Exhibit No.:
Issues: Capacity Requirements, Gas Costs and Hedge Program
Witness: H. Davis Rooney
Sponsoring Party: Aquila Networks-MPS & L&P
Case No.: ER-2007-0004

Before the Public Service Commission
of the State of Missouri

Surrebuttal Testimony

of

H. Davis Rooney

****Denotes Highly Confidential Information****

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ON BEHALF OF AQUILA, INC.
D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
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Q. Please state your name and business address.

A. My name is Davis Rooney. My business address is 20 West Ninth Street, Kansas City, MO 64105.

Q. Are you the same Davis Rooney who previously filed direct and rebuttal testimony in this case?

A. Yes.

Q. How is your surrebuttal testimony organized?

A. My surrebuttal testimony is organized as follows:

I. Capacity

II. Gas Prices

III. Hedge Program

EXECUTIVE SUMMARY

Q. Please provide a brief summary of your testimony.

A. In **Section I**, I respond to the capacity requirement positions of various parties. I note that the additional capacity contracts procured by Aquila for 2007 were, on a per MW basis, significantly less than the amount originally recommended by Mr. Brubaker. I note that Staff's recommendation for a six (6) turbine site with five (5) turbines, is modeled on additional turbines at South Harper. That site is only approved for three (3) turbines.

In **Section II**, I respond to the gas price proposals and rebuttal positions of various parties. I describe the key market factors affecting gas prices during 2005 and 2006. These factors are important to understanding the context of Aquila's position. I note that Mr. Brubaker's gas cost proposal is based on prices occurring in January and February 2007, after the true-up date. I note that although Aquila and Staff took different approaches to gas prices, we ended up relatively close in our ultimate recommendations. **Section III** responds to the hedging program positions and adjustments proposed by witnesses Brubaker and Hyneman.

CAPACITY REQUIREMENTS

Q. What is the purpose of this portion of your testimony?

A. I will respond to the capacity requirements testimony of Staff witness Cary Featherston and Maurice Brubaker, witness for several interveners.

Q. What is Mr. Brubaker's position regarding the capacity contracts executed by Aquila Networks-MPS's to address its capacity deficit?

A. Mr. Brubaker states that Aquila's adjustment to reflect its actual capacity contracts is generally consistent with the adjustment he proposed in his direct testimony. The cost was in line with his direct testimony recommendation, even though the total MWs obtained are larger. Therefore these contracts, on a per MW basis, cost less than the amount Mr. Brubaker felt was appropriate in his direct testimony.

Q. Does Staff include these capacity contracts in its revenue recommendation?

A. No. Staff included placeholder owned assets in the form of two non-existent turbines. Staff's proposed revenue requirement for those turbines is approximately **_____** greater than the contracts actually entered into by Aquila.

Q. Did Aquila evaluate and pursue a strategy to acquire owned generation for the summer of 2007?

A. Yes. Aquila decided to purchase the Aries plant, which was available for sale in a bankruptcy auction. The decision required Aquila to be willing to commit significant funds ($230 million). Aquila attempted to keep Staff informed of the status of its analysis, the value Aquila felt was reasonable, and its bidding strategies.

Q. Did Aquila include a "placeholder" for the Aries plant in this case on the expectation it would own the plant before the end of the update period?

A. Yes.

Q. How does Mr. Featherstone view the Aries plant?

A. He states that "Staff would have supported Aquila acquiring the Aries facility" (Featherstone rebuttal page 18 line 17).

Q. Did the January 2006 request for proposal include options for owned assets?

A. Yes. There were ownership self build options as well as the Aries opportunity. The Aries opportunity was considered the better option. It would have resulted in a significant owned asset and had the opportunity to be in place much sooner than a self build option.

Q. How does Mr. Featherstone now view Aquila's attempt to acquire Aries?

A. Mr. Featherstone states "Aquila did not make any meaningful attempt to examine meeting its system load requirements by any other means than purchasing the capacity from other sources." (Featherstone rebuttal page 21 line 1).

Q. Does Staff now support Aquila's pursuit of the Aries facility?

A. No. Having failed in its attempt to acquire Aries, Staff supports a view of what they think we should have done instead of pursuing Aries.

Q. What is Mr. Featherstone's position regarding the capacity contracts executed by Aquila?

A. Mr. Featherstone believes Aquila should have built two additional turbines in 2005 on an existing site like South Harper.

Q. Has South Harper been approved for 5 total turbines?

A. No. It has been approved for 3 turbines.

Q. What is Mr. Featherstone's view of the length of the construction cycle for simple cycle gas turbines?

A. On page 20 line 15 of his rebuttal testimony, Mr. Featherstone suggests that a request for proposal (RFP) issued in July 2005, should have contained a self build option for summer 2006. In that same section, Mr. Featherstone notes that an RFP issued in January 2006 should have had self build options for summer 2007. These statements imply that the construction cycle from RFP to in-service is 11-18 months.

Q. Is that a realistic time frame?

A. No. Aquila believes a construction cycle of 30 months or longer from the RFP date may be necessary to address not only the equipment lead times, but also the site development and public acceptance issues. This is in line with the responses to the January 2006 RFP, which proposed in-service dates for the summer of 2008.

Q. When did the bidding for Aries conclude?

A. In December 2006.

Q. What does Mr. Featherstone again say about a build cycle for 2008?

A. On page 21 line 9 he again implies that an 18 month construction cycle is reasonable, based on a now stale RFP from a year earlier that was itself based on a 30 month construction cycle.

Q. After deciding to commit to the Aries acquisition, could a summer of 2007 installation still been achieved in the event the Aries acquisition was unsuccessful?

A. No. Even the summer of 2008 would have been rushed. Too much site work and equipment lead time from the auction date in December would have been required.

Q. What is Aquila's current plan to build generation?

A. Aquila filed its 2007 IRP on February 5, 2007. That plan is now under review by Staff and other parties. In it, Aquila proposed constructing plant in 2010. Aquila felt, after not acquiring Aries, that this would allow sufficient time to issue an RFP and address siting and public acceptance issues.

Q. Do you agree with the use of placeholder turbines for ratemaking?

A. No. Using Staff's proposed placeholder turbines results in about a **_____ ** higher revenue requirement. I believe Aquila has proceeded prudently in its resource plans, and the short-term purchased power contracts should be used for setting rates.

GAS COSTS

Mr. Brubaker's Gas Costs

Q. What is the purpose of this portion of your testimony?

A. The purpose is to respond to the fuel cost proposal of Maurice Brubaker, witness for several interveners. I will respond to his positions regarding the cost of natural gas.

Q. What is Mr. Brubaker recommending regarding gas costs?

A. Mr. Brubaker recommends monthly gas costs based on his view of the most recent 12 months. He uses these gas costs as a basis for proposing adjustments to 1) the production costs of Aquila's gas-fired units; 2) the cost of production of certain of its purchased power contracts; 3) the cost of spot purchased power; 4) and the value of Aquila's hedge program.

Q. Do you agree with Mr. Brubaker's gas cost recommendations?

A. No. I disagree both with the gas prices he has selected and the method he has used to apply those gas prices to create his adjustments. His gas prices are much lower than those recommended by either Staff or by Aquila. His application of those gas prices to purchased power prices would also result in purchased power prices much lower than those recommended either by Staff or Aquila. This low base price becomes even more problematic when placed in the context of Mr. Johnstone's 50/50 sharing proposal above the base cost.

Q. How are purchased power prices determined?

A. Staff and Aquila use different methods to determine purchased power prices. Aquila's method is dependent on gas prices. Aquila believes gas prices are both a significant fuel and price driver underlying purchased power prices. However, Staff's method is based on a statistical model driven only by historical purchased power prices, not gas prices. In this case, Aquila and Staff arrived at similar purchased power prices using different methods. Mr. Brubaker's adjustments would result in much lower purchased power prices.

Q. What issues do you have with his method of applying the gas prices?

A. Mr. Brubaker has essentially used the ratio of his gas prices to Aquila's gas prices to scale down the costs of gas generation, the Southwest Power Pool (SPP) spot prices, the PJM Power Pool prices, and the cost of certain purchased power contracts. Mr. Brubuker did not use his proposed gas costs to develop new hourly price curves. He also did not rerun an hourly dispatch model to develop the impact of his new gas prices. If Mr. Brubaker had actually used his gas costs to develop new hourly power price curves for the SPP and PJM markets, as Aquila does using the MIDAS software, the impacts on the total dispatch runs may have been very different.

Q. Why do you disagree with the particular gas prices selected by Mr. Brubaker?

A. Mr. Brubaker has selected months that reflect very different market conditions from normal. Therefore, I disagree with Mr. Brubaker's prices as not being adequately normalized. That is, they do not reasonably reflect expected conditions. Additionally, Mr. Brubaker has included prices that pertain to periods outside of the test year and update period.

Q. Why should gas prices be normalized, rather than using actual prices?

A. Gas prices are highly volatile, even more volatile than temperatures. Just as one normalizes for the impact of temperatures on rates, gas prices should be normalized also. With temperatures, the government publishes normalized temperatures. It is my observation that in recent electric rate cases, parties have been able to reach consensus or settlement on methods to normalize temperatures. No similar consensus exists for gas prices. Mr. Brubaker's approach, in effect, asks rates to be set without normalizing gas prices.

Q. What gas prices has Mr. Brubaker used?

A. Mr. Brubaker has prices for March 2006 through February 2007. He has prices both for NYMEX and for Aquila gas commodity prices. He uses these two sets of prices depending on the data he is adjusting. The NYMEX prices are based on the closing price of each month's futures contract. This is essentially the first of month index price. For the Aquila gas commodity prices, he uses the actual average gas price incurred by Aquila for the period March 2006 through December 2006. For January and February 2007 he substitutes a Gas Daily index price for the actual costs incurred by Aquila for the months of January 2007 and February 2007 since the actual costs were not yet available.

Q. Are the months chosen by Mr. Brubaker appropriate?

A. No. The update period for this case extended only through December 2006. Mr. Brubaker has attempted to include market conditions that are outside the update period. Mr. Brubaker has used Aquila's actual gas costs for the months March 2006 through December 2006. Aquila's actual costs of gas for January 2007 and February 2007 were not available during the update period ending December 2006. Mr. Brubaker has substituted estimated information for these months in the absence of Aquila's actual data. Even if Aquila's actual data for these months had been available prior to the filing of his testimony, it does not change the fact that the data was after the update cutoff.

