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Kansas City Power and Light
Greater Missouri Operations
Steam Business
HC-2010-0235

Direct Testimony of

Donald E. Johnstone

on behalf of the

AG PROCESSING INC A COOPERATIVE

September, 2010

Competitive Energy
DYNAMICS

HC-2010-0235

Direct Testimony of Donald E. Johnstone

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Ag Processing, Inc., a Cooperative, Complainant,
v.
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Direct Testimony of Donald E. Johnstone

Q **PLEASE STATE YOUR NAME AND ADDRESS.**

A Donald E. Johnstone. My address is 384 Black Hawk Drive, Lake Ozark, MO 65049.

Q **PLEASE STATE YOUR QUALIFICATIONS AND EXPERIENCE.**

A I have been working in the utility industry since my discharge from the US Air Force in 1973 and working as a consultant since 1981. During these years I have worked on many diverse projects including rates; contract negotiation, regulated and unregulated; class cost of service; and many policy issues, ranging from generation capacity planning to cost recovery to competition and industry restructuring. I have been technical advisor in the negotiation of power contracts, regulated and unregulated, amounting to over $1 billion in each category. I have testified as an expert witness in 14 states including Missouri. Additional information is in Schedule 1.

Q **ON WHOSE BEHALF ARE YOU APPEARING?**

A I am appearing on behalf of AG PROCESSING INC A COOPERATIVE ("AGP"). AGP is a steam customer of KCP&L, Greater Missouri Operations Company (GMO) in the St. Joseph District.

INTRODUCTION

Q **PLEASE PROVIDE AN INTRODUCTION TO YOUR TESTIMONY.**

A My testimony will present AGP's technical perspective on the instant complaint.

The Aquila steam system is located near downtown St. Joseph and serves only six customers. Thus, on any given matter Aquila has the ability to communicate with its entire customer base. During 2006 and 2007, Aquila's steam service to AGP was about two thirds of the total provided to customers.

Aquila makes steam at its Lake Road Plant where it also makes electricity. Steam is produced predominantly from a coal-fired boiler. Since the load exceeds the capacity of the coal-fired boiler, natural gas is also used as a fuel. Being higher in cost, natural gas is the swing fuel while coal provides the base load fuel for steam generation.

In February 2006, while the QCA was in final review by parties to the pending rate case, and just before approval of the QCA by the Commission, Aquila instituted a program of financial hedging for its natural gas supply. None of the physical gas supply arrangements were part of the program, and there was nothing in the program that would impact reliability of the fuel supply. While all physical supplies of natural gas would continue to be purchased in the same way, the hedge program would use financial instruments traded on NYMEX to adjust its gas cost. The design was to periodically buy futures contracts in a quantity equal to one third of the gas volumes and to periodically buy options contracts for another third.

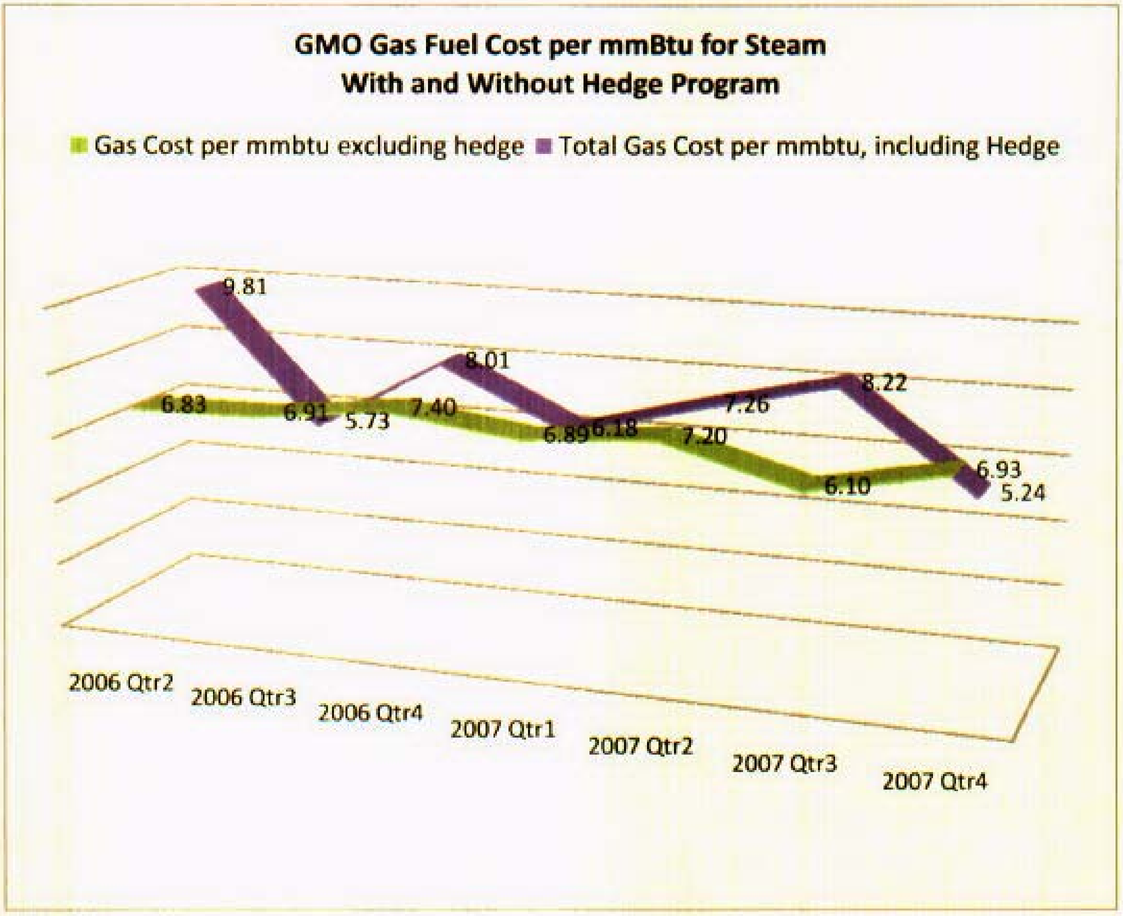
Each of the Aquila hedging contracts was tied to the gas prices for a particular future month. On February 16, 2006, Aquila entered into all of the hedging agreements to cover the remainder of 2006, April through December. They consisted of swap contracts for the futures component, call contracts and put contracts. There were no further purchases or trades for 2006 except to close out the contract positions at or about the time of expiration for each month. The 2007 hedge positions were entered over the months of February 2006 through October 2006.

The results of the program were to substantially increase fuel cost and rate volatility. Some cost is to be expected, but there was a fundamental flaw in the hedge program volumes that amplified the cost. The problem was manifest immediately in April 2006, the first month of the program, and continued through the remainder of 2006 and 2007.

I was the technical advisor to AGP during the 2005 negotiations that led to the stipulated quarterly fuel cost adjustment ("QCA") mechanism approved by the Commission in HR-2005-0450 on February 28, 2006. The mechanism became effective March 6, 2006. The QCA design substantially protects customers from the underlying volatility in fuel costs and protects Aquila from 80% of cost variations. The need for a hedging program that focuses on volatility mitigation was largely eliminated.

The purported intent of Aquila's hedge program was to reduce volatility, but in fact, it resulted in quite the opposite effect. The statistical standard deviation of the hedged quarterly gas costs during 2006 and 2007 was 1.61, approximately four times the standard deviation without the hedge program, which was .41. Chart 1 illustrates the effect graphically. The costs are substantially lower and less volatile without the hedge program.

Chart 1. Aquila/GMO Natural Gas Fuel Cost for Steam, per mmBtu



1 The chart illustrates that the natural gas hedge program substantially increased the cost level and the volatility in the cost of fuel for the steam system. The issue is whether or not the 2006 and 2007 costs of the Aquila hedge program were prudent and should be recovered from customers.

