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Witness:	Donald E. Johnstone
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Case Number:	HC-2012-0259
Date Prepared:	June 1, 2012

Kansas City Power and Light
Greater Missouri Operations
Steam Business
HC-2012-0259

Direct Testimony of

Donald E. Johnstone

on behalf of the

AG PROCESSING INC, A COOPERATIVE

June 2012

Competitive Energy
DYNAMICS

BEFORE THE

PUBLIC SERVICE COMMISSION OF MISSOURI

Ag Processing, Inc., a Cooperative, Complainant,)
v. KCP&L,) HC-2012-0259
Greater Operations Company, Respondent)

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
Donald E. Johnstone

Subscribed and sworn to this 31 day of May, 2012

Crystal K Karl
Notary Public

NOTARY PUBLIC STATE OF MISSOURI NOTARY SEAL

CRYSTAL K. KARL
My Commission Expires
August 9, 2013
Camden County
Commission #09852835

Competitive Energy
DYNAMICS

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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.

Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?

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

As a preliminary matter I note that the Commission made a determination of imprudence in its Report and Order issued September 28, 2011 in HC-2010-0235. At issue were the costs of the Hedge Program during 2006 and 2007. That order is effective and Hedge Program monies that were collected from customers, subject to prudence review, are now being refunded as a result of that prudence review. The matter is under judicial review.

Although GMO made no further purchases of financial hedge contracts after November 2007, the Hedge Program costs continued to accumulate for several more years as the financial contracts for future delivery, the options to purchase, and the put contracts (that sold the options to purchase to others) all matured. During 2008 the costs of the hedge program were less than 10% of the total fuel costs. By the terms of the QCA tariff, they did not reach the threshold that would permit prudence review, regardless of any potential imprudence. The 2009 Hedge Program costs exceed the 10% threshold and are the subject of this prudence review.

The prudence of the program, the resulting expenditures, and costs incurred by GMO during the program wind down are at issue. The dollar amount of costs at issue is $1,244,510.

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 DURING 2009?

A GMO was imprudent and the hedge costs are the direct result of the imprudence. Contributing factors are as follows:

1. The QCA mechanism effectively mitigates the effects of fuel cost volatility and price spikes by design. This is confirmed by several years of experience. In fact the QCA actually mitigated the effects of the price spikes created by the GMO Hedge Program. As such, the GMO Hedging Program as implemented was counterproductive and not needed. GMO ignored the beneficial effects of the QCA design and instead incurred the cost of a risky financial hedge program.

2. GMO could have easily discussed a hedge program with all six of its customers before implementation and it would have been prudent to do so. GMO's purported interests in a hedge program - volatility mitigation, price protection, and price stability - all would have been good subjects for discussion. However, GMO's management did not avail itself of the opportunity for important customer input.

3. GMO adopted a hedge program design without adequate consideration of the uncertain nature of its natural gas usage as a swing fuel in its steam operations. As a swing fuel, variations in steam load would have a disproportionate impact on gas usage. GMO's forecast of natural gas requirements was very far from the mark (in several months usage forecasts were 2 and more times actual). The uncertain nature of GMO's swing fuel requirements should have been a consideration when designing the hedge program, but was not.

4. GMO in previous presentations has conflated the cooperation of customers in their provision of estimated steam usage with its own forecasts of steam load and natural gas requirements. As admitted by Mr. Rush in questioning from the bench during the HC-2010-0235 case, customer forecasts of their own load, in spite of good faith, suffer from known problems. For one reason or another, new or expanded loads are difficult to predict. Nevertheless, when forecasts of customer steam load, system steam load, and natural gas requirements were made by GMO (Aquila) the limitations of the customer-provided information were apparently ignored. GMO's forecasts of customer steam load necessarily and unavoidably had a large uncertainty. With the role of natural gas usage as a swing fuel, the

uncertainty in gas usage was necessarily and unavoidably magnified. Nevertheless, the GMO hedge program apparently proceeded based on forecast volumes that were treated as though they were a base load requirement. They were not.

5. Because of the design of GMO's hedge program, and because of a forecast of natural gas usage requirements that in some months was 2 or more times actual usage, the hedge program created volatility in fuel costs – the opposite of the intended effect. GMO's program did not reasonably accommodate the uncertainly of its natural gas requirements.

6. Besides creating volatility the hedge program as implemented created price spikes – the opposite of what a reasonably designed and reasonably implemented program should have done. The effect of the program in some months was so extreme as to **move prices up sharply** **--** **in a down market** – contrary to GMO's descriptions of the hedge program. The purported intent was mitigation of natural gas volatility, and mitigation of price spikes, both while providing for participation in down markets. The hedge program manufactured price spikes inapposite to the falling prices.