Q. Why else do you object to Mr. Brubaker's gas prices?

A. Mr. Brubaker's prices do not reflect normalized expected prices.

Q. Please explain further.

A. Mr. Brubaker's prices are highly reflective of the specific market conditions at the time. Mr. Brubaker is using price points from very limited time periods as the basis for expected prices. Gas prices are very volatile. On any given day or week, gas prices can

react strongly and swiftly to changing information about temperatures, hurricanes, and storage, to name a few of the key factors. For example, Mr. Brubaker is using the March 2006 NYMEX futures settlement price to represent the normalized price for March gas under new rates. The NYMEX futures settlement prices reflect the average price of trades during the last few days of the contract. As such, the prices are highly influenced by the specific market conditions at the time. The same argument is true for Mr. Brubaker's use of the single month Aquila actual gas costs to represent the normalized price of gas under new rates. For example, he is using Aquila's March 2006 actual prices to represent normal March prices for ratemaking. In essence, Mr. Brubaker is proposing prices that expect the same market conditions as during the few days that the futures contract closed or during each single month of actuals. These market conditions include temperature, hurricanes, and storage.

Q. How do temperature, hurricanes, and storage affect gas prices?

A. Demand for gas is somewhat price insensitive. That is, it takes a proportionally larger change in price to make up for a smaller change in the balance of supply and demand. Temperature can drive demand for natural gas. A key driver in the winter is gas heating demand. In the summer, a significant component is electricity production demand. Hurricanes impact production (supply). This was dramatically illustrated in 2005 with the hurricane damage to production, processing and transportation facilities. Less dramatically, the threat of hurricanes and tropical storms impacts production when facilities are temporarily closed and evacuated for safety reasons. During the winter, gas demand is greater than the production capability. The imbalance is generally made up by withdrawals from storage. If storage levels are perceived to be low relative to expected

demand, prices will move up. If storage levels are high, prices can be held down. Storage takes time to fill. If storage levels are unusually low at the end of a winter, demand to fill storage over the following summer will be higher, moving prices up. In this way, a cold (or warm) winter can cause prices in the summer to be higher (or lower). Likewise, high summer demand can slow storage injections, reducing available storage supplies for the following winter, and raising prices.

Q. Can you summarize the market conditions during 2006?

A. Yes. The year began with storage levels slightly above the 5 year average, coming off a colder than normal December, and approximately 2 bcf/day of production still off line due to hurricanes. The Energy Information Administration (EIA) forecast first quarter prices in the $11-11.50 range with a full year average of $9.80. Average prices for 2007 were forecast at $8.84. (Short-Term Energy Outlook (STEO) January 2006).

January unexpectedly ended 27% warmer than normal. For the United States, this was the warmest January on record, allowing storage to rise to its highest January level since 1989. Month end storage levels would set new 12 year highs for the remainder of 2006. High storage levels would hold prices down the remainder of the year. Gas price forecasts for 2006 and 2007 remained above $8.00 on expectations of normal weather and normal to above normal hurricane activity.

High storage levels held summer prices down, despite above average summer temperatures. Then when predicted above average hurricane activity did not materialize, the price outlook for 2007 began to fall. In fact, in the 2006 hurricane season, there was only one hurricane/tropical storm in the Gulf of Mexico. Downward pressure increased as October storage levels neared their estimated maximum limits and November and

December weather was warmer than normal. At the end of December, storage levels were at their highest December level in over 12 years, and the short-term outlook for January was for warmer than normal temperatures. The January 2007 futures contract closed at $5.84, the lowest January price in 4 years.

Q. Do these conditions reflect normal market conditions?

A. No. Storage levels were the highest in over 12 years. Both the beginning of year winter and the end of year winter were warmer than normal. The summer, though temperatures were well above normal, benefited from the high storage levels and below normal hurricane activity in the Gulf of Mexico. Even if such conditions were to repeat, they do not represent normal conditions, anymore than a hot summer in one year represents normal temperatures.

Q. How has Aquila developed its normalized gas prices?

A. Aquila has used an average of three months of daily futures contract prices. Later in my testimony, I discuss this method in greater detail in my response to Staff's rebuttal. These futures prices represent the markets expectations of gas prices. By averaging over three months of daily activity for each futures contract, the impacts of non-normal events are reduced. To the extent that market participants rely on various analysts projections, it also represents the projections of those analysts. While the near months are more likely to reflect current conditions and hence be more "accurate", the further out months are more likely to represent "normalized" prices as expectations about the persistence of non-normal conditions (such as temperatures and storage levels) diminish.

Q. How do Mr. Brubaker's gas prices compare to other recommendations in this case?

A. They are the lowest. Mr. Brubaker's weighted average cost of commodity gas for Aquila's owned generation is **_____**. Staff's comparable gas cost is **_____**. Company has recommended **_____**.

Q. Did Mr. Brubaker adjust other cost factors when adjusting gas prices?

A. Yes. Mr. Brubaker also inappropriately adjusted the variable costs of one of the purchased power contracts. The contract specifies different costs based on different run times for the units. At the minimum run time of 8-9 hours, there is an additional cost of **_____**. The average run time reported by Aquila's model is 8.1 hours. Although he made no changes to the output for this unit, on Mr. Brubaker's Schedule MEB-TU-3 page 2 of 6, he has substituted a **_____** cost factor. This inappropriately reduces costs in base rates by over **_____.** Under Mr. Johnstone's cost "sharing" proposal, Aquila would have the opportunity to recover about half of this inappropriate adjustment.

Q. What is your recommendation to the Commission?

A. I recommend that the Commission reject Mr. Brubaker's adjustments. They do not reflect normalized prices. I also point out that Mr. Brubaker's adjustments are based in part on data that was not inside the update period.

Staff Gas Prices and the Use of Futures Prices for Ratemaking

Q. What is the purpose of this portion of your testimony?

A. The purpose is to respond to the rebuttal testimony of Staff witness's Charles Hyneman and Dr. Kwang Y. Choe. Mr. Hyneman and Dr. Choe express concerns with Aquila's methodology to normalize gas prices.

Q. Why should Staff's arguments be rejected?

A. Staff's arguments should be rejected for the following reasons:

- Staff incorrectly asserts that the goal of normalized prices is to accurately predict actual prices. Normalized prices are expected to be different from actual prices, just as the normalized temperatures used for ratemaking will not reflect actual temperatures a year later.
- Staff's analysis does not recognize a) gas generation occurs predominately in the summer, and b) gas prices are more volatile in the winter. Failure to consider these points leads Staff to incorrect conclusions.
- Mr. Hyneman restates Dr. Choe's key points while citing anecdotal examples that illustrate the volatile nature of gas prices rather than any shortcomings of Aquila's method of normalizing gas prices.
- Mr. Hyneman implies that Aquila's methodology will set prices high, while providing analysis that the prices will be too low.

Q. What does Staff Witness Dr. Kwang Choe state is the criteria for setting prices for ratemaking?

A. Dr. Choe states that the proper test must be that it reliably and accurately predict actual gas prices. (Choe Rebuttal page 2 line 14-16).

Q. Do you agree that the proper test must be that it reliably and accurately predict **actual** gas prices in the future?

A. No. Expected (normalized) not actual prices are the goal. Staff witness Dr. Choe points out that the price of gas is weather dependent (Choe Rebuttal page 4 line 4). Dr. Choe in effect criticizes futures prices because 12 months prior to closing they do not reflect the

impact of actual weather that has not yet occurred. In ratemaking we do not try to model actual weather. We model normalized (expected) weather.

Q. Does Staff Witness Hyneman also focus on the difference between normalized prices and actual prices?

A. Yes. Mr. Hyneman spends a considerable portion of his testimony comparing the actual spot price on a given day with the futures price on some other single given day that he has selected.

Q. How do you assess these comparisons?

A. These comparisons are anecdotal not statistical. They illustrate only that on any two given days gas volatility may cause prices to be very different. This is why Aquila's method does not use single day prices, but instead, averages three months of daily data. Many of his examples relate to non-summer months that are more volatile and less relevant than the four (4) key summer months. I discuss this in more detail later in my testimony. Many of his chosen examples show expected prices (futures prices) to be higher than the actual spot price. However, systematic analysis of the data provided by Mr. Hyneman and Dr. Choe shows that the futures prices have historically been the lower price. I will discuss this further later in my testimony. Mr. Hyneman makes no effort to describe the market conditions underlying the spot prices. Many of his comparisons relate to points in time in which the spot price has been increased or decreased by unusual market conditions.

Q. Can you give an example where unusual market conditions impact one of Mr. Hyneman's examples?

A. Yes. On page 7 of Mr. Hyneman's rebuttal testimony he discusses the "percent error" between the expected prices prepared by Aquila and the actual prices for the January 2007 first of month index price. He points out that Aquila's expected price was $8.00 and the actual index price was $5.84. Mr. Hyneman does not point out that the actual first of month index price for December 2006 was $8.32. The following quotes are from the Department of Energy's Energy Information Administration Short-Term Energy Outlooks (EIA STEO) published in January 2007 and February 2007 (emphasis added):

- "Warm December weather led to a decline in crude oil and natural gas prices. Between December 1 and the end of the month, the West Texas Intermediate (WTI) spot price fell from $63.48 per barrel to $60.85, and the **Henry Hub natural gas spot price dropped from $8.67** per thousand cubic feet (mcf) to $5.67."
- "Persistent warm weather and the reduced demand for natural gas for space heating kept natural gas prices from **rising** in December as expected in last month's Outlook."
- "With about **16 percent fewer heating degree** days than normal in December, the Henry Hub spot natural gas price averaged $6.97 per mcf for the month."
- "As of December 29, working gas in storage was 3,074 billion cubic feet (bcf), a level 433 bcf above the year ago level and **408 bcf above the 5 year average** for that date (U.S. Working Natural Gas in Storage). The current high inventory levels are expected to slowly return to the historical average level over the forecast period."
- "Despite the recent return of cold weather, heating degree days for January 2007 are estimated to be **10 percent below normal** for the United States. "

- "Mild winter weather in the Northeast and Midwest early in the heating season reduced natural gas demand and tempered the Henry Hub spot price, which averaged $6.90 per mcf for December 2006 and $6.75 per mcf for January 2007."