IMPRUDENCE

Q **RECOGNIZING THAT YOU ARE NOT AN ATTORNEY, DO YOU HAVE AN OPINION AS TO THE PRUDENCE, OR LACK THEREOF OF THE NET COST OF THE HEDGING PROGRAM?**

A Aquila was imprudent and the hedge costs are the direct result of the imprudence.

1. The QCA mechanism effectively mitigates the effects of fuel cost volatility and price spikes, by design and in practice. As such, the Aquila hedging program was not needed. It was imprudent to ignore the QCA and to instead incur the cost of a risky financial hedge program given the effective volatility mitigation of the QCA mechanism.

2. Aquila could have easily discussed a hedge program with all six of its customers before implementation and should have done so. Aquila's interests in a hedge program: volatility mitigation, price protection, and price stability, all could have been subjects for discussion. Aquila's pass on the opportunity for important customer input contributes to my opinion of imprudence.

3. Aquila adopted a hedge program design without considering the nature of its natural gas usage as a swing fuel. Part and parcel of this problem was Aquila's forecast of natural gas requirements that was very far from the mark (in many months usage forecasts were 2 and more times actual). These factors contribute to my opinion of imprudence.

4. Because of the design Aquila's hedge program, and because the forecast of natural gas usage requirements that was 2 or more times actual usage, the hedge program created volatility in fuel costs and price spikes. The effect of the program in some months was so extreme as to move prices up sharply in a down market. This contributes to my opinion of imprudence.

5. Aquila appears to have sold puts for speculative profit and that contributed to a hedge program induced spike in the October 2006 cost of natural gas. The sale of puts was counterproductive to the volatility mitigation purpose of the hedge program. Aquila's sale of puts contributes to my opinion of imprudence.

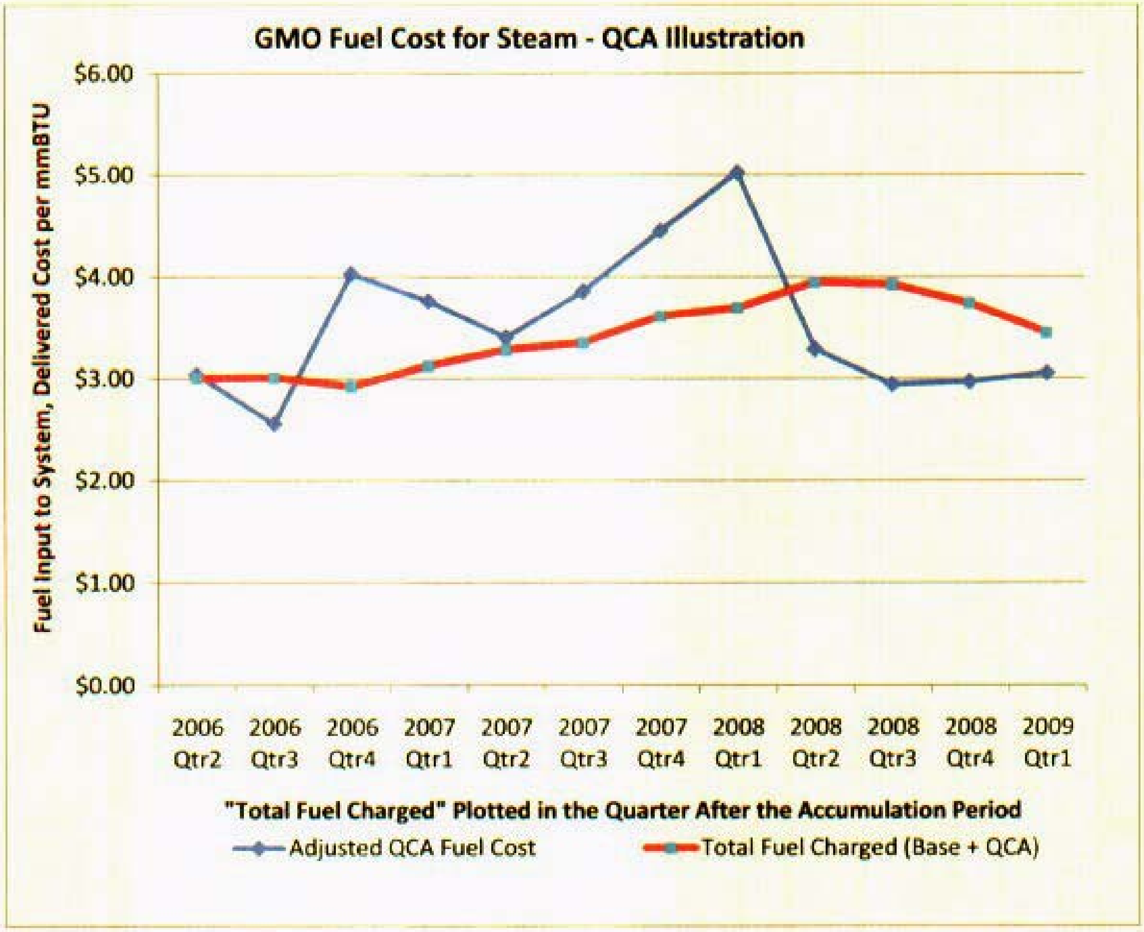
6. Aquila began the hedge program on February 16, 2006 by executing all of its hedge positions for the remainder of 2006 (April through December). 2007 hedge positions were executed over several months in 2006. The forecast natural gas usage requirements were immediately out of kilter with reality. These considerations contribute to my opinion of imprudence.

QCA AS A CONSIDERATION IN THE DESIGN OF A HEDGE PROGRAM

Q UNDER THE QCA IS THE EFFECT OF ANY INCREASE, ANY DECREASE OR ANY SPIKE IN GAS PRICES MUTED FOR BOTH AQUILA AND CUSTOMERS?

A Yes. For Aquila 80% of cost variations are passed to customers, subject to prudence review and refund, without the need for a rate case. For customers, the QCA operates to mitigate volatility in fuel cost and to reduce retail price spikes.

Chart 2. QCA Illustration



Quarterly fuel cost variations are collected from customers over the following twelve-month periods. The effect is to increase retail prices gradually in a period of increasing prices, reduce prices gradually in a period of decreasing prices, and to average the ups and downs if fuel prices move up and down from quarter to quarter.

Chart 2 illustrates the effect of the QCA. While fuel prices and costs have gone up and down from quarter to quarter (the blue line with diamond markers), the fuel cost in rates moved much more gradually (the red line with square markers). The point is that the QCA, because of its design, mitigates the underlying volatility in the costs. At the same time, 80% pass-through of costs protects Aquila substantially as compared to base rates and no QCA.

Q IS IT ACCIDENT OR COINCIDENCE THAT THE QCA APPEARS TO HAVE MITIGATED VOLATILITY IN THE COST OF FUELS?

A No, that was the intended effect. Chart 2 illustrates the combined effect of several facets of the QCA which I will discuss in the following paragraphs. These include the 75% short-term mitigation of fuel cost variations due to use of an extended recovery period; the 80% tracking/20% base rate approach to recovery, and coal performance standards.

Q PLEASE EXPLAIN THE OPERATION OF THE EXTENDED RECOVERY PERIODS AND THE 80% TRACKING FEATURE AS DESIGN ELEMENTS OF THE QCA.

A The variation between the tracked fuel costs and the amount that is in base rates is totaled each calendar quarter. Each quarter is thus an "accumulation period" under the QCA. After adjustments as necessary to reflect minimum coal system performance, the quarterly variation to be collected from customers is collected over the following 12-month period. As such, the price to customers is adjusted by a rate change that is reduced to roughly one fourth of the quarterly impact. After application of the 80% tracking provision, roughly 20% of the increase or decrease in the underlying fuel prices goes into effect with each rate change, subject to refund and subject to prudence review. The effect is more stable prices for the steam system customers while at the same time providing 80% tracking for the benefit of Aquila.

Q PLEASE EXPLAIN WHY THE QCA INCLUDES A COAL PERFORMANCE STANDARD.