7. GMO appears to have sold puts for profit, allegedly intended to function as part of a collar mechanism. The effect was to limit participation in a falling market. In effect, instead of simply purchasing protection from high gas prices for one third of the volumes, GMO also sold protection against falling prices to others. Combined with the deficiencies in its treatment of uncertain natural gas requirement, the deleterious effect in some months was so extreme as to eradicate all intended participation in a falling market and to instead increase prices. This contributed to a hedge program induced spike in the October 2006 cost of natural gas. This illustrates the flaws of the GMO Hedge Program that among other adverse effects was counterproductive to the volatility mitigation purpose of the hedge program.

8. GMO began the hedge program on February 16, 2006. Its forecast natural gas usage requirements were immediately out of kilter with reality. It failed to review, recognize problems, on a quarterly basis.

9. GMO, at the request of AGP, discontinued new purchases under the hedge program in 2007. In spite of being aware of the customer dissatisfaction and the high costs and in spite of its drastically wrong forecasts of natural gas requirements, GMO allowed the then existing hedge positions to simply run their course.

10. Finally, GMO states that it could have cashed out of the troubled program in the spring of 2008 with roughly a $2,000,000 surplus.

INTRODUCTION

Q PLEASE PROVIDE AN OVERVIEW OF THE STEAM SYSTEM.

The GMO steam system is located near downtown St. Joseph and serves only six customers. Thus, on any given matter GMO has the ability to easily communicate with its entire customer base. During 2009, GMO's steam service to AGP was roughly 65% of the total provided to customers. Triumph, an intervenor, also consumes substantial amounts of steam.

GMO makes steam at its Lake Road Plant where it also makes electricity. Steam that is sold to customers 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 generally higher in cost, natural gas has been a swing fuel while coal provided the base load fuel for steam generation.

Q PLEASE PROVIDE AN OVERVIEW OF THE HEDGE PROGRAM.

In February 2006 GMO (then known as Aquila) instituted a program of financial hedging for its natural gas supply. The program was separate and apart from the physical gas supply arrangements, and there was nothing in the program that would impact the reliability of the fuel supply. All physical supplies of natural gas would continue to be purchased in the same way, while the hedge program would use the net cost/benefit of financial instruments traded on NYMEX to change the monthly cost of the gas charged to customers.

The stated design was to periodically buy futures contracts in a quantity equal to one third of the gas volumes, thereby purportedly locking the future cost for one-third of gas requirements. Another one-third of the supply was to be covered with call option contracts that could be exercised at a fixed strike price, thereby purportedly limiting the impact of the higher gas prices that had been anticipated by GMO. In theory, according to the stated design, by simply not exercising the option, this one third of the gas requirement would not impact the cost of gas in a falling market (beyond the initial price of the option). The final one third of gas requirements were to be devoid of the effects of the financial hedges, thereby purportedly simply tracking the ups and downs of the market as it evolved. The reality of the hedge program was not the "one third" approach described by GMO. (As will be addressed in more detail subsequently, Aquila/GMO prepared forecasts of monthly natural gas requirements were so far off as to render the one third strategy ineffective, setting aside the question of whether or not it was appropriate in the circumstances.)

Each of the GMO financial hedging contracts was tied to the gas prices for a particular future month. During the course of the active program from its inception through November 2007 (when GMO discontinued its purchase of additional financial hedges) GMO entered into the financial hedging agreements to cover forward periods including 2009, the subject year for this prudence review. They consisted of swap contracts for the futures component and call contracts consistent with program design. In addition, GMO also **sold** put contracts in conjunction with the call contracts. The puts limited the benefits of falling prices in the down market because by the terms of puts, the GMO was obligated to purchase at the strike price. Instead of providing "optional" protection for GMO steam customers GMO sold protection to others. The revenue from the sale of the puts was a credit to GMO's gas costs, but the purchasers of the puts received the benefit when the market fell[1]. The effect was inconsistent with the stated intent of program and the representation that customers

[1] When gas prices fell below the strike price the financial benefit accrued to the purchasers of the put contracts sold by GMO, and the financial costs accrued to GMO.

would participate in down markets for two thirds of the gas requirements. Customer did not do so under the program as implemented.

Anyone with adequate financial resources can buy natural gas futures and options contracts. Speculators take risks. With prudently designed and implemented programs, producers and consumers can obtain a measure of protection from market volatility and can reduce volatility in their individual gas costs or revenues, as the case may be. One of the critical differences is whether or not there is a physical gas requirement that is being supplied or consumed. This comes to the point that GMO's program provided a potentially useful hedge only to the extent that the GMO financial contract volumes were consistent with the physical natural gas volumes according to the one third program design. They were not by a long shot.