As mentioned earlier in my testimony, December 2006 gas in storage levels were at a 12 year high for December.

Q. What is your assessment of Aquila's $8.00 January normalized price?

A. The November 2006 average Henry Hub spot prices were $7.63 on warm weather (EIA STEO December 2006), storage levels are substantially higher than average, and gas prices generally rise to a peak in January. The December 2006 index price closed at $8.32. The EIA in the December STEO projected a Henry Hub peak of $8.73, despite a warm November, high storage, and a slightly warmer than normal forecast. Given these factors, I feel the $8.00 represents a reasonable, though probably low, normalized price for January 2007.

Q. What is your assessment of Mr. Hyneman's single day comparisons of spot prices to the normalized prices prepared by Aquila?

A. Mr. Hyneman's comparisons are not useful in assessing the reasonableness of Aquila's normalized prices. Dr. Choe identified several key factors impacting gas prices including "weather, oil prices, drilling rig counts, level of electric generation for gas-fired combustion turbines, national storage levels for natural gas ..." (Choe rebuttal page 4 lines 4-6). Mr. Hyneman has not included the impact of these key factors which would allow a meaningful analysis of his comparisons.

Q. What is the goal of normalized gas prices?

A. The goal is to take highly volatile gas prices and reflect reasonable estimates of gas prices for ratemaking.

Q. Why are gas prices volatile?

A. As I discussed earlier in my testimony, demand for gas is somewhat price insensitive. That is, it takes a proportionally larger change in price to make up for a smaller change in the balance of supply and demand. Small changes in temperatures can change demand enough to cause significant price changes. During the winter, gas demand is greater than the production capability. Gas in storage is important. Therefore, temperature changes can have a significant impact on price. Production generally exceeds demand in the summer. This makes the summer somewhat less sensitive to temperature.

Q. Is it the objective of normalizing gas prices to predict the actual price on a particular day in the future?

A. No. Gas prices are highly volatile, in part due to the impact of weather (temperatures) on demand. Therefore, accurately predicting the price of gas on a particular day is somewhat like predicting the temperature on that day.

Q. Do futures prices reflect a reasonable expectation of normalized gas prices?

A. Yes. Year prior gas futures prices will reflect a predominate expectation of normal weather over the coming year, while actual gas prices a year later reflect actual weather over that year. Inevitably, actual prices will differ from expected prices, just as actual weather will differ from expected weather. This, to me, is an argument **for** the use of futures prices rather than against them.

Q. Why is the index price more volatile than the year prior futures price?

A. As noted above, the index price reflects all the actual current and past weather and events and their impacts on storage, supply, and demand. The year prior futures price is less volatile in part because it reflects expected weather and the risk adjusted expected impact of future events, not the actual impact of those events which could be much greater.

Q. Do the futures prices represent valid expected prices?

A. Yes. Staff witness Dr. Choe points out that futures contracts represent a "contract to claim physical delivery of the commodity" (Choe Rebuttal page 3 line 6). These are the prices actually being paid currently (today) for contracts for future delivery. When adjusted for basis and delivery costs, these represent valid gas costs for our power plants.

Q. Did you compare the history of Henry Hub spot prices with Aquila's actual monthly commodity prices?

A. Yes. I present that comparison on Schedule HDR-5. The correlation between the Henry Hub spot price and Aquila's actual commodity cost is very high, nearly 0.90.

Q. Staff witness Hyneman states that futures prices are not known and measurable (Hyneman rebuttal page 10 line 21). How do you respond?

A. Gas futures prices are reported in the Wall Street Journal. These prices are the reported and posted prices representing the prices that could actually be paid on those days to purchase gas for future delivery. These prices are used as reference prices to set gas contract prices. The prices used were all reported prior to the end of the update period. They are known and measurable. Aquila, through its hedging program, enters into contracts at these prices. However, whether or not Aquila purchases on a particular day, does not change what the known price on that day was.

Q. Did Dr. Choe compare the NYMEX futures closing prices (index) with the year earlier futures price?

A. Yes. He took the closing prices which represent the prices as of the last few days of the futures contract, and compared it to the year earlier price.

Q. Do the closing prices reflect the impact of the actual weather near the time of the close?

A. Yes.

Q. What did Dr. Choe conclude regarding NYMEX prices and the year earlier prices?

A. He stated that there is "no systematic correlation" (Choe Rebuttal page 4 line 14).

Q. Did Dr. Choe calculate the correlation from his data?

A. In his response to Data Request No. 0365, Dr. Choe, states that "No statistic other than graphical inspection was used to determine 'no systematic correlation.'"

Q. Did you calculate the correlation statistic?

A. Yes. I obtained Dr. Choe's data and calculated the correlation for the 86 months from January 2000 to February 2007. I found the correlation to be positive and statistically different from zero. Therefore the data exhibits a positive correlation.

Q. Did you perform any other analysis?

A. Yes. Using Dr. Choe's data I calculated the least squares best fit line (linear regression line) for both the NYMEX spot price and the year earlier futures price. (See Schedule HDR -1). This illustrates that the NYMEX price and the year earlier price have very similar trends, although the year ago futures price tends to be less than the actual spot prices.

Q. Did you analyze this tendency of the year ago futures prices to be less than the actual spot prices?

A. Based on data provided by Staff witness Dr. Choe, on average, the one year prior futures price was $0.64 less than the closing index price.

Q. What does this mean?

A Dr. Choe's data indicates that the use of the futures price will tend to understate gas prices and understate the fuel costs required for the utility to earn its authorized return.

Q. Did Staff witness Hyneman also provide evidence on the relationship of futures prices to spot prices?

A. Yes. Mr. Hyneman's rebuttal testimony Schedule 1 shows a comparison of spot prices and the year prior futures prices. His next-to-the-last column marked "Difference" shows how much lower the year ago futures price was compared to the actual spot price. In only one month out of 32 was the spot price higher and, even then, by the second smallest percent difference in his data. For the 32 months presented by Mr. Hyneman, the year ago futures price was lower than the monthly actual spot price by $1.36 on average.

Q. Will there be periods where the year prior futures price exceeds the spot price?

A. Yes. My analysis indicates that when the year prior futures prices occur during a major price spike in the year ago spot market, the year prior futures prices are more likely to be higher than the current spot price. Such price spikes are infrequent and usually of short duration. Aquila's use of a 3 month daily average attempts to level out such spikes. Also, by using individual monthly prices instead of a "strip" average price, the prices of the more volatile winter months are kept separate from the higher gas usage summer months.

Q. Did you make other observations regarding Staff's analysis?

A. Yes. I observed that, in Aquila's updated rate filing, nearly 90% of Aquila's natural gas is consumed in the summer months from June through August. Therefore, these are the key months for gas costs.

Q. Did Staff's analysis focus on these summer months?

A. Staff's analysis includes, and frequently focuses on the less important non-summer months.

Q. What analysis did you do of the summer month data?

A. From the data provided by Dr. Choe, I extracted the summer month data. I calculated the correlation between the summer month spot prices and year prior futures prices. This correlation was greater than the correlation for the data that included all months. I graphed each of these months individually. The resulting charts can be seen at Schedule HDR-2. I noted that the year earlier futures price compared to the spot price was more often lower by a greater amount than higher. Given that spot gas prices can move up or down by several dollars based on changes in market conditions, these charts indicate that the year earlier futures prices provide a reasonable, yet conservative, estimate of spot prices in the key summer months.

Q. On what gas price methodology does Staff witness Dr. Choe base his rebuttal?

A. Dr. Choe bases his rebuttal on a gas pricing methodology that uses the single day "prices in the futures market one year before closing of a contract" (Choe Rebuttal page 4 lines 12).

Q. Is this the methodology proposed by Aquila?

A. No.

Q. What is the difference between Aquila's method and the method described by Staff?

A. First, Aquila's method consists of an average of prices over a three month period, not a single day price. This was done to reduce the bias that might come from using a single day price in a volatile market. Second, by using individual monthly futures prices instead of a "strip" price that averages all months together, the prices of the more volatile winter months are kept separate from the higher gas usage summer months. Finally, Aquila's method, as updated through the true-up period, uses futures prices that are on average seven months, not 12 months, prior to the contract close.

Q. Does the length of time before the contract close make a difference?

A. Yes. Contrary to Staff witness Dr. Choe's testimony, not only are the futures prices positively correlated, but the shorter the period before the contract close, the higher the correlation (see Schedule HDR-3 and HDR-4). This to be expected, as more current information is incorporated into the market prices.

Q. Do these prices meet Dr. Choe's "safety net" standard?

A Mr. Hyneman's testimony has many examples of how volatile prices have become as actual conditions drive prices up and down. Dr. Choe proposes that consumers need an additional "safety net" to protect them from overstated futures prices. (Choe rebuttal page 5 line 17). Aquila witness Dennis Williams discusses the use of a fuel adjustment clause to provide the bilateral safety net desired by Staff witness Dr. Choe.

Q. Mr. Hyneman's rebuttal testimony cites the prior testimony of Mr. Browning. How do you respond?

A. On page 16 line 12, Mr. Hyneman notes that two rate cases ago Aquila witness Mr. Browning used the average of six analysts' estimates in March of 2003 instead of using the Nymex strip price. However, one has only to look at the spot price for March 2003

on my Schedule HDR-1 to understand why Mr. Browning did not use the future's strip. In March of 2003, the spot price spiked to over $9.13. The futures strip for the front 12 months hit a March peak on March 7, 2003 at just over $6.00. This must have appeared incredibly high after more than a year of prices below $4.00. This would have been like recommending a $9.75 price after a period of $6.50 prices. In retrospect, three of four summer months of 2004 were also over $6.00 (Henry Hub). The $6.00 strip might well have been a reasonable price. This same information can be seen in tabular form in Mr. Hyneman's Schedule 1.

