

Exhibit No.:

Issues: Natural Gas Pricing,
Spot Purchase Power
Pricing

Witness: Jerry G. Boehm

Sponsoring Party: Aquila Networks-MPS
And L&P

Case No.: ER-2005-0436

Before the Public Service Commission
of the State of Missouri

Surrebuttal Testimony

of

Jerry G. Boehm

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SURREBUTTAL TESTIMONY OF JERRY G. BOEHM
ON BEHALF OF AQUILA, INC.
D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
CASE NO. ER-2005-0436**

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**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
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D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
CASE NO. ER-2005-0436**

1 Q. Please state your name and business address.

2 A. My name is Jerry G. Boehm. My business address is 10750 East 350
3 Highway, Kansas City, Missouri, 64138.

4 Q. Are you the same Jerry G. Boehm who submitted direct testimony in this case
5 on behalf of Aquila Inc, (“Aquila”) before the Missouri Public Service
6 Commission (“Commission”)?

7 A. Yes.

8 **EXECUTIVE SUMMARY**

9 Q. What is the purpose of your testimony?

10 A. I am providing surrebuttal Natural Gas pricing methods discussed in the
11 rebuttal testimonies belonging to Staff witnesses Kwang Y. Choe, Charles R
12 Hyneman, and Cary G. Featherstone. I will also provide surrebuttal to the
13 rebuttal testimony of David W. Elliott concerning production modeling
14 methods and spot power market pricing.

15 **NATURAL GAS PRICING METHODS**

16 Q. What is your understanding of Mr. Choe’s testimony?

17 A. Mr. Choe is criticizing the use of the NYMEX Henry Hub futures pricing as a
18 method of estimating Natural Gas costs. Mr. Choe claims that NYMEX is not
19 an accurate predictor of natural gas costs and that there is no systematic

1 correlation between NYMEX closing prices and the actual spot price of
2 Natural Gas 12 months later.

3 Q. Do you agree with Mr. Choe's statements that NYMEX futures are not an
4 accurate predictor of natural gas costs?

5 A. No. Mr. Choe correctly states in his testimony that a NYMEX contract
6 "entitles the buyer of the contract to claim physical delivery of the
7 commodity....at a specified date in the future." As such it represents a known
8 and measurable price of natural gas. If a buyer were to buy the NYMEX
9 contract they would pay that price for natural gas upon delivery. Aquila uses
10 NYMEX prices as a measurable way of estimating operating costs.

11 Q. Do you agree with Mr. Choe's implications that Natural Gas futures prices are
12 not correlated to actual closing prices?

13 A. No. In fact, Mr. Choe's examples appear to state otherwise and discredit the
14 Staff's position on natural gas prices.

15 Q. Please explain.

16 A. In rebuttal Mr. Choe provided a Schedule 2 which charts NYMEX closing
17 prices 12 months prior to actual and actual spot market prices. By inspection
18 it can be seen that since August of 2002 an upward trend of NYMEX prices is
19 in line with an upward trend of closing costs. One other notable aspect of the
20 almost five year graph is that, with the exception of one winter's 2000-2001
21 predictions of the following year, the NYMEX closing price trend appears to
22 understate the actual cost of spot market natural gas. Mr. Choe's graph
23 implies that Aquila's price estimate for natural gas may be too low. By

1 comparison, the Staff's Natural Gas prices are lower than Aquila's making
2 Mr. Choe's arguments more confusing.

3 Q. In his rebuttal did Mr. Choe provide any support for Staff's method of
4 determining Natural Gas Prices?

5 A. No.

6 Q. What is your understanding of Mr. Hyneman's rebuttal testimony?

7 A. Mr. Hyneman appears to be confused with basic terms used in the marketing
8 of natural gas. He misinterprets my direct testimony concerning previous
9 analysis methods used by Aquila. He restates Mr. Choe's incorrect
10 allegations that the NYMEX is not correlated to actual prices.