A Aquila was concerned with its ability to timely recover fuel costs as prices increased. Their interest in the mechanism was at least in part tied to their belief that increasing prices would make it difficult to maintain earnings. Thus the problem from their perspective was primarily increases in the price of fuels. However, AGP was concerned with the ability of the coal-fired boiler used for steam service to maintain its performance level. The operation of the coal boiler was important to economics and to the reliability of service. The AGP concern was that without a coal performance standard the financial impact of subpar coal plant performance would have been transferred from Aquila to its customers, absent a finding of imprudence. The ongoing financial incentive to achieve at least a standard performance level could have been more or less wiped out.

A solution was found in a mechanism that provides more timely rate increases for increases in fuel cost caused by increased fuel prices, while at the same time ensuring that Aquila would continue to bear the responsibility for maintaining adequate performance of the coal boiler with its lower fuel cost and reliability implications. In other words, in the context of a fuel adjustment mechanism, customers would not be subject to an increase in fuel cost that was caused by poor operation of the coal-fired steam boiler and the much higher cost of gas-fired steam used in its stead. Since one of the primary concerns was with increases in fuel prices, the parties developed and mutually agreed to the "Coal Performance Standard" as a mechanism to the satisfactorily address the concerns of both parties.

Q PLEASE EXPLAIN HOW THE COAL PERFORMANCE STANDARD WAS DESIGNED.

A The coal performance standard was designed to reflect the minimum levels of coal-fired generation on a three-month, six-month, nine-month and twelve-month basis. The three-month standard is the easiest to meet. It recognized that in any three month period there might be random outages that would reduce the output of the coal fired steam generator. However, one should not expect continuous low production quarter after quarter. Therefore the standards anticipated increasingly higher average levels of generation over the longer six, nine, and twelve-month time periods - simply because the effect of any short term outage would diminish with the additional time. The twelve-month performance standard reflected the highest average level of production.

The effect for the QCA was to assume and ensure reasonable levels of coal production so customers would not pay the higher cost of gas simply due to any extended outages of the coal boiler. Of course, Aquila could always file a rate case, just as though there was no QCA, so they would never be worse off because of the coal performance standard. They could only be better off.

The effect of the coal performance standard is to ensure that Aquila continued to share the financial and reliability interests of customers in good performance of the coal-fired boiler.

Q **DID THE COAL PERFORMANCE STANDARD AT ANY TIME LIMIT THE FUEL COSTS CHARGED TO CUSTOMERS?**

A Yes. During 2006 and 2007 Aquila's coal-fired boiler used for steam service frequently did not meet the performance standards of the QCA. As a consequence, coal generation was imputed up to the minimum of the performance standard. This protected customers from higher fuel costs that were incurred because of substandard coal performance while Aquila continued to be protected from cost increases due to fuel prices.

Q **IS THE MATTER OF THE COAL PERFORMANCE STANDARD RELATED TO THE MATTER OF HEDGING THAT IS AT ISSUE IN THE INSTANT COMPLAINT PROCEEDING?**

A Yes, the coal performance standard, in conjunction with the extended recovery periods operates to limit increases in the QCA price charged to customers.

Q **TO WHAT EXTENT DID THE COAL PERFORMANCE STANDARD LIMIT THE AMOUNT OF FUEL COSTS COLLECTED FROM CUSTOMERS?**

A Aquila was not compensated through QCA charges for the additional cost of fuel above what it would have spent for coal and natural gas assuming at least the minimum agreed performance level. While it is true that due to the standard less than 100% of fuel costs passed through the QCA to customers, it is also true that none of the higher cost occasioned by substandard performance would have passed through if base rate regulation without the QCA had continued. Thus, the QCA mechanism was helpful to Aquila, but simply not to the extent of providing recovery of the additional costs due to substandard performance. On the other hand, the coal performance standard did operate to limit volatility in steam prices for customers.

Q ARE THERE ANY OTHER REASONS WHY THE QCA SHOULD HAVE BEEN CONSIDERED BEFORE EMBARKING ON A HEDGE PROGRAM?

A Yes. Hedge programs are not free. They have costs and risks. Of course, the risk, and in turn the costs, of the Aquila hedge program are the subject of this complaint docket. Hence, the QCA is important. To the extent that fuel cost volatility is addressed by the QCA, it is not necessary to incur the risks and costs of a hedge program for the same purpose. Of course there are traders and investors and speculators that would have different reasons for participating in the futures and options markets for natural gas. Their reasons ought not to be a consideration for the utility business of Aquila.

Q DID AQUILA RECOGNIZE THE VALUE OF THE QCA AS A MECHANISM THAT WOULD EFFECT THE NEED FOR HEDGING?

A No. Unfortunately, Aquila proceeded as though the QCA mechanism did not exist. There is an email authored by Mr. Williams, then director of regulatory affairs, advising others in the company to proceed as though there were no QCA (see Schedule 2, second highlighted paragraph). That was fundamentally bad advice. But that was far from the only problem. The potential for a bad result was compounded by a lack of analysis of the situation prior to the design and implementation of the hedging program.

<u>DESIGN OF A HEDGE PROGRAM</u>

Q HOW SHOULD ONE GO ABOUT DESIGNING A HEDGE PROGRAM?

A The place to start is with a definition of the problem and the purposes to be achieved. At the most basic level the purpose of the Aquila program was to mitigate volatility in the price of natural gas. Aquila intended to create a program in which it would pay less than the market price if the market moved up, and more than the market price if the market moved down. The primary intent appears to have been protection from the possibility future increases in market prices.

Another typical goal is to avoid the high cost that would accompany an extraordinary short-term movement that could be characterized as a spike in market prices. On the other hand, it is always desirable to participate in lower prices if the market falls.

In order to implement the hedge program it is necessary to define the quantity of gas needed and it is necessary to devise a hedging strategy. The hedging strategy and an accurate forecast of the gas quantities to be hedged are both of fundamental importance.

As previously discussed, in Aquila's situation there was also the need to consider the QCA. It mitigated the impact of fuel price volatility and any price spikes by its design. In fact, the QCA provided for the accounting treatment of hedging costs and benefits, subject to refund and prudence determination, so the QCA had to be a consideration, but more important for program design purposes would have been the QCA's inherent mitigation of the effects of fuel price volatility.

Q **WHAT ARE THE IMPORTANT ASPECTS OF A HEDGING PROGRAM FOR AQUILA?**

A One aspect is the combination of futures and options to be used in the program. I will refer to this as the contract structure. Second is a determination of the volumes appropriate for hedging program. The third is the QCA.

The contract structure must be in consideration of the relative certainty, or uncertainty in future gas volume and the goal or purpose of the hedge. It also needs to be developed in consideration of the volatility mitigating effect of the QCA. By all appearances (in consideration of discovery responses provided) there was no consideration given to the uncertainty in volumes or any consideration of the QCA.

Instead of giving due consideration to the full range of information, Aquila adopted a model for contract structure it had used at in its electric business. The Aquila contract structure was to cover one third of the cost of the physical gas volumes with futures and another third with options. This would leave one third of the cost of the physical gas uncovered by the hedge program, assuming the volumes were as forecast (volumes did not come close to forecast). All of the physical gas continued to be purchased in the same way as before the hedge program at market prices. There was no assurance of any particular market price for the physical supplies and there was no assurance that any particular volume of gas supply would be needed. Purchases of physical gas supplies were regularly monitored and adjusted to fit demand.

Q **PLEASE EXPLAIN HOW THE PORTION OF VOLUMES THAT WAS TO BE COVERED WITH FUTURES CONTRACTS WERE HANDLED.**

A On February 16, 2006 Aquila entered into swap contracts for one third of its forecast volumes for the months of April 2006 through December 2006. The swap contracts for 2007 were also entered in 2006, but the purchases were spread over 9 months. Approximately 25% were placed in February, 25% in March and April, 25% in May and June, and the last 25% was placed in July through October.