Q. What would Aquila's current method have generated for commodity gas prices in that prior case?

A. Had an update through December 2003 been available, Aquila's current method would have produced summer month prices of about $4.58, well below the actual Aquila summer 2004 gas prices of about $5.49.

Q. What price would Staff's method have generated in that case (assuming an update through December 2003)?

A. I believe Staff's method would have developed a commodity price of about $4.00 to compare to actual Aquila summer gas prices of about $5.49.

Q. What was Staff's price in that case?

A. Testimony in that case indicates Staff recommended a price of about $4.00 in its direct case.

Q. Did Staff accept Mr. Browning's average of analysts' methodology?

A. No, it was criticized.

Q. Do you have other comments on Staff witness Hyneman's rebuttal testimony?

A. Yes. The key points are listed as follows:

- Mr. Hyneman echos several of Dr. Choe's points.
- I have demonstrated the futures and spot prices are correlated.
- I have explained why summer months are more important than winter months.
- I note that Dr. Choe agrees that futures contracts are for physical gas. Whether it is delivered or not, does not affect its relevance to physical prices.
- I have explained why price comparisons between two daily prices must be made in the context of the key factors that influence those gas prices.
- I have demonstrated that Henry Hub prices and Aquila's actual gas commodity costs are highly correlated (Schedule HDR-5).
- On page 2 line 20, there is apparently a typographical error. Aquila's approach uses a 90 day average not a 30 day average. I feel this longer period strikes a balance between using up to date information and averaging out temporary price fluctuations.
- On page 3 lines 8-14, Mr. Hyneman incorrectly characterizes Aquila's approach as using an average of strip prices. Just as Dr. Choe rebuts a method that is not Aquila's, so does Mr. Hyneman. Aquila averages the individual months in the strip not the months all together as stated by Mr. Hyneman. As I explained earlier, this prevents the more volatile (and generally higher) winter month prices from being included with the more important (and generally lower priced) summer months.
- On page 5 line 21, Mr. Hyneman incorrectly uses a simple average to portray Aquila's average cost of gas as **_____**. Staff presents its weighted average

cost of gas commodity as **_____**. The comparable Aquila weighted average cost of gas for its owned generation is **_____**.

Q. Did Dr. Choe propose an alternative to Aquila's gas method?

A. No.

Q. Did Dr. Choe advocate Staff's gas price model as meeting his standards?

A. No. In a data response, Dr. Choe stated he had not studied the correlation to actual prices of any other methods of setting gas prices

Q. Did you review Staff's methodology?

A. Yes.

Q. What were your conclusions?

A. I used Staff's method to calculate the 24 month weighted average Aquila actual gas commodity cost as of the end of the calendar year for each of several historical years. I then compared that Staff method weighted average price to the actual weighted average Aquila gas commodity cost for the first year of rates. I graphed the results on Schedule HDR-6. I observed that Staff's method was generally at or below the actual cost of gas. Rate change cycles longer than one year will increase the under-recovery of actual gas costs.

Q. Did you perform a similar analysis for Aquila's method?

A. Yes. On Schedule HDR-7 I overlay Aquila's method. I calculated Aquila's weighted average price using the actual volumes. Aquila's method produces both high and low results. I observed that in most years, Aquila's method produces prices less than actual. In one year it produced a result less than Staff's method. In years following a strong price spike, it produced prices higher than actual. This case is not in a "spike" year.

Aquila's prices for the update are taken from October to December 2006. These month are below the linear regression line (average), as illustrated on Schedule HDR-1. On average, Aquila's method still produced prices in total across all years that were less than actual prices.

Q. Does this have any implications for rate recovery mechanisms?

A. Yes. It shows that base rate gas cost recovery significantly lags actuals. This lends support to the need for a recovery mechanism like the one that has been proposed by Aquila. It also demonstrates that a recovery mechanism with a sharing arrangement puts the utility at risk, since base rates are less than actual expected costs. Company witness Dennis Williams discusses fuel adjustment mechanisms.

Q. What is your conclusion?

A. Mr. Brubaker proposes the lowest gas prices. Staff's method produces prices that in some years may be as high as actual prices, but in most years are not. Aquila's method produces prices that in most years are less than actual prices but are higher than Staff's. Staff and Aquila's gas price proposals are very similar in this particular case. Aquila's prices in this case are slightly higher, and my analysis shows that those prices are likely more reasonable.

HEDGE PROGRAM

Mr. Brubaker's Hedge Program Adjustments

Q. Does Mr. Brubaker make an adjustment to the Aquila hedging program?

A. Yes. As I recommended in my direct testimony, the approach to valuing the hedging program should be consistent with the approach used to set costs for gas and purchased power. Mr. Brubaker has adjusted the value of the hedging program to be consistent with

his gas and purchased power cost proposals. However, he has also adjusted the number of existing hedge contracts to reflect a different level of hedging than Aquila actually had at December 2006.

Q. Do you agree with Mr. Brubaker's adjustment to the Aquila hedging program?

A. No. I do not agree with the gas prices he has used to adjust the gas generation, purchased power and hedging costs. I addressed those gas prices earlier in my testimony. I also do not agree with the adjustments he has made to the volume of hedge contracts we actually hold at December 2006.

Q. Please explain what you mean by a hedge contract.

A. In order to protect against severe upward movements in gas prices (which will also impact purchased power prices), Aquila enters into various contracts to financially cap gas costs or to establish fixed price levels. These contracts can take the form of puts, calls, swaps, and futures. Aquila has reflected in its case actual contracts Aquila has established.

Q. What is the value of these contracts?

A. The purpose of the contracts is to protect against severe price movements. The actual monetary value of the contracts is determined at settlement. The expected value of the contracts can be determined from current expected gas prices. Aquila, Staff, and the Interveners all have different views on expected gas prices. Therefore the expected value of the hedges is different relative to each view of expected gas prices. Aquila maintains that rates should reflect the existing hedge contracts at a value that is consistent with the gas prices and purchased power prices in rates.

Q. Has Mr. Brubaker reflected the existing hedge contracts?

A. No. While Mr. Brubaker has adjusted for his view of gas prices, he has also changed the quantities of the existing contracts.

Q. How has Mr. Brubaker adjusted the quantity?

A. Mr. Brubaker makes extensive calculations to develop his own estimate of the total gas cost exposure. He then performs a series of calculations to adjust Aquila's existing hedge contracts down to the level he feels represents Aquila's hedge policy.

Q. Do you agree with Mr. Brubaker's volumetric adjustments to Aquila's hedge program?

A. No.

Q. Please explain why you do not agree.

A. The key reasons why I do not agree with Mr. Brubaker's hedge adjustment are summarized as follows:

- Mr. Brubaker does not reflect the volume of gas that Aquila has actually hedged which is known and measurable.
- Mr. Brubaker's adjustment inappropriately over adjusts the hedging program.
- Mr. Brubaker's approach conflicts with the recommendations of Staff.

Q. Is the amount of gas hedged by Aquila known and measurable?

A. Yes. The actual volume of gas hedged by Aquila is under contract. These contracts represent the actual efforts of the company to implement its hedging objectives based on the information available at the time. The existence of these contracts cannot be ignored.

Q. How does Aquila establish the volume of gas to hedge?

A. Aquila's general policy is described in the direct testimony of Aquila witness Gary Gottsch. He describes that in general an annual revision is made to the three year volumetric power forecasts. The hedge program is adjusted annually to reflect changes

in the volumetric forecast. Because the plan is revised annually, it is likely that the resulting hedge positions will not perfectly match either the latest target, or some alternative forecast that was not the basis for the hedge positions.

Q. How has Mr. Brubaker adjusted the hedge volumes?

A. He has taken his view of the ratemaking plan and removed those existing Aquila contracts that do not fit his plan. In my view, he has retroactively adjusted the hedge contracts that were entered into under prior plans.

Q. Is this an appropriate adjustment?

A. No. This is 20/20 hind sight. Mr. Brubaker is taking his current view of gas exposures, including purchased power contracts that are only recently in place, and adjusting hedge contracts that were entered into months or even years earlier based on a different view of gas exposures.

Q. How has Mr. Brubaker over-adjusted the hedge program?

A. A review of Mr. Brubaker's adjustment calculations shows that he has over adjusted the hedge program. This is most clearly seen on Schedule MEB-TU-2 Page 3 of 4 of Mr. Brubaker's Supplemental Direct Testimony. Column 4 Line 13 of that schedule shows Mr. Brubaker's recommended hedge volume for call contracts. Column 5 line 13 shows the volume of call contracts actually held by Aquila. Column 6 line 13 shows the volume of existing contracts eliminated by Mr. Brubaker's adjustment. It is apparent that the adjustment in column 6 is nearly twice as large as the difference between the actual hedge volume and Mr. Brubaker's recommended volume. A similar review of Schedule MEB-TU-2 Page 2 of 4 of Mr. Brubaker's Supplemental Direct Testimony reveals that he has also over adjusted the swap contracts.

Q. How else has Mr. Brubaker over-adjusted Aquila's hedge program?

A. Mr. Brubaker has not adjusted Aquila's put contracts. Put contracts are used to reduce the cost of the call contracts. The volume of the put and call programs are highly related. By reducing the call contracts without reducing the benefits from related put contracts, Mr. Brubaker over states his hedge adjustments.

Q. Did your review find other problems with Mr. Brubaker's calculations?

A. Yes. Mr. Brubaker employed his own methods to estimate required volumes which do not reflect the methods described in Aquila Witness Gary Gottsch's direct testimony. In particular, Mr. Gottsch describes how he consults with Aquila's power traders to determine appropriate factors to convert market power prices to natural gas equivalents. Their combined judgment regarding the power markets results in the volumes to be hedged. Mr. Brubaker has not used a methodology consistent with that described by Mr. Gottsch. As a result, it is not clear that those portions of Aquila's method that he did use are consistent with the methods he did not use in developing his overall volume recommendation.

Q. Can you give examples of where Mr. Brubaker's calculations understate the required hedge volumes?

A. Yes. In Aquila's methodology, the total gas exposure to hedge includes 100% of the gas volumes and less than 100% of the exposure calculated for spot market purchased power. In at least one place in Mr. Brubaker's calculations, he reduced a gas exposure by the lower factor used by Aquila for spot market power purchases.