11 Q. How does Mr. Hyneman confuse marketing terms?

12 A. Mr. Hyneman's testimony states that Aquila does not purchase gas at the
13 Henry Hub though it uses Henry Hub prices for a reference. His statement
14 pointing has the appearance of trying to demonstrate that this reference is
15 invalid. On the contrary, the markets purpose for using established price
16 points like the Henry Hub is in recognition of its relationship to all other
17 published and private price points.

18 Q. Does Mr. Hyneman make other errors in his understanding of the market?

19 A. Yes. Mr. Hyneman suggests that the basis differential between the mid-
20 continent source and Henry Hub should be *subtracted*. This makes no sense.
21 Since basis differentials are normally stated in reference to an established
22 price point then the basis between Henry Hub and Mid-Continent is most
23 often a negative number. Subtracting the basis would artificially raise the

1 expected price of natural gas at Mid-Continent. Aquila correctly added a
2 negative basis estimate to the Henry Hub price in order to correctly align the
3 price with the Henry Hub.

4 Q. Please explain how Mr. Hyneman misinterpreted your testimony.

5 A. My testimony refers to the use of the NYMEX pricing in the previous rate
6 case. In that case Aquila reviewed numerous sources in establishing a base
7 natural gas strip price. Aquila adjusted a NYMEX Henry Hub price curve to
8 match the derived natural strip price. During the IEC process Aquila
9 proposed a revised Henry Hub curve after reviewing previous sources and
10 NYMEX information.

11 Mr. Hyneman points out correctly that the methods in the previous case and
12 this case are not identical, however the use of the NYMEX Henry Hub price
13 point is still required as is the monthly volatility curve typical of NYMEX
14 prices. For this case Aquila has determined the use of a gas price derived
15 from NYMEX price analysis is an appropriate method. Aquila expects to
16 hedge natural gas costs, therefore present day NYMEX prices more accurately
17 reflect the prices Aquila is paying. The trends shown in Mr. Choe's rebuttal
18 Schedule 2 and Mr. Hyneman's Schedule 1 indicate that hedging natural gas
19 at present NYMEX prices may save money compared to future spot prices.
20 Mr. Hyneman's table appears to lend support to the evidence in Mr. Choe's
21 graph that shows Aquila's Natural Gas prices may be too low. He provides no
22 explanation as to why the Staff's prices are even lower than Aquila's.

1 Q. In his rebuttal did Mr. Hyneman provide any support for Staff's method of
2 determining Natural Gas Prices?

3 A. No.

4 Q. What is your understanding of Mr. Featherstone's rebuttal testimony?

5 A. Mr. Featherstone indicates that the IEC Stipulation from the last rate case did
6 not indicate a specific cost for natural gas prices that was agreed upon by the
7 parties to that Stipulation.

8 Q. How do you respond to Mr. Featherstone's statement?

9 A. Mr. Featherstone is technically correct in that no specific price for natural gas
10 was stated in the IEC Stipulation resulting from the last rate case. The IEC
11 Stipulation was not limited to natural gas, but included all sources of fuel and
12 purchased power. As such, the IEC Stipulation was stated in terms of total
13 energy cost per Kwh. The MPS IEC rate was set at .3057 \$/Kwh and the
14 SJLP IEC rate was set at .1336 \$/Kwh. These amounts were determined
15 through use of the Staff's production costing model into which a number of
16 agreed upon assumptions were input. It is my understanding that one of the
17 inputs included a natural gas price of \$5.14 per mmbtu.

18 Q. Mr. Featherstone's testimony may be read to suggest that there is a
19 contradiction between the IEC establishment and Aquila's proposal in the last
20 case. Is that correct?

21 A. No. As I explained the IEC was established, utilizing as one input, a forecast
22 level of \$5.14 per mmbtu natural gas price. Aquila proposed a natural gas
23 price of \$5.64 per mmbtu in Aquila's last rate case, Case ER-2004-0034.

1 There is no contradiction. The IEC was established using a forecast level of
2 \$5.14. Mr. Featherstone acknowledges in his rebuttal that Aquila witness
3 Keith Stamm proposed an interim price of \$5.64. The fact that the final IEC
4 price did not match a proposed price is irrelevant since the IEC was the result
5 of a negotiated process.