Q **PLEASE EXPLAIN WHAT WAS DONE WITH THE PORTION OF THE VOLUMES THAT WERE TO BE COVERED WITH OPTIONS.**

A The timing of the transactions was essentially even with the timing for the swap contracts. Aquila bought call options on February 16, 2006 to cover one third of its forecast of monthly gas volumes for 2006 through December 2006. Call options for one third of the 2007 monthly volumes were entered over the nine-month period from February 2006 through October 2006.

Q **PLEASE BRIEFLY EXPLAIN A CALL OPTION.**

A A call option provides the purchaser, Aquila in this case, with the option to purchase gas in a future month at a price referred to as the strike price. A call option can be used to protect against a rising price, and that was Aquila's use of the call options in the hedging program. Of course, there is a price that must be paid. It is the premium and that is a cost to the hedge program. While it is possible to trade in these contracts, Aquila held all that they purchased until at or near expiration.

Q **DID AQUILA TAKE ANY OTHER POSITIONS IN OPTIONS?**

A Yes. It also took positions in put options.

Q **PLEASE BRIEFLY EXPLAIN A PUT OPTION.**

A A put option provides the purchaser with the option to sell gas in a future month at a price again referred to as the strike price. As an example, one could use a put in combination with a futures contract to provide a way to participate if market prices were to fall. Let me explain: the futures contract would lock in a price and thereby protect against rising prices. With the addition of a put, the option to sell, there would be an opportunity for participation in any in falling prices after they reached the strike price of the put.

Of course for every option contract that is purchased there is a counterparty that is selling the option. Aquila chose to sell put options.

Q WHY WOULD AQUILA SELL OR BUY A PUT?

A Both alternatives were available. If Aquila had purchased puts in combination with its swap position, it would have been buying protection in a falling market. If Aquila instead sold puts, it would have been gaining the premium revenue from the sales and providing protection in a falling market to the counterparty. Aquila chose the latter. Instead of purchasing protection it sold protection. In effect, they chose risk for Aquila and customers instead of protection for Aquila and customers.

The protection would not be not needed by the counterparty so long as the market did not fall below the strike price. Apparently Aquila was sufficiently confident that the markets would not fall to the strike prices that it felt the premiums would more than compensate for the risk. In any event, as consideration for the premiums received, Aquila sold price protection to others instead of buying protection for its account.

The volumes sold were equal to one third of the forecast volumes. However, since the positions were essentially speculative, they do not fit into the category of options intended to provide price protection.

FORECAST OF GAS VOLUME AS A HEDGE DESIGN CONSIDERATION

Q IS THE VOLUME OF FUTURES AND OPTIONS CONTRACTS PURCHASED IMPORTANT AS COMPARED TO PHYSICAL VOLUMES?

A Yes. The Aquila contract structure, like that of any hedge program, necessarily depends on the volumes of gas purchased if it is to work as intended. If volumes are higher than anticipated the effectiveness of the program is diminished. If volumes go down a little the impact of the program is amplified.

Q **PLEASE PROVIDE AN EXAMPLE OF THE IMPORTANCE OF VOLUMES BY FIRST ASSUMING A HEDGE VOLUME FOR A FUTURES CONTRACT THAT IS EQUAL TO THE PHYSICAL VOLUME.**

A If a futures contract for 10,000 mmBtu were the only element of a hedge program and the physical volume was also equal to 10,000 mmBtu, the hedge would lock in the price, assuming the price points for the future and the physical usage are one and the same. Of course, the decision to purchase a futures contract for this purpose is necessarily dependent on the quality of the forecast of physical volumes. It must be accurate. The intended fixed price will not be obtained if the physical volumes turn out to be higher or lower than the forecast.

Q **PLEASE PROVIDE AN EXAMPLE ASSUMING THE HEDGE VOLUME FOR THE FUTURE IS ONE THIRD OF THE PHYSICAL VOLUME**

A This example illustrates the intended effect of a hedge program with one third of volumes designated for futures. I will assume for illustration a hedge volume of 10,000 mmBtu and a forecast physical volume of 30,000 mmBtu. I will also assume a price of $9/mmBtu for the future contract and a market price when the contract expires of $12/mmBtu. The effect is to reduce the average cost from the $12 market level by $1 to $11 per mmBtu. Again the result is dependent on the physical volumes realized being equal to the forecast. However, given reasonable latitude, some limited variation in the physical volumes would not change the effect of the result radically.

Q **PLEASE PROVIDE AN EXAMPLE ASSUMING THE HEDGE VOLUME FOR THE FUTURE**

CONTRACT IS 2 TIMES THE PHYSICAL VOLUME.

A In this example I will assume for illustration the same futures contract and the same market price at expiration. The hedge volume of 10,000 mmBtu would exceed the physical volume by 5,000 mmBtu. When the hedge contract is liquidated at the $12 market price it produces a profit of $30,000 (10,000 times ($12 - $9)). The financial gain is used to offset the $60,000 cost of the physical purchase (5,000 mmBtu times $12). Consequently, the net cost for the physical gas falls to $30,000 with the benefit of the $30,000 credit generated by the futures contract. Of course, a net cost of $30,000 for 5,000 mmBtu results in an average cost for the 5,000 mmBtu physically used of only $6.

Q **IS A $6 NET COST IN THE CONTEXT OF A $12 MARKET PRICE A TERRIFIC DEAL?**

A Yes and no. Obviously a $6 net cost in a $12 market, if it was a predictable and repeatable result, would be excellent. However, as a practical matter it would come along with a very large risk of a different outcome. An important consideration in hedging for twice the physical volumes, is that it also has extreme results when the market moves the other direction.

Q **PLEASE EXPLAIN THE EFFECT OF A DOWNWARD MOVING MARKET.**

A I will change the example to assume that the market had moved down by $3, from $9 to $6, instead of up from $9 to $12. This would lead to a $30,000 cost due to the futures contract (10,000 times ($6 - $9)) instead of the $30,000 benefit. At the same time, the cost of the physical gas would fall to $30,000 at a $6 market (5,000 times $6). The sum of the cost of the physical and the future would be $60,000. Instead of paying the $6 market price for the physical requirement of 5,000 mmBtu, the net cost per mmBtu, including the effect of the future contract, would rise to $12, twice the market price.

Q PLEASE SUMMARIZE THE POINT ABOUT VOLUMES.

A If the hedge volume could be made equal to the physical quantity needed, with certainty and at the same price location, the net price of gas could be locked in, regardless of the market price level. If the hedge volume is less than the physical volumes, the change in market price will be mitigated - to a greater or lesser extent, depending on the amount hedged in comparison to physical gas consumed. However, if the hedge volume is greater than the physical volume, the effect of the hedge will be extreme. It will not mitigate volatility in the market price, but instead produce a price change opposite in direction to the change in of the market.

Q IF PHYSICAL VOLUMES ARE LESS THAN THE VOLUMES OF THE FUTURES CONTRACT(S), WILL THE NET COST OF GAS GO UP IN A DOWN MARKET AND DOWN IN AN UP MARKET?

A Yes. It is a simple example, and a very important point. If the volume on a futures contract exceeds the underlying volume of the physical gas being consumed, a very risky situation is created. The results will be very volatile and potentially very beneficial or very costly.

Q WOULD YOU EXPECT THAT A UTILITY FUEL COST HEDGING PROGRAM EVER WOULD WANT TO FIND ITSELF WITH THIS KIND OF A RESULT?

A No. It would be very risky and counterproductive to the goals of a program intended to limit volatility. In effect it would be akin to speculation that I would not expect such an approach to be condoned by a commission.

Q **HOW DOES THE POINT YOU MAKE ABOUT VOLUMES EFFECT THE DESIGN OF A HEDGE PROGRAM?**

A The ability to achieve the desired goal with a hedge program is very much dependent on the volumes. If the volumes are varying, there must be a plan to accommodate the uncertainty. Otherwise, the program is very risky and unintended consequences are a likely result.