In another place, Mr. Brubaker inappropriately replaces Aquila's modeled heat rate for a purchased power contract with his own heat rate. The heat rate used by Mr.

Brubaker does not reflect adjustments made by Aquila to the contractual heat rate. These adjustments were made primarily to reflect line losses to deliver the power to our system. These line losses are in addition to the line losses experienced once the power gets to our system. These line losses are imposed by transmission agreements and tariffs. Mr. Brubaker's adjustment would deny us recovery of costs necessary to deliver the power to our system.

Q. Does Mr. Brubaker's approach conflict with Staff's recommendations?

A. Yes.

Q. What has Staff recommended regarding Aquila's hedging program?

A. Staff Witness Charles Hyneman makes recommendations regarding Aquila's hedging program in his rebuttal testimony. He states "...Aquila may be going too far in its systematic purchases of its financial hedges without giving appropriate consideration to current market conditions." (Hyneman rebuttal page 14 line 7).

Q. How might a less systematic approach be reflected in the hedge program?

A. Based on judgment of market conditions, hedge transactions could be accelerated or delayed. There may also be times when hedge coverage would be increased or decreased compared to Aquila's general hedge policy.

Q. Does Aquila have concerns with such an approach?

A. Yes. One area of concern is that adjustments to the plan will be more likely to be challenged, if only on the basis that we did not follow our general policy. Adjustments to the general policy are more likely to be the subject of challenges, particularly when 20/20 hind sight makes it harder to assess the information and decision making at the time.

Q. What does Mr. Brubaker's adjustment represent?

A. Mr. Brubaker's hedge adjustments represent a strict retroactive application of Aquila's general hedge policy. Mr. Brubaker even goes so far as to recommend his adjustment down to the single MMBtu level, even though standard hedge contracts are only executed in multiples of 10,000 MMBtu's.

Q. Did Aquila make adjustments to its hedge program?

A. Yes.

** _____
_____
_____
_____
_____ **

Q. How did Mr. Brubaker's adjustment treat these additional hedges?

A. A substantial portion (about 58%) of Mr. Brubaker's total hedge adjustment, in effect, removes these additional hedges.

Q. Can you summarize your assessment of the value of the issues with Mr. Brubaker's adjustments to the hedge volumes?

A. Yes. The gas price issue has been separately discussed. These values are before changing Mr. Brubaker's gas prices.

** _____ **
** _____ **
** _____ **
** _____ **
** _____ **

Q. What is your recommendation to the Commission?

A. I recommend that the Commission reject both the gas/purchased power cost adjustments and the volumetric hedge program adjustments proposed by Mr. Brubaker.

Staff's Position Regarding Aquila's Hedge Program

Q. What has Staff recommended regarding Aquila's hedging program?

A. Staff Witness Charles Hyneman makes recommendations regarding Aquila's hedging program in his rebuttal testimony. He states "...Aquila may be going too far in its systematic purchases of its financial hedges without giving appropriate consideration to current market conditions." (Hyneman rebuttal page 14 line 7).

Q. Did Aquila make adjustments to its hedge program to respond to current market conditions and to rely more heavily on the professional judgment of its natural gas buyers?

A. Yes.

**_____

_____

_____

_____

_____ **

Q. Does Aquila have concerns with such an approach?

A. Yes. I discuss these concerns regarding 20/20 hind sight in my response to Mr. Brubaker's proposed adjustment.

Q. Does Mr. Brubaker make such an adjustment?

A. Yes. Mr. Brubaker's hedge adjustments represent a strict retroactive application of Aquila's general hedge policy.

Q. How does Aquila's hedge program operate?

A. The program is described in the direct testimony of Gary Gottsch. Generally, the program uses call option contracts to cap the price of gas and the program uses swap contracts to fix the price of gas. Under the general program policy, 1/3 of the total exposure is capped and 1/3 is fixed. This permits price drops to affect 2/3 of the total exposure (since only 1/3 is fixed). This also permits 2/3 to be protected against upward price moves, since 1/3 is fixed and 1/3 is capped. The general program policy tries to produce a 28 month average of futures prices by October 31 prior to the start of a calendar year. As a result, for example, the first purchase of a July 2009 hedge would occur 36 months prior in July of 2006. The last purchase would occur 8 months prior in October 2008.

Q. Do you believe such an approach has merit?

A. Yes. I previously presented my analysis of Staff's data regarding 12 month prior futures prices. I concluded that such prices have generally been lower than actual gas index prices. I presented that data on Schedule HDR-1.

Q. Did you perform additional analysis regarding the hedge program?

A. Yes. The hedge program averages prices over a longer period than one year. Therefore, I obtained futures prices for 24 months prior and 30 months prior. See Schedule HDR-8. The 24 month prior and 30 month prior prices tend to be lower than the 12 month prior prices.

Q. What do you conclude?

A Aquila's basic hedge program is prudent. Without the benefit of 20/20 hindsight, it is not always clear when a price move will return to prior levels and when it will continue. For

example, the price spike from September 2002 to March 2003 never fell back to the prior $3.50 levels.

Q. What are call premiums?

A. Call options establish a cap to gas prices for a quantity of gas. A premium (cash payment) is made to buy the call and establish the cap. If prices are below the cap, the cost of gas reflects the lower price, but the premium is lost. If the price of gas is above the cap, the call pays the difference between the cap price and the actual cost of gas. Loosely, the call premium can be thought of as an insurance premium against the price of gas rising above the cap.

Q. How are the levels for the caps determined?

A. We rely on the judgment of our natural gas buyers in establishing the options. This was described in the direct testimony of Gary Gottsch.

Q. How much does Aquila pay in call premiums annually.

A. **_____

_____

_____**

Q. How does the price of gas impact the cost of the hedge program?

A. If the price of gas is above the cap or the fixed contract price of the swaps, the contracts will pay out to Aquila, providing an offset to the cost of gas and the call premium costs. If the price of gas is below the cap or the fixed price contract price, Aquila will pay on the swap contracts.

Q. What hedge cost has Aquila recommended in this case?

A. Aquila has priced its hedge program consistently with its development of gas prices. Aquila has used its proposed gas price to value the hedge contracts existing at December 31, 2006 and held for settlement in calendar 2007. The current value of those contracts is a cost of approximately **_____ _____ _____ _____**

Q. How has Staff treated the hedge costs?

A. They have not included any of the costs in base rates. They have proposed to flow hedge costs through their proposed fuel cost recovery mechanism.

Q. Is the treatment of hedge costs important?

A. Yes. If no fuel cost recovery mechanism is authorized, these known and measurable costs are not recovered by Aquila. If a "sharing" mechanism is approved, the base fuel costs will be too low and these known and measurable costs will only be recovered to the extent of the "sharing" percentage. If an IEC (cap) recovery mechanism is approved, the base fuel costs again will be too low and these known and measurable costs will effectively lower the level of the cap. If Aquila's proposed mechanism is approved the hedge costs will be fully recovered, subject to the required prudence reviews.

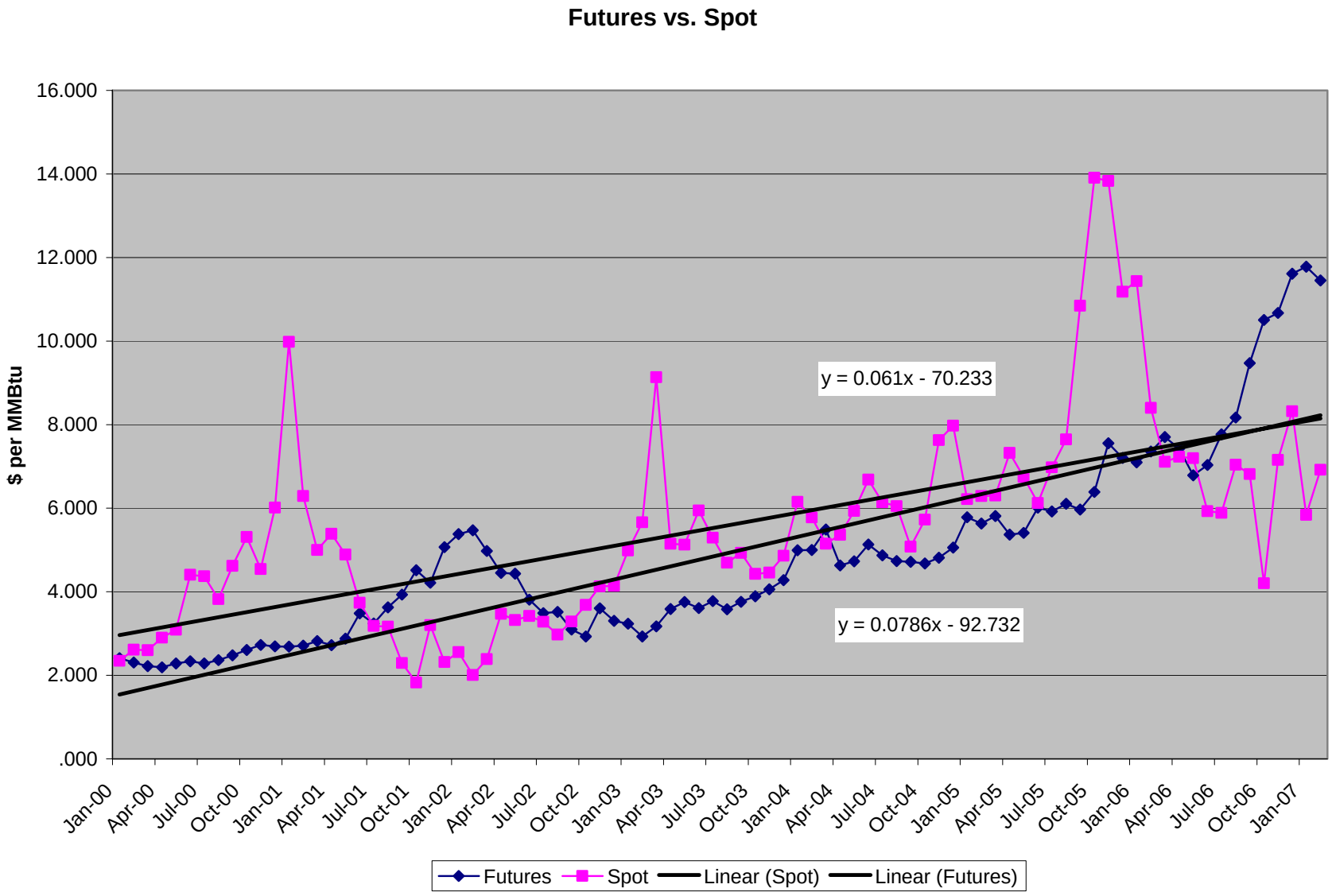
Q. What does Aquila recommend?