6 Q. Is it true that \$5.64 was an arbitrary gas price as claimed by Mr. Featherstone?

7 A. No. Mr. Featherstone may have that understanding since Mr. Stamm
8 suggested a \$.50 adjustment but Aquila based that number on research of the
9 NYMEX market trends and other market analysis.

10 Q. In his rebuttal did Mr. Featherstone provide any support for Staff's method of
11 determining Natural Gas Prices?

12 A. No.

13 **SPOT PURCHASE POWER PRICING**

14 Q. What is your understanding of Mr. Elliot's rebuttal testimony?

15 A. Mr. Elliott is concerned that the purchase power market is incorrectly
16 modeled due to capacity size and constraints on purchase power modeled as
17 contracts. Mr. Elliot also questions the relationship of natural gas prices and
18 purchase power markets.

19 Q. Why is Mr. Elliott concerned with spot market capacity size and availability?

20 A. Mr. Elliott states that the modeling technique of having 900 MW available to
21 buy may be incorrect. In real operating situations there is often 900 MW or
22 more available for purchase. The price of the power, delivery cost, and
23 Aquila's must-run status for certain plants make it uneconomical to buy that

1 amount. The production model is designed to simulate these situations and
2 buy power accordingly. Just like the operators who have 900MW or more
3 available to them the program will only buy power amounts which satisfy
4 economic dispatch conditions.

5 Mr. Elliot is also concerned over the technique of modeling purchase power in
6 tiers which have forced outage values. Aquila uses this technique to simulate
7 the price changes in depth of market and the varying nature of transmission
8 availability. As this is a modeling issue Aquila strives to find a method with
9 which Staff is comfortable. These techniques have been modeled in previous
10 cases and discussed with Staff.

11 Q. Do you agree with Mr. Elliot's claim that there is no correlation between spot
12 gas prices and spot market prices?

13 A. No. Mr. Elliot's opinion appears to be based on mistaken analysis. First, he
14 doesn't compare purchase power **prices** with NYMEX natural gas prices he
15 compares purchase power **costs** with NYMEX natural gas prices. He is
16 analyzing a strict subset of the market prices and attempting to infer the entire
17 market. His second error is that he seems to have corrupted his input
18 purchase power cost information with figures that are not representative of
19 Aquila's purchased power.

20 Q. Why do you think his cost data are corrupt?

21 A. I believe that his data may come from misreading records that Aquila
22 provided to Staff. Those records contain the costs and quantities of spot
23 market purchases and also the costs and quantities of Aquila's own generation

1 that is transported from other dispatch areas. Iatan generation is an example
2 of an Aquila owned source on this form. Purchase power figures are
3 separately available on this form but it appears that Mr. Elliott may have used
4 figures including some of Aquila's generation costs.

5 Q. Did Aquila perform a comparison with correct purchase power costs?

6 A. Yes. While we still stress that this analysis method is flawed by the fact a
7 market subset is used as a market representation we reviewed Mr. Elliott's
8 analysis with corrected numbers. A graph of the results is attached. Mr.
9 Elliott's NYMEX closing prices were interpolated from his graph and
10 corrected monthly purchase power costs were added. A polynomial trend of
11 the purchase power costs is also shown on the graph. By inspection of the
12 graph it is obvious that the trend of the subset group purchase power costs
13 follows the trend of natural gas.

