Gas Daily Henry Hub Index Annual Average $/MCF (Source: Platts)	Aquila Historical Spot Power Purchase Average Cost $/MWhr
2000	3.880	32.00
2001	4.262	30.44
2002	3.296	23.62
	Aquila Model Average Henry Hub Natural Gas Price	Regression Predicted Annual Average Spot Market Power Purchased Cost $/MWhr
Rate Case	**5.140**	**38.87**

REGRESSION OUTPUT (MS Excel Model)

Regression Statistics	
Multiple R	0.83683223
R Square	0.700288182
Adjusted R Square	0.400576363
Standard Error	3.450448148
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	27.81787424	27.81787424	2.336538431	0.368809918
Residual	1	11.90559242	11.90559242		
Total	2	39.72346667			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.562696202	19.23848358	-0.02924847	0.981385153	-245.00976	243.8843677	-245.00976	243.8843677
X Variable 1	7.671583585	5.018784602	1.528573986	0.368809918	-56.0978479	71.44101506	-56.0978479	71.44101506

This is a standard output from MS Excel's Data Analysis Tool (Regression Choice)

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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-2004-0034
In the matter of Aquila, Inc. d/b/a Aquila Networks-L&P, for authority to file tariffs Increasing steam rates for the service provided To customers in the Aquila Networks-L&P area	)	Case No. HR-2004-0024

County of Jackson)
) ss
State of Missouri)

AFFIDAVIT OF JERRY G. BOEHM

Jerry G. Boehm, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Surrebuttal Testimony of Jerry G. Boehm;" 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.

Jerry G. Boehm

Subscribed and sworn to before me this 13th day of February, 2004.

Notary Public
Terry D. Lutes

My Commission expires:
8-20-2004

TERRY D. LUTES
Jackson County
My Commission Expires
August 20, 2004