A Aquila recommends that its fuel recovery mechanism be approved. Otherwise, base rates should reflect an amount for the hedging program that is consistent with the gas cost approved in base rates. At Aquila's gas cost proposal, base rates should include **_____** for the hedge program.

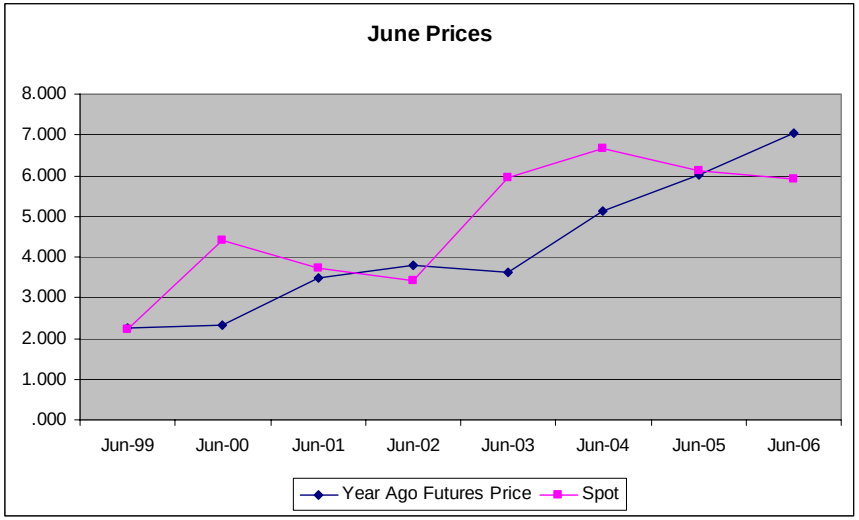
Q. Does this conclude your surrebuttal testimony?

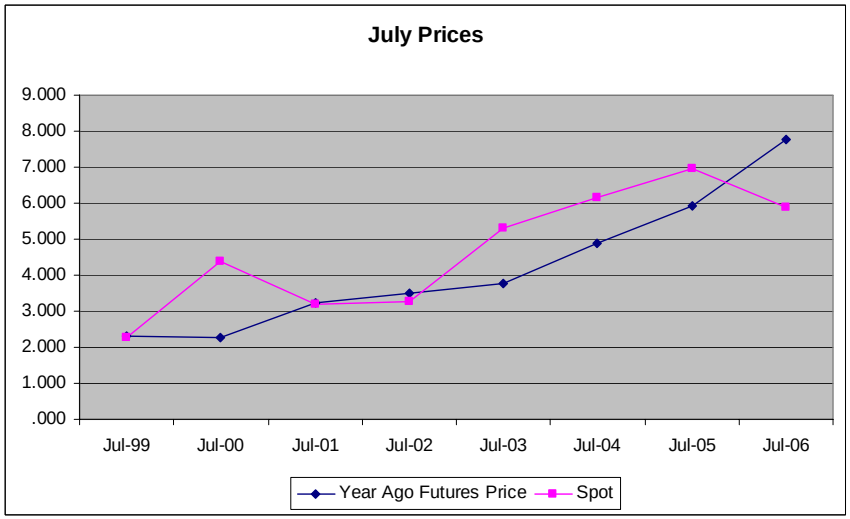
A. Yes.