14 Q. In his rebuttal did Mr. Elliott provide any support for Staff's method of
15 determining Purchase Power Prices?

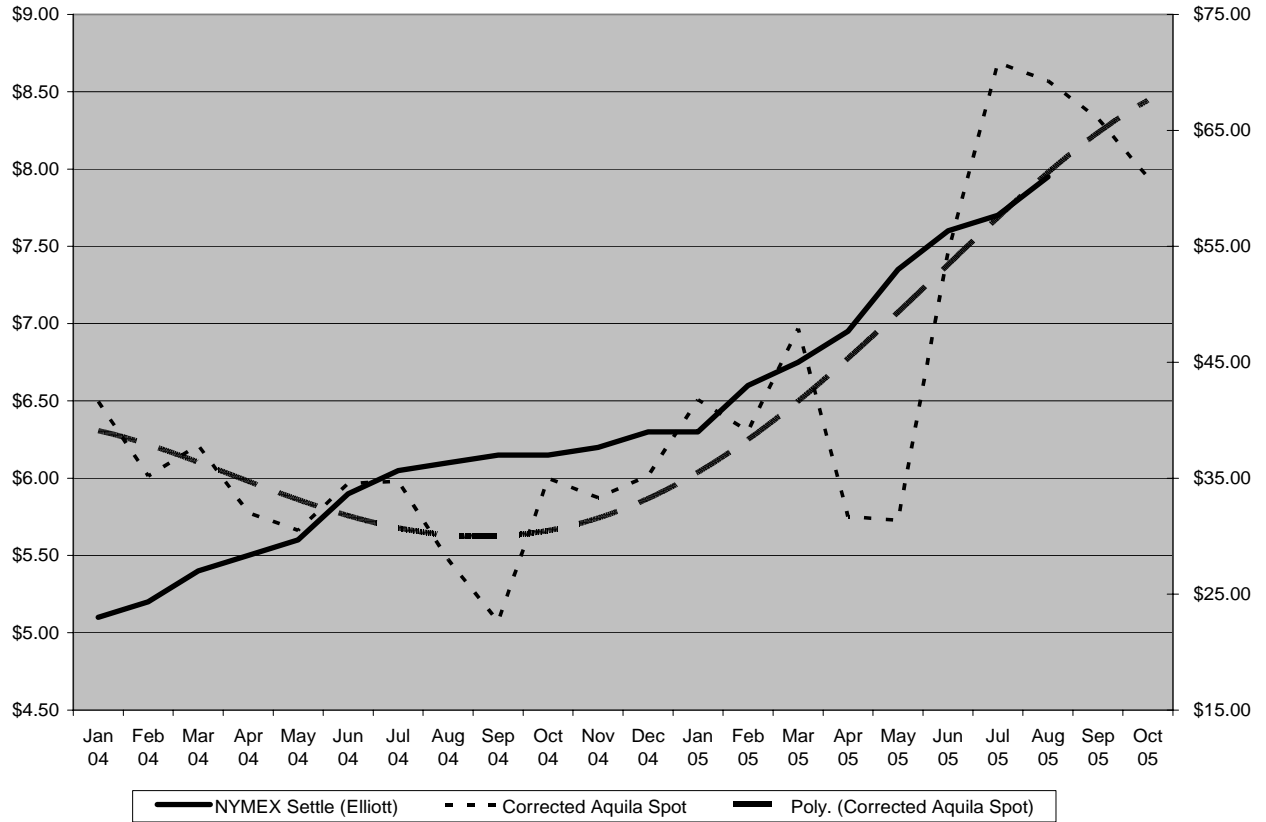
16 A. No. Mr. Elliott acknowledged that Staff lacks the necessary software to
17 perform the analysis.

18 Q. Does this conclude your surrebuttal testimony?

19 A. Yes.

1

2 1 - Schedule JGB Surr 1



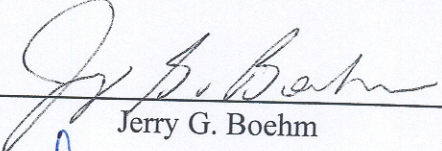
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BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

County of Jackson)
)
State of Missouri) ss

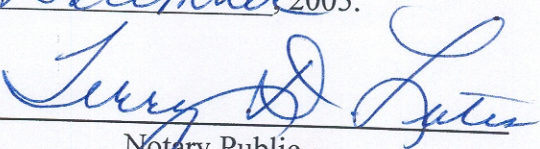
AFFIDAVIT OF JERRY G. BOEHM

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 December 2005.



Notary Public
Terry D. Lutes

My Commission expires:

8-20-2008



TERRY D. LUTES
Jackson County
My Commission Expires
August 20, 2008