Q **IN THE CASE OF THE AQUILA HEDGE PROGRAM, WERE THE VOLUMES AN IMPORTANT CONSIDERATION?**

A Yes. Volumes were uncertain due to the uncertain demands of new loads and due to the role of natural gas as a swing fuel. Absent an accommodation of that reality, the program was very risky and intended results were unlikely to be obtained. This will be discussed later in this testimony.

RESULTS OF THE HEDGE PROGRAM

Q CAN YOU SUMMARIZE WHAT HAPPENED WITH THE AQUILA HEDGE PROGRAM?

A The design volumes were very wrong. While there are separate questions about any need for a hedge program and questions about the strategy selected in consideration of the circumstances, the error in the design volumes produced effects that were surely unintended. Since market prices in 2006 and 2007 trended down as compared to the hedge positions, the effect was to increase costs substantially. Had prices gone up substantially there could have been windfall benefits instead of the extraordinary costs, but they did not. The intent of the program should not have been windfall benefits or costs. Such a program would be completely inappropriate for the steam system of Aquila. Yet, this risky hedge program that would potentially produce windfall costs or windfall profits was the unilaterally designed and implemented product of Aquila.

Q CAN YOU DESCRIBE THE RESULTS OF AQUILA'S HEDGE PROGRAM DURING THE PERIOD OF THIS COMPLAINT?

A Yes. I will begin with discussions of April 2006 and October 2006. The perverse effects of the error in design volumes were immediately apparent in the results of April, the first month. Over the 21 months of the program the same perverse effects arose repeatedly. Only the degree of perversity varied from month to month. October 2006 was one of the worst.

Q WHAT HAPPENED IN OCTOBER 2006?

October 2006 should have been a good month for fuel cost. The cost of the physical gas supply, before hedge program impact, was $4.62 per mmBtu. Unfortunately, while market prices came down to $4.62, the gas cost for the month in the QCA, including the hedge program, was $12.76.

The October 2006 result is so extremely bad that at first blush it is hard to comprehend, but the hedge program was hurt severely by several aspects of the Aquila design. First the physical volume was only 25% of the design volumes. Second, the futures component, at 80,000 mmBtu was by itself 35% larger than the physical volume of 58,939 mmBtu, so losses on that piece of the hedge were amplified (along the lines of the example discussed earlier). Third, Aquila had sold puts for October with a $6 strike price. This meant Aquila was providing price protection for a counter party at $6. In effect, Aquila had 160,000 mmBtu in costly hedge positions and the cost was spread over only the 58,939 mmBtu physically used to produce steam.

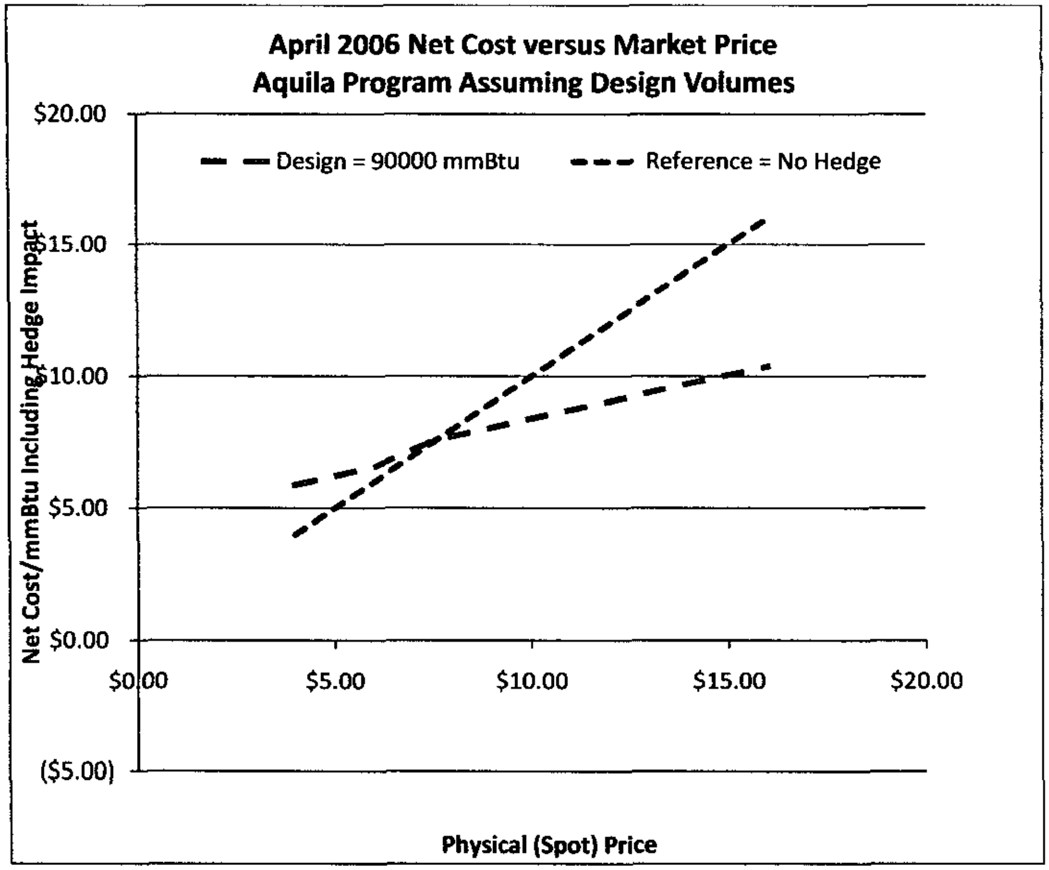
Q **TURNING NOW TO APRIL 2006, HOW MANY CONTRACTS HAD BEEN PURCHASED ON FEBRUARY 16 FOR APRIL DELIVERY?**

A Aquila purchased 30,000 mmBtu in futures, 30,000 mmBtu in call options, and sold short 30,000 mmBtu in puts. The design gas demand was 90,000 mmBtu.

Q **PLEASE EXPLAIN THE IMPACT ON THE COST OF NATURAL GAS PURSUANT TO THE QCA.**

A Absent any further trading activity, the impact of the options is set once the transactions are entered. There was no further trading so I created a chart to illustrate the effect of the February 16 purchases for April. For the purpose of illustration I ignored considerations such as any basis difference and the difference between actual prices during April vis-à-vis the closing price of the futures and options contract in late March. Basis is itself an important consideration that I have set aside for the present purposes. These simplifying assumptions will not impede the understanding that is conveyed by the chart.

Chart 3. Aquila Hedge Position Illustration for April 2006.



The diagonal "Reference - No Hedge" line simply illustrates that, absent any hedge positions, the net price paid would be the physical price without adjustment. The second line illustrates the design effect of the Aquila's hedges, assuming that 90,000 mmBtu of physical gas would be purchased in the first month of the program.

The hedge positions would provide a credit to lower the net gas cost at prices above $7.28, the price of the futures contracts. Above $7.50, the strike price of the call options, the credit amount would increase. If the physical price for April would have risen to $12.00, the hedge program would have reduced the net cost to $9.06

due to the credits generated by the futures and the call options.

On the other side of the impact, the futures contracts would raise the net cost at prices below $7.28. Below $6, the strike price of the puts, the hedge positions would raise the net cost more rapidly due to the combined additional costs of the futures and the puts.

To illustrate the effects, a first step is valuation of the futures contracts. If the market price fell $1 to $6.28 there would be a hedge cost of $30,000 (for the 30,000 mmBtu of futures times the $1 differential). At a $5.00 market price there would be a $68,400 cost (the same 30,000 mmBtu times $2.28). At $5.00 there would also be a hedge cost due to the puts that Aquila sold. The effect would be $30,000 (the 30,000 mmBtu of puts times the $1 spread between the $6 strike price of the puts and the $5 market price). In addition to the these valuations calculated at the close of the contracts, there would be the initial costs of the premiums paid for the call options and the initial revenues received for the put premiums. Aquila paid $14,100 for the April call options and was paid $2,100 for the put options.

Q DID THE VOLUMES COME IN AT 90,000 MMBTU ACCORDING TO THE HEDGE PROGRAM PLAN?

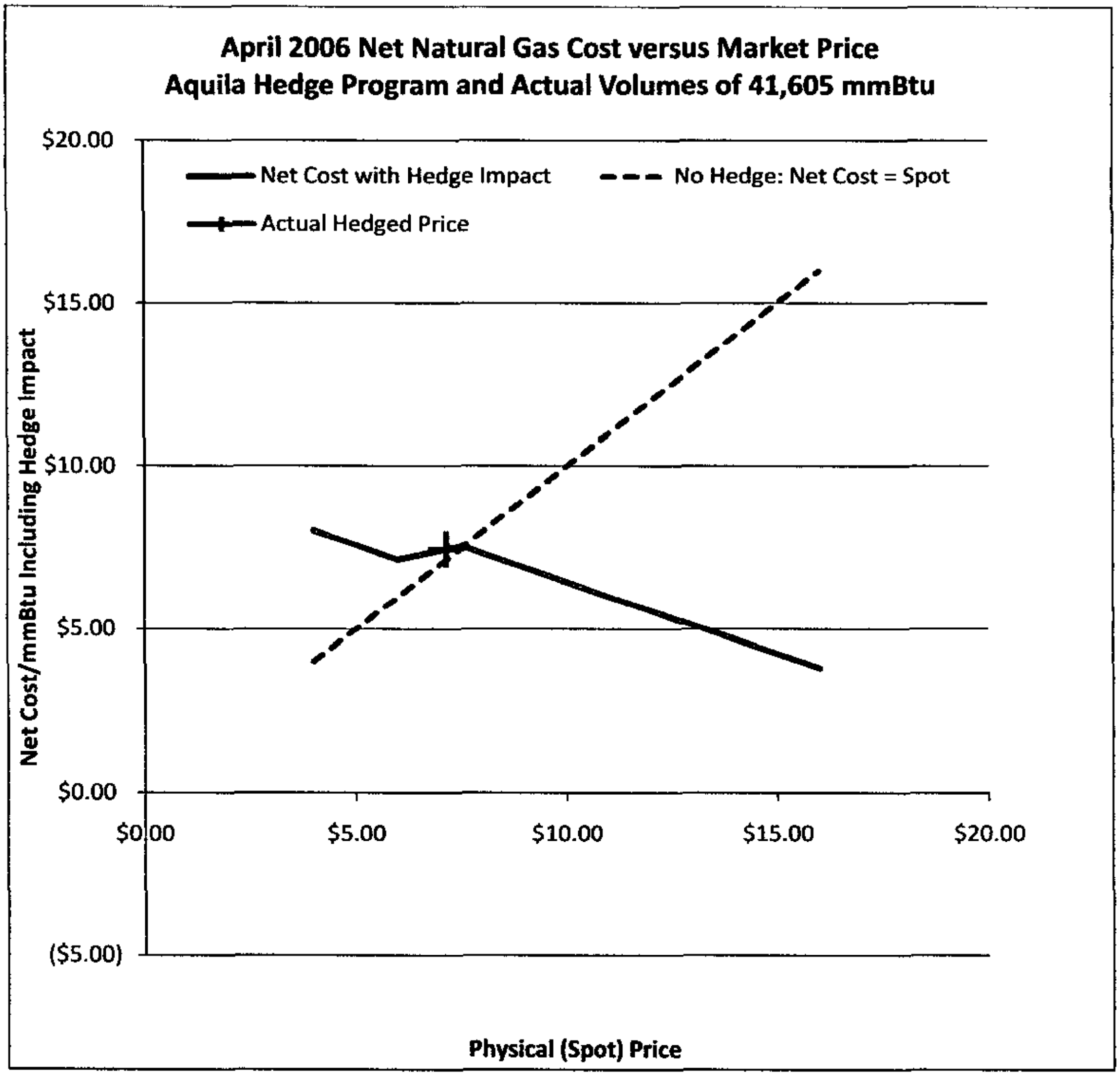
A No. <u>Already in the first month</u> there was a severe problem with the volumes. Actual gas used by the steam system was 41,605 mmBtu, <u>less than one-half of the plan</u>.

Q WHAT IS THE IMPACT OF VOLUMES THAT ARE SO MUCH LOWER THAN THE PLAN?

A The impact on the price response of the hedge is large. With 30,000 mmBtu in the swap and 30,000 mmBtu in the call option the price protection exceeded the gas used. Aquila's net cost of gas would go down as gas prices went up above the $7.50

strike price of the call option. Conversely, with the same swap at $7.93 and 30,000 mmBtu in the puts, Aquila's net cost of gas would go up, not down at prices levels below the strike price of the puts, $6. The result is an inverted price curve.

Chart 4. Impact of April 2006 Hedge Positions at Actual Physical Volume



Q WHAT IS THE INTERPRETATION OF CHART 4?

A The impact, although potentially extreme, was not extreme because the market prices had not moved much since February 16. However, the riskiness of the program is apparent. At price levels above the call option price of $7.50, the net cost of gas would go down instead of up. Below the put strike price of $6.00 the net cost of gas would up instead of down. These more extreme results were avoided only because the market price fell with the $1.50 range between the call and put strike prices.

Q **DOES CHART 4 PROVIDE ANY INFORMATION ABOUT THE EFFECTIVENESS OF THE AQUILA HEDGE PROGRAM?**

A Yes. The Aquila hedge program was immediately out of kilter because Aquila hedged excessive volumes. Absent an immediate change in volumes of gas being consumed, there is no way such a program could be construed to be appropriate for the intended purpose, even ignoring the consideration of the QCA that inherently reduced volatility.

Q **WHAT WOULD HAVE BEEN THE EFFECT OF HIGHER OR LOWER MARKET PRICES IN APRIL?**

A Yes. At a physical (spot market) price of $5.00, the effect of the hedge program would have been to increase the price to $9.01 instead of the $6.32 that would have been the result if design volumes had materialized. At the other extreme, at a physical (spot market) price of $12.00, the effect of the hedge program would have been to reduce the price to just $3.38 instead of the $9.16 that would have been the result if design volumes had materialized.

Q **ARE YOU SUGGESTING THAT EITHER A $5 OR A $12 MARKET PRICE WAS LIKELY FOR APRIL?**

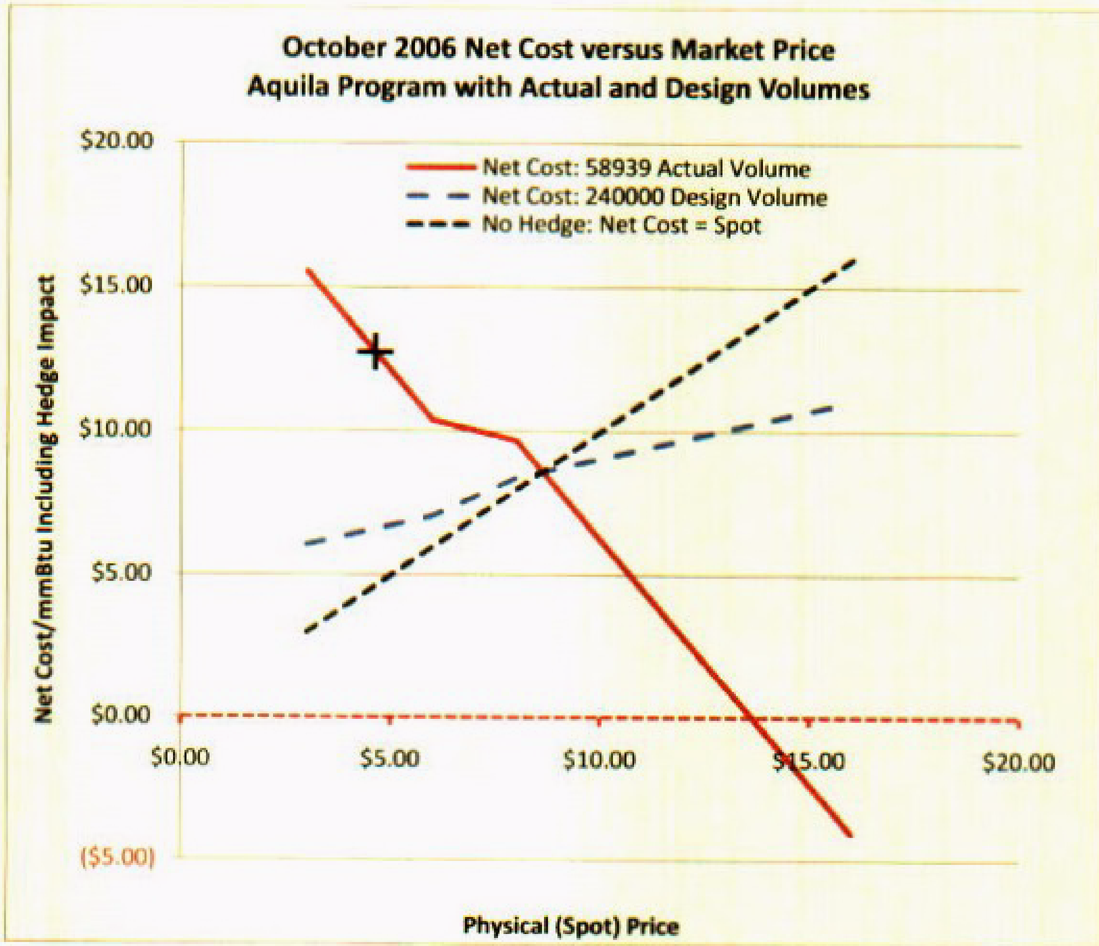
A No.

Q **THEN WHAT IS THE POINT?**

A The analysis illustrates that in the first month of the hedge program the price risk was amplified, not mitigated. Over the extended time period of the hedge program, large price shifts were considered to be a potential. Indeed, that was the source of perceived need for the hedge program. However, immediately with the results of the first month the intended operation was far from the mark. The inverted price effect amounts to a red flag signaling trouble for the program.

Q CAN YOU ILLUSTRATE GRAPHICALLY WHAT HAPPENED WITH THE HEDGE PROGRAM IN OCTOBER 2006?

Chart 5. October 2006 Hedge Analysis



A Chart 5 reveals the reality of an inverted price response throughout the range of prices. While a $14.00 gas price was not likely, if it had occurred the gas cost for the month, all else equal, would have been negative. The windfall would have been welcomed, but instead the market price came in at the other end of the spectrum. If market prices had fallen further it would have been even costlier.

Q BASED ON THE RESULTS FOR OCTOBER IS THE AQUILA HEDGE PROGRAM ONE THAT IS APPROPRIATE FOR THE STEAM SYSTEM?

No. Perhaps the most important point is the graphic illustration of the degree to which the hedge program was dysfunctional for the purpose of mitigating volatility. it created volatility. It did not mitigate volatility.

SALES FORECAST AND GAS REQUIREMENTS FORECAST

Q DID AQUILA HAVE A PROJECTION OF ITS GAS NEEDS APPROPRIATE FOR THE PURPOSE OF THE HEDGING PROGRAM?

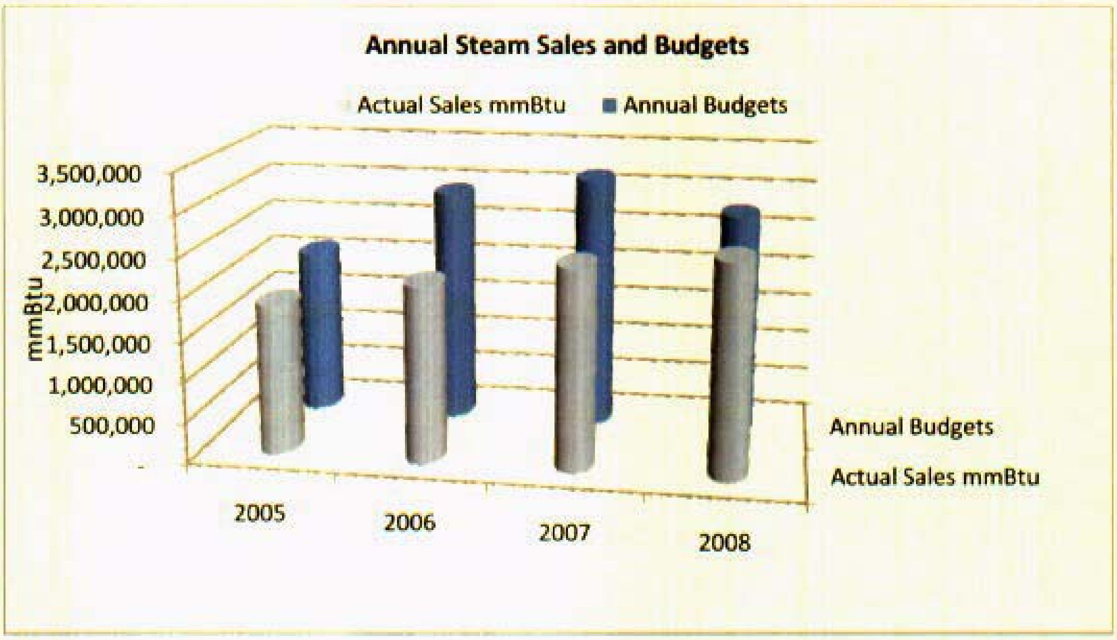
A No. It is apparent that they did not. At the time the projected volumes were changing substantially because of load growth. The projections were also uncertain because gas is the swing fuel, not the base load fuel. As a consequence of gas being a swing fuel, a small change in load would result in a relatively larger impact on gas usage. It follows that a substantial change in load would have a very large impact. Triumph came on line as a new customer and there were other expansions. Load grew by 16% in 2006 and 14% in 2007. At the same time gas used by Aquila to make steam in 2007 increased by 91%. However, even with a 91% increase, Aquila's gas usage in 2007 was only 50% of the budgeted level.

Sales were less than Aquila's forecast, and, by extension, Aquila's forecast of gas volumes that had been amplified because of the use of gas as the swing fuel, took a huge hit. In April and May, 2006, the first two months for hedge program results, natural gas usage was only 37% of the volume used in the design of the hedge program. In 2007 actual usage was 50% of the design level. The fact that the forecast took a "huge hit" is important because, in turn, the hedge program volumes were excessive and produced an unintended amplifying effect on hedge results, as illustrated in the charts above.

Q HOW DID THE SYSTEM LOADS COMPARE TO FORECASTS?

A The forecasts were higher than the result. Forecasts called for a 41% increase in 2006 and an 8% increase in 2007 (compared to the 2006 forecast). Chart 6 illustrates the difference.

Chart 6. Annual Load and Forecasts/Budget



Q IS THE VARIATION BETWEEN FORECAST AND ACTUAL LOADS IMPORTANT?

A Yes. The higher load forecasts indicated gas would be needed. While true, the reality of system gas needs was not near the forecast levels. Since volumes are important to the hedging program, it follows that the potential and the reality of the variation from the sales forecast were important if there was to be a hedging program.

Q HOW SHOULD UNCERTAIN GAS VOLUMES IMPACT THE DESIGN OF THE HEDGING

PROGRAM?

A Uncertainty in volumes must be considered. If not, the hedge program is unlikely to provide the intended risk mitigation. Certainly in the face of extraordinary changes in the gas requirements, the uncertainty had to be a consideration. However, I have seen no indication that the uncertainty was considered at all. Apparently the forecast of natural gas requirements was handed off to the procurement department where it was accepted for use without an understanding of the inherent uncertainty. The creation of the stand alone hedge program conferred importance to the forecast and the inherent uncertainty that was not addressed.

MISSING ANALYSES AND CONSIDERATIONS

Q WHAT ANALYSES SHOULD HAVE BEEN DONE?

A Before embarking on a hedge program it is important to define the problem to be addressed and the objective of the hedge program. In depositions taken for this case KCP&L employees Blunk and Gottsch made statements to this effect. Likewise the importance of defining the problem and the objective was recognized by Mr. Somerer of the Commission Staff as well. Similarly, the importance of volumes is universally acknowledged.

Once done, the next task would be to develop and analyze alternative hedging approaches and their effects under alternative market conditions.

Q DID AQUILA DO ANY OF THIS?

A While AGP has worked diligently to discover what was done, I have found no indication of any work to define of the problem to be solved, no stated purpose before the design of the program, and no analysis of potential alternative solutions. Instead, by all appearances, Aquila arbitrarily and unilaterally adopted a variation of a hedging program it had used in its LDC and electric businesses.

Q WAS MR. GOTTSCH ABLE TO SHED LIGHT, SINCE HE WAS THE DESIGNATED COMPANY EXPERT FOR THE DEPOSITION?

A Mr. Gottsch I am sure provided what he knew, but he was apparently not the person that designed the program and was unable to definitively answer questions on the point. He identifies low fuel cost as an objective, and management concern with exposure to continuing increases in the gas market. If his understanding is correct, this may explain to some degree the high costs in a falling market. For example, the speculative sale of puts would have been consistent with a belief that the market would not be falling as it did.

Q DID AQUILA SOLICIT ANY COMMENT OR INPUT FROM OUTSIDE OF THE COMPANY?

A Based on information I have seen, it appears not. There is no indication of any consultation with anyone, including customers, Staff, or the Commission. Thus, there was no opportunity for review or comment, and no opportunity for approval or disapproval, by anyone outside of the Company. That is why I earlier characterized the program as unilaterally designed and implemented by Aquila.

Q DID AGP SEEK TO SUSPEND THE PROGRAM?

A AGP asked Aquila to suspend the program in October, 2007 and Aquila did so.

Q WHAT CONCLUSION HAVE YOU REACHED AS TO THE ACTIONS OF AQUILA IN REGARD TO THE HEDGING PROGRAM?

A My conclusion is one of imprudence, as set forth in more detail in the Imprudence section at page five above.

Q **DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?**

A Yes it does.

Qualifications of Donald E. Johnstone

Q PLEASE STATE YOUR NAME AND ADDRESS.

A Donald E. Johnstone. My address is 384 Black Hawk Drive, Lake Ozark, MO 65049.

Q PLEASE STATE YOUR OCCUPATION.

A I am President of Competitive Energy Dynamics, L.L.C. and a consultant in the field of public utility regulation.

Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A In 1968, I received a Bachelor of Science Degree in Electrical Engineering from the University of Missouri at Rolla. After graduation, I worked in the customer engineering division of a computer manufacturer. From 1969 to 1973, I was an officer in the Air Force, where most of my work was related to the Aircraft Structural Integrity Program in the areas of economic cost analysis, data base design and data processing. Also in 1973, I received a Master of Business Administration Degree from Oklahoma City University.

From 1973 through 1981, I was employed by a large Midwestern utility and worked in the Power Operations and Corporate Planning Functions. While in the Power Operations Function, I had assignments relating to the peak demand and net output forecasts and load behavior studies which included such factors as weather, conservation and seasonality. I also analyzed the cost of replacement energy associated with forced outages of generation facilities. In the Corporate Planning Function, my assignments included developmental work on a generation expansion planning program and work on the peak demand and sales forecasts. From 1977 through 1981, I was Supervisor of the Load Forecasting Group where my responsibilities included the Company's sales and peak demand forecasts and the weather normalization of sales.

In 1981, I began consulting, and in 2000, I created the firm Competitive Energy Dynamics, L.L.C. As a part of my thirty years of consulting practice, I have participated in the analysis of various electric, gas, water, and sewer utility matters, including the analysis and preparation of cost-of-service studies and rate analyses. In addition to general rate cases, I have participated in electric fuel and gas cost reviews and planning proceedings, policy proceedings, market price surveys, generation capacity evaluations, and assorted matters related to the restructuring of the electric and gas industries. I have also assisted companies seeking locations for new manufacturing facilities.

I have testified before the state regulatory commissions of Delaware, Hawaii, Illinois, Iowa, Kansas, Massachusetts, Missouri, Montana, New Hampshire, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia, and the Rate Commission of the Metropolitan St. Louis Sewer District.

Gottsch Gary

From:	Williams, Denny
Sent:	Wednesday, February 15, 2006 10:17 AM
To:	Gottsch Gary; Heidtbrink Scott
Cc:	Clemens, Gary; Lowsley, Tom; Korte, Andrew
Subject:	RE: St. Joe steam usage volumes

The sharing mechanism in the steam case provides for the flow through of hedge costs into the fuel sharing mechanism. Therefore, I believe that hedging of the anticipated gas volumes necessary to serve the steam load is prudent and that a policy similar to the one for electric volumes (1/3, 1/3, 1/3) if stated in advance in writing would be deemed prudent.

Just one note of clarification. The steam settlement has not been filed with the Commission yet pending some last minute Staff review. However, I do not think that impacts the prudence of our decision to hedge the gas volumes. We should follow whatever procedure we would normally take whether or not there is sharing mechanism.

From:	Gottsch, Gary
Sent:	Wednesday, February 15, 2006 10:07 AM
To:	Williams, Denny; Heidtbrink, Scott
Cc:	Clemens, Gary; Lowsley, Tom; Korte, Andrew
Subject:	FW: St. Joe steam usage volumes

I will draft a procedure for the Risk Management committee review. At this point we would envision a procedure similar to the plan already in place for Missouri Electric designed for budgeted volumes, using the 1/3, 1/3, 1/3 strategy. We are assuming that the procedure would be deemed prudent with respect to the rate stipulation's risk sharing design.

From:	Gottsch, Gary
Sent:	Wednesday, February 15, 2006 9:46 AM
To:	Heidtbrink, Scott; Korte, Andrew
Cc:	Lowsley, Tom
Subject:	St. Joe steam usage volumes

I have received from Tim Nelson a budget for steam usage volumes for St.Joe due to new and expanding existing customers. I have a breakdown by month for Nat Gas consumption for this purpose which amounts to around 1.5 BCF for '06, and around 2.4 BCF for '07 & '08 each. The discussion in the past is that we may want to incorporate these volumes into our Missouri Electric gas hedge plan. I) Is that still the case? 2) If so, when can I begin to implement? 3) Do we want to keep these volumes seperated or just fold them into the existing Missouri Electric Hedge plan? 4) Is the 1/3, 1/3, 1/3 approach still acceptable?

Gary Gottsch
Aquila Networks-Energy Resources
816-737-7825 work
816-896-9282 cell

BEFORE THE

PUBLIC SERVICE COMMISSION OF MISSOURI

Ag Processing, Inc., a Cooperative, Complainant, v. KCP&L, Greater Missouri Operations Company, Respondent	)))	HC-2010-0235

Affidavit of Donald E. Johnstone

State of Missouri	)	
	)	SS
County of Camden	)	

Donald E. Johnstone, being first duly sworn, on his oath states:

1. My name is Donald E. Johnstone. I am a consultant and President of Competitive Energy Dynamics, L. L. C. I reside at 384 Black Hawk Drive, Lake Ozark, MO 65049. I have been retained by AG PROCESSING INC, A COOPERATIVE.

2. Attached hereto and made a part hereof for all purposes are my testimony and schedules in written form for introduction into evidence in the above captioned proceeding.

3. I hereby swear and affirm that my testimony is true and correct and show the matters and things they purport to show.

Donald E. Johnstone

Subscribed and sworn to this 22nd day of September, 2010.

Notary Public

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

MALLORY STEINGRUBEY
My Commission Expires
July 22, 2012
Camden County
Commission #08604768

Competitive Energy
DYNAMICS