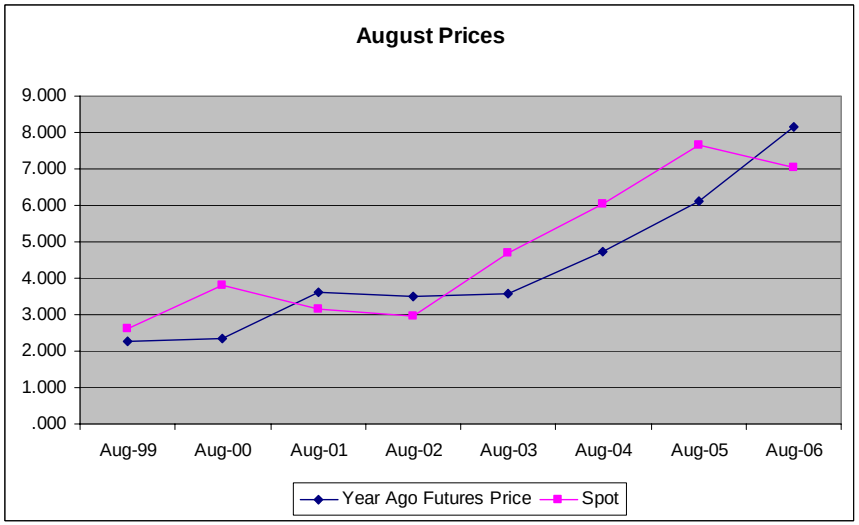
Schedule HDR-1

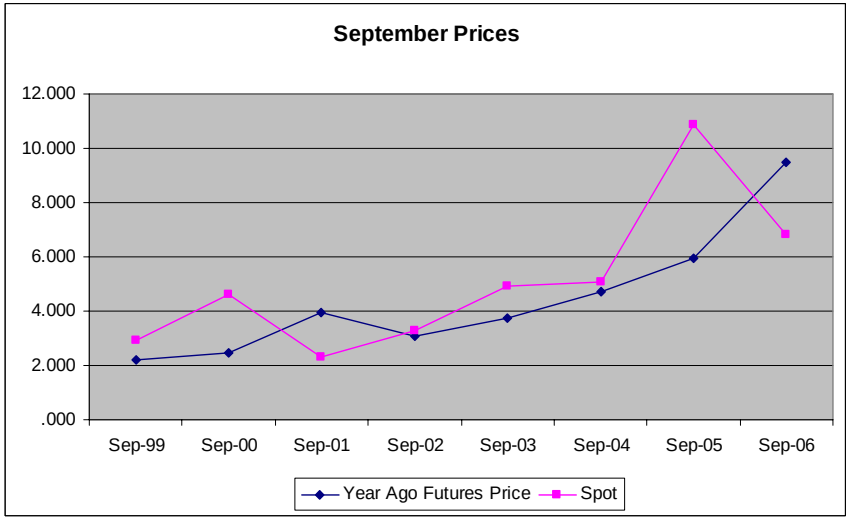


Schedule HDR-2



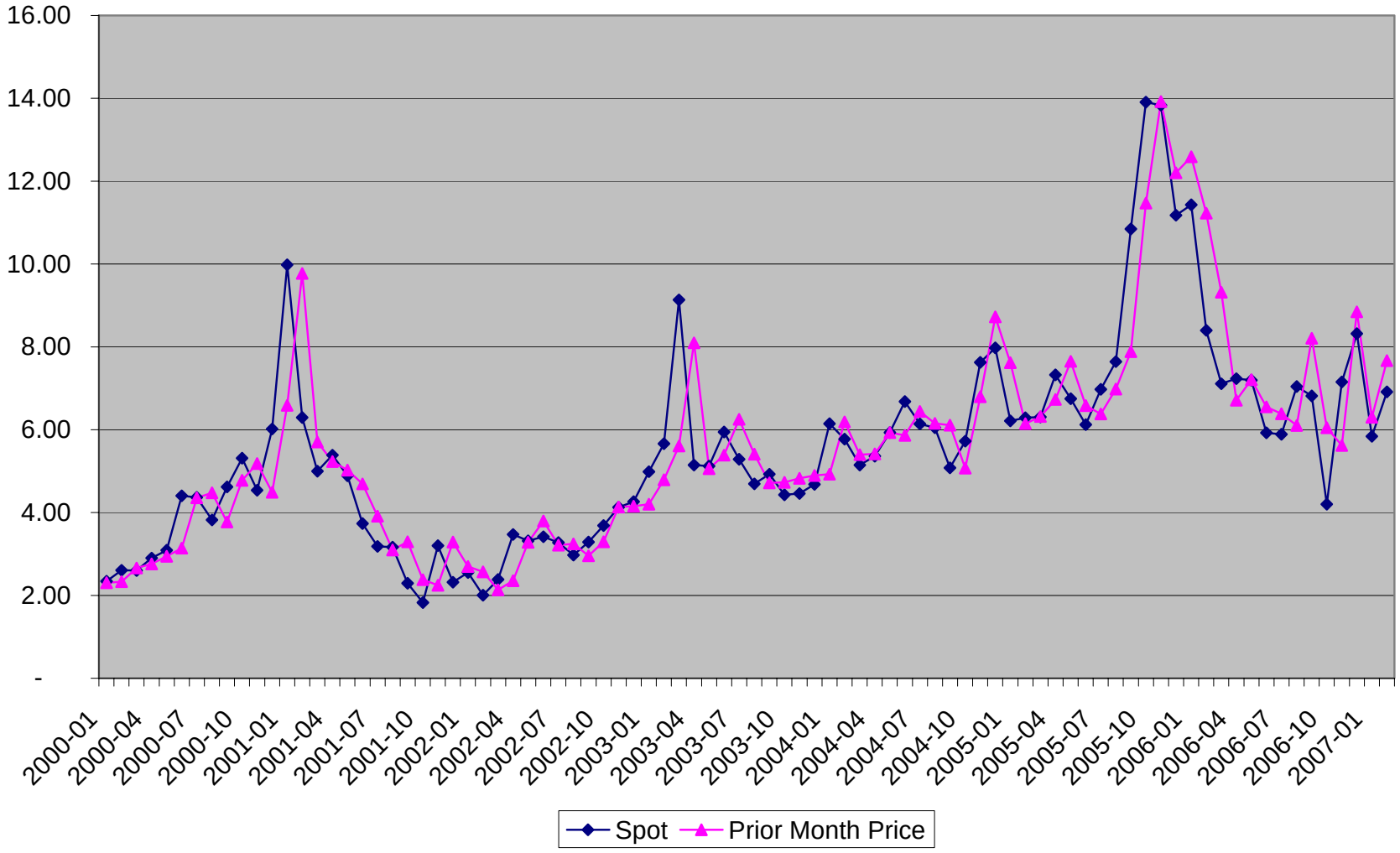




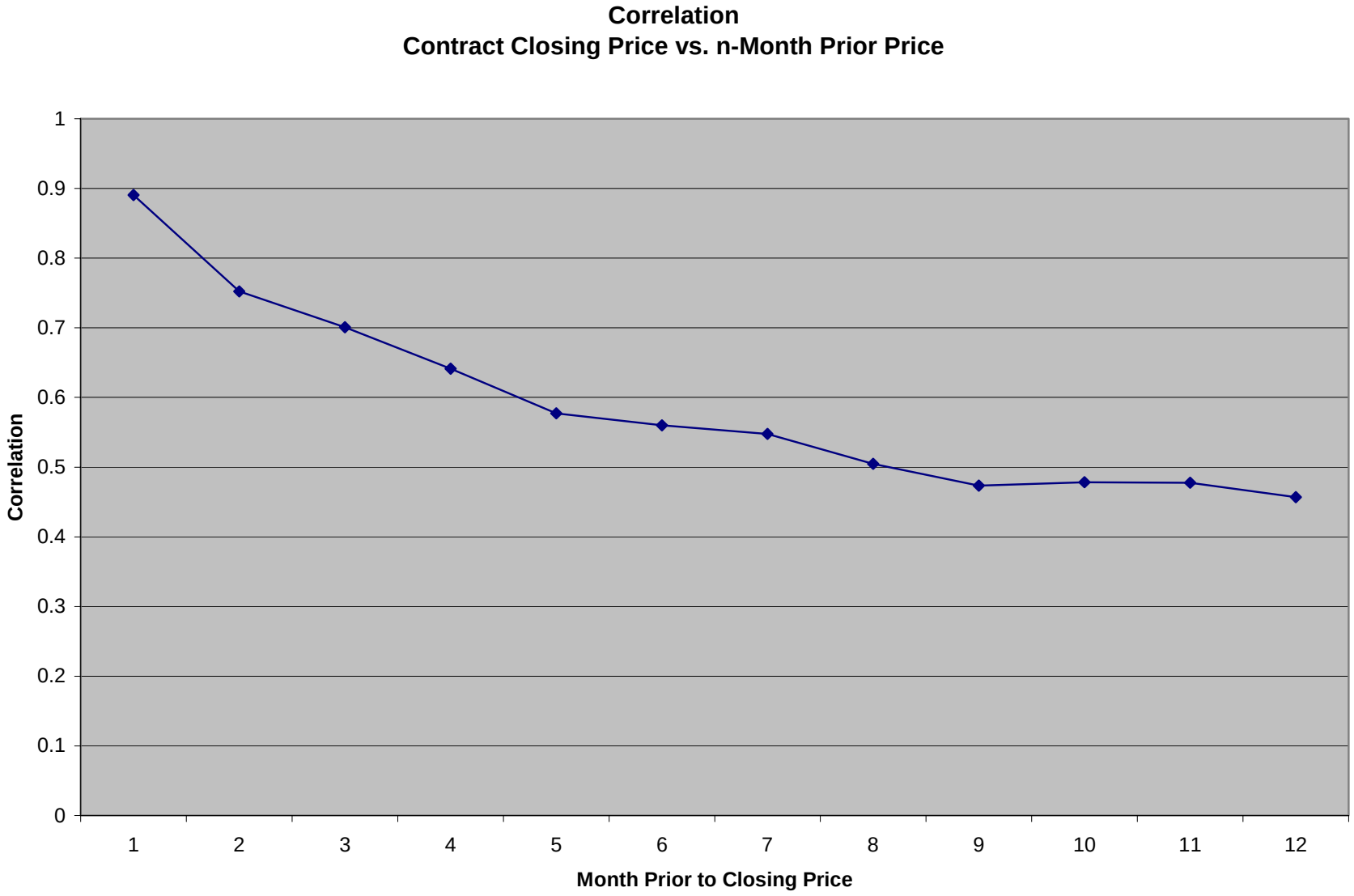


Schedule HDR-3

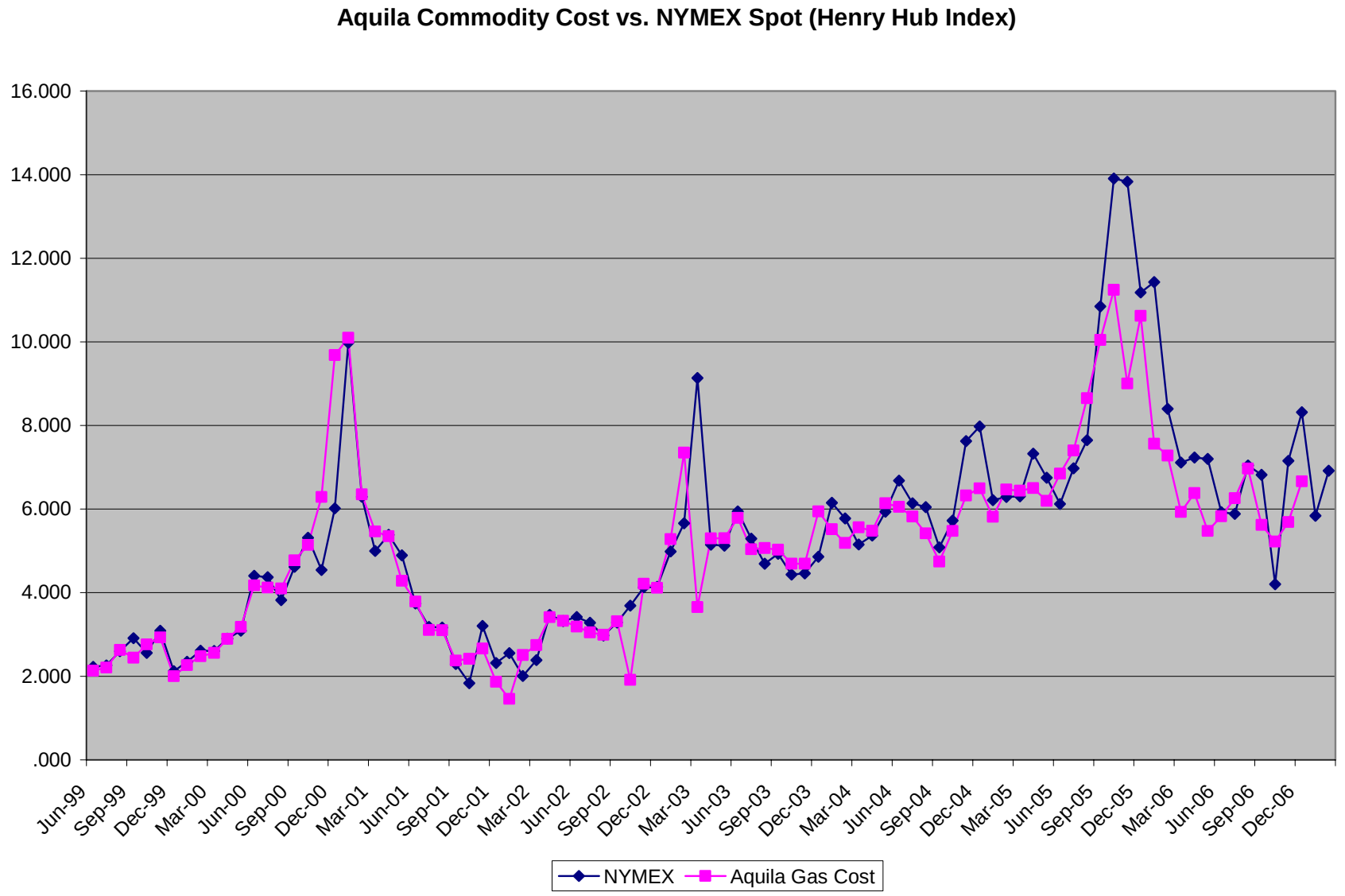
Spot Price vs. One Month Prior Futures Contract Price