The results of the program were to substantially increase fuel cost and to substantially increase rate volatility for several years, including 2009. There was a fundamental flaw in the hedge program volumes that amplified the financial effects of the Hedge Program, created unnecessary risk, and created unnecessary costs. The problem was manifest immediately in April 2006, the first month of the program, and continued through the remainder of the program. Costs were unnecessarily created due to an initial forecast that had monthly errors that exceeded 100%. Sadly, there is no evidence that GMO was paying attention, and there has been no indication that GMO ever made the periodic reviews that were part of the initial program design. Instead the volumes were only adjusted as a part of the annual forecast review. Even then, GMO was apparently oblivious to costs being incurred under the Hedge Program. In spite of having been immediately burned by the costly impact of the errors, GMO errors in its forecasts of natural gas requirements continued for several years, up to and including 2009.

PROGRAM WIND DOWN AND 2009 COSTS

Q IN 2008 DID GMO POSSESS A SINGULAR CAPABILITY TO UNDERSTAND THE PROBLEMS OF THE HEDGE PROGRAM AND TO MANAGE THE WIND DOWN ACCORDINGLY?

A Yes. For all practical purposes I believe that was the situation. Only GMO had all of the data and the responsibility for periodic reviews and adjustments to the hedge program – whether it continued or was winding down.

Q IS IT YOUR OPINION THAT IN ADDITION TO THE OTHER PROBLEMS WITH THE HEDGE PROGRAM THAT HAVE BEEN DISCUSSED, THAT GMO ALSO FAILED TO PRUDENTLY MANAGE THE WIND DOWN OF THE IMPRUDENT HEDGE PROGRAM.

A Yes. There is serious doubt as to the prudence of the hedge program costs that were incurred in 2009. There are many issues that attach to the 2009 hedge program costs because of the several issues raised that relate to the design and implementation of the hedge program. In addition, even after GMO knew of the extraordinary costs, and knew or should have been aware of the underlying problems, it had the responsibility to manage the wind down so as to minimize the imprudent costs. Instead, GMO appears to have essentially left the hedge program to simply run its course.

GOALS OF THE QCA

Q FROM YOUR PERSPECTIVE, WERE THE RESULTS OF THE HEDGE PROGRAM CONSISTENT WITH THE GOALS OF THE QCA?

A No. There were several goals. The first was to provide a vehicle to protect GMO from the variations in fuel costs while providing ongoing incentives to GMO to minimize costs. In turn, this was expected to reduce the number of rate cases - an advantage for both GMO and customers. As to the incentives, included in the design of the QCA was a coal performance standard that would maintain a focus on achieving coal production when it was low cost. This provision does not allow the replacement costs to be passed through when the performance threshold is not met. In addition, 20% of the variations in fuel cost continue to receive base rate treatment, so a measure of the traditional base rate incentive is maintained.

Another goal was to mitigate rate volatility. Instead of passing the costs through monthly or quarterly, the costs variations are accumulated quarterly and then the 80% of the variations that flow to customers were collected over successive 12-month periods. Both the limited tracking (initially 80% and now 85%) and the provision that spreads the collection of quarterly cost variation over a 12-month period serve to mitigate retail rate volatility.

I was the technical advisor to AGP during the 2005 negotiations that led to the stipulated quarterly fuel cost adjustment ("QCA") mechanism that was approved by the Commission in HR-2005-0450 on February 28, 2006. The mechanism became effective March 6, 2006. In a subsequent case the coal performance standard was adjusted and the 80% tracking was changed to 85%, both again by stipulation approved by the Commission. The operation of the mechanism that spread quarterly cost variations over 12 month collection periods continued without change.

The QCA mechanism continues to mitigate retail rate volatility and the need for any additional potential volatility mitigation is greatly reduced. Nevertheless, the purported intent of GMO's hedge program was to reduce volatility and exposure to extreme higher cost while largely preserving participation in falling markets.

Q DID THE HEDGE PROGRAM PRODUCE THE INTENDED EFFECTS OF MITIGATING VOLATILITY IN RETAIL RATES?

A No. The statistical standard deviation of the hedged quarterly gas costs during 2006 through 2009 was 2.44, which is larger than the 2.23 standard deviation of the costs without the hedge program. The program increased volatility in gas costs instead of reducing volatility.

Q HAVE YOU REVIEWED THE COMMISSION'S FINAL ORDER IN HC-2010-0235?

A Yes.

Q DID THE COMMISSION AGREE WITH ALL ASPECTS OF YOUR TESTIMONY AND CONCLUSIONS IN THAT PROCEEDING?