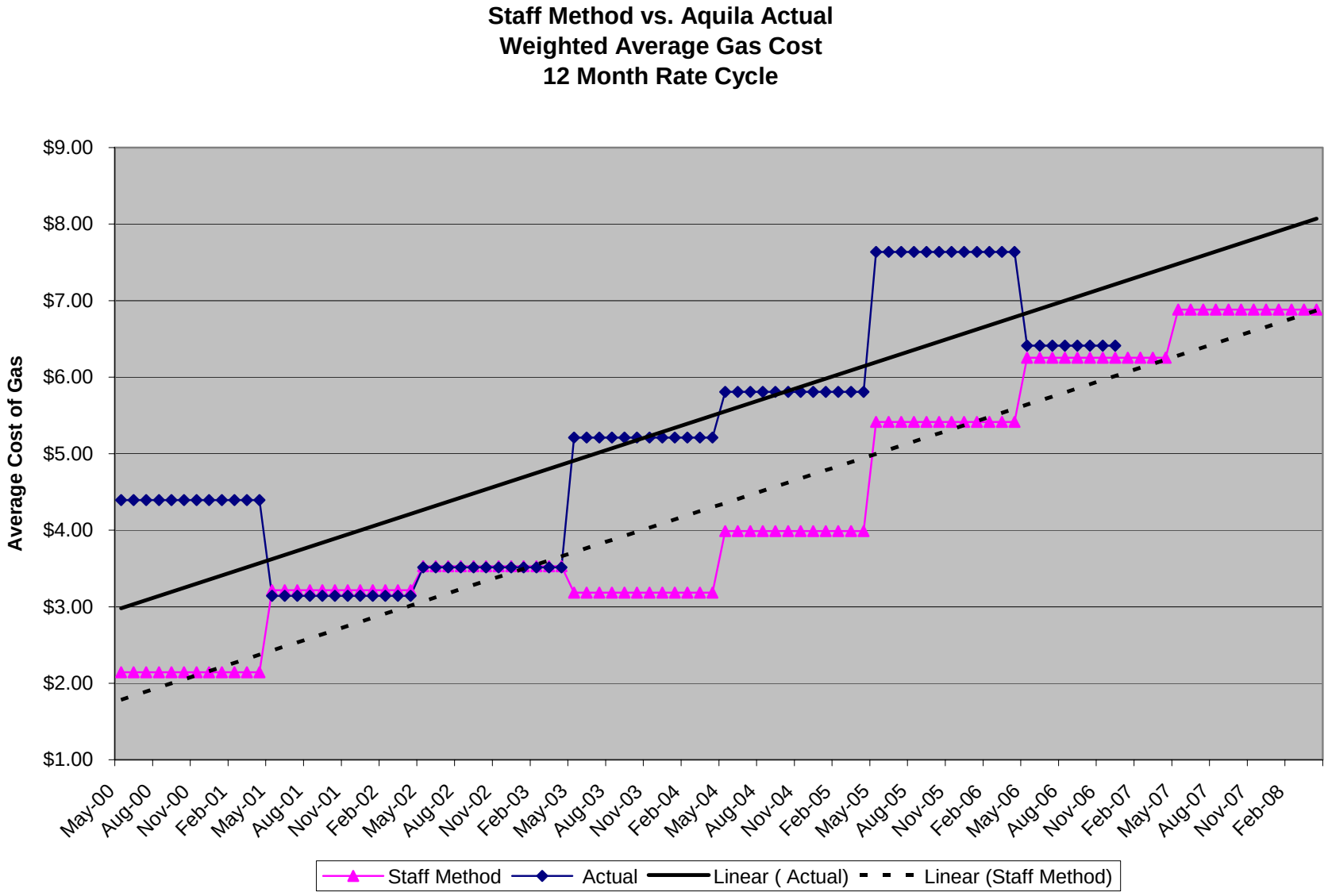
Schedule HDR-4



Schedule HDR-5

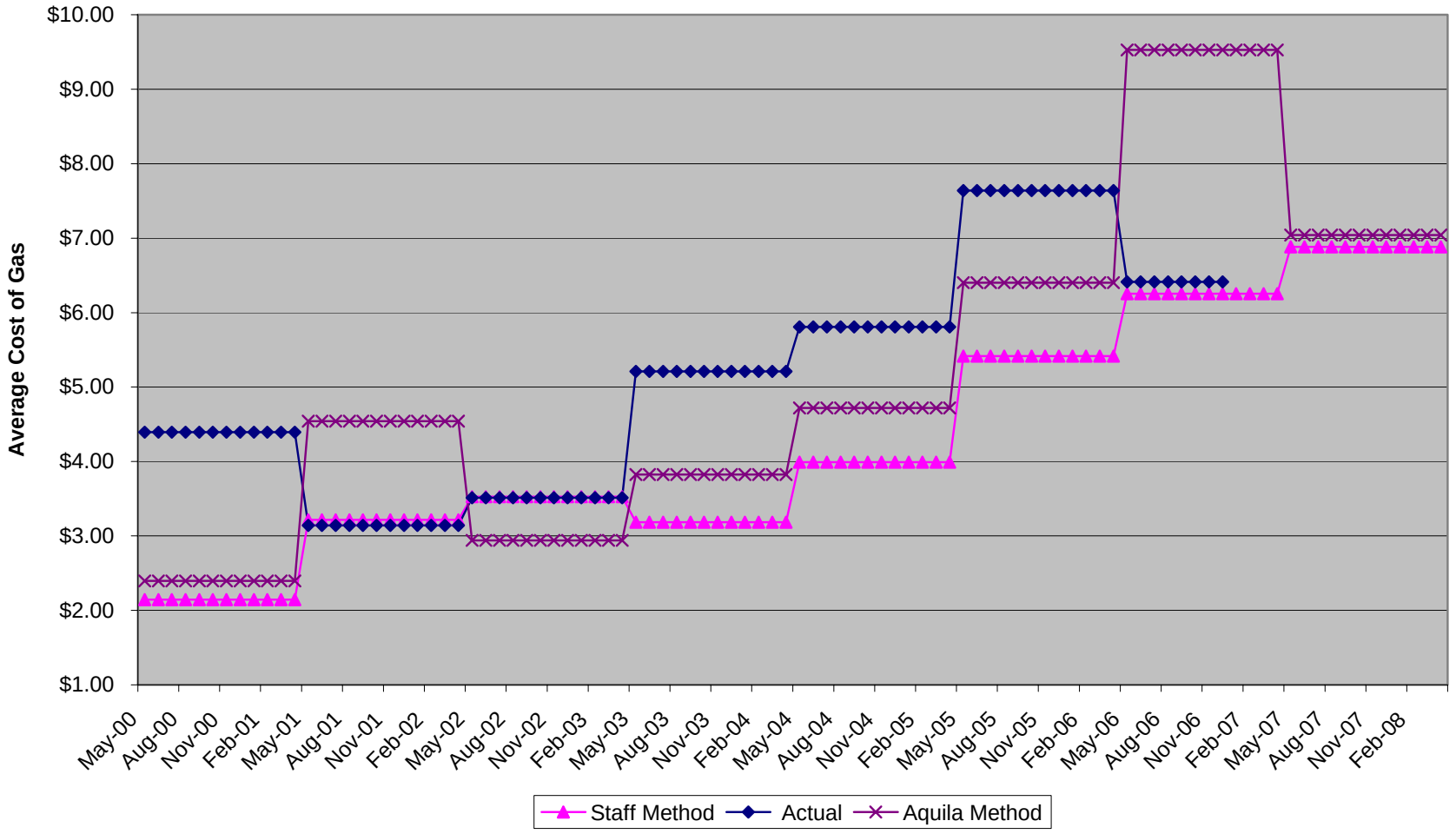


Schedule HDR-6

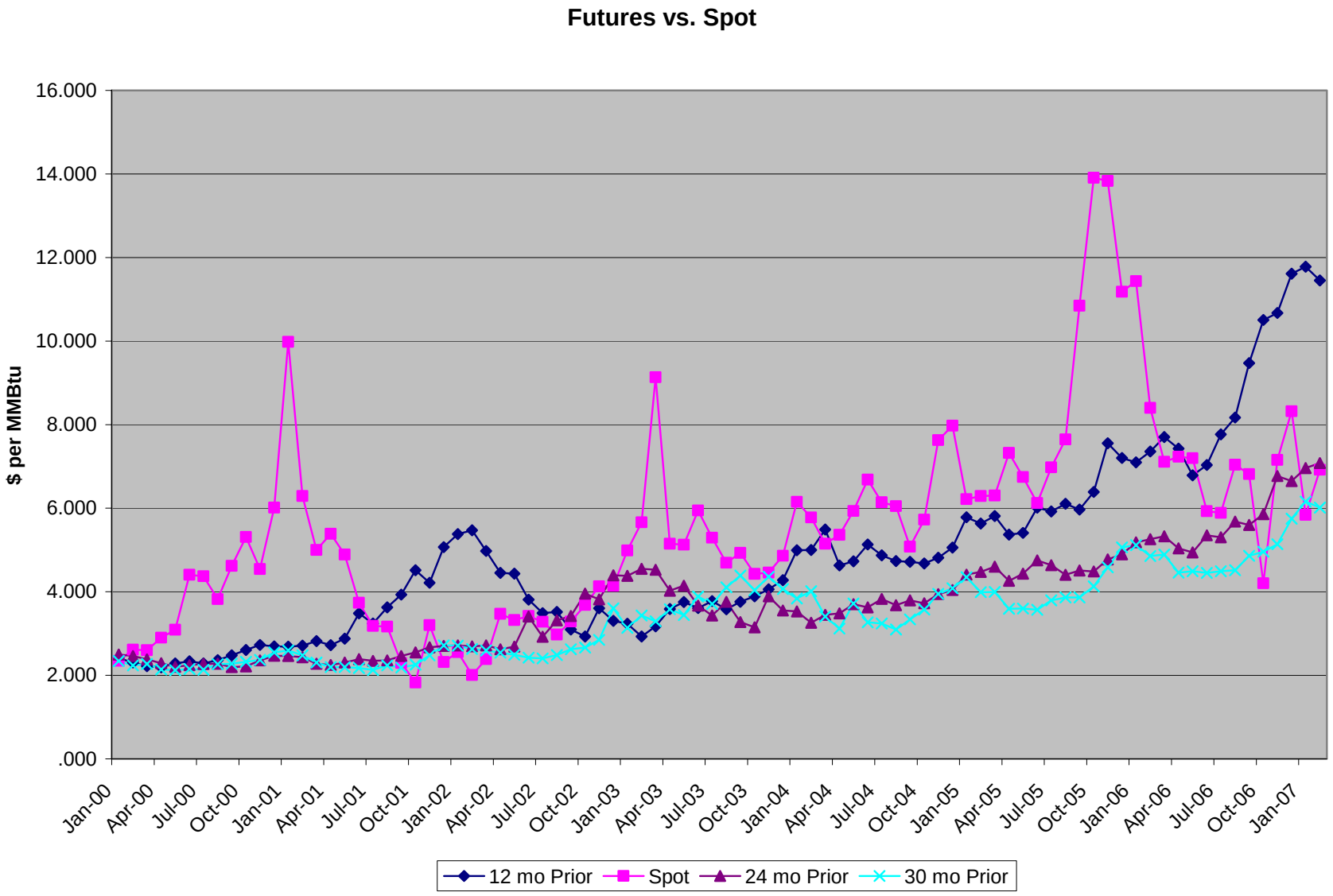


Schedule HDR-7

Staff Method vs. Actual vs. Aquila Method
Weighted Average Gas Cost
12 Month Cycle



Schedule HDR-8



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-2007-0004

County of Jackson)
) ss
State of Missouri)

AFFIDAVIT OF H. DAVIS ROONEY

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

H. Davis Rooney
H. Davis Rooney

Subscribed and sworn to before me this 20th day of March, 2007.

Terry D. Lutes
Notary Public
Terry D. Lutes

My Commission expires:

8-20-2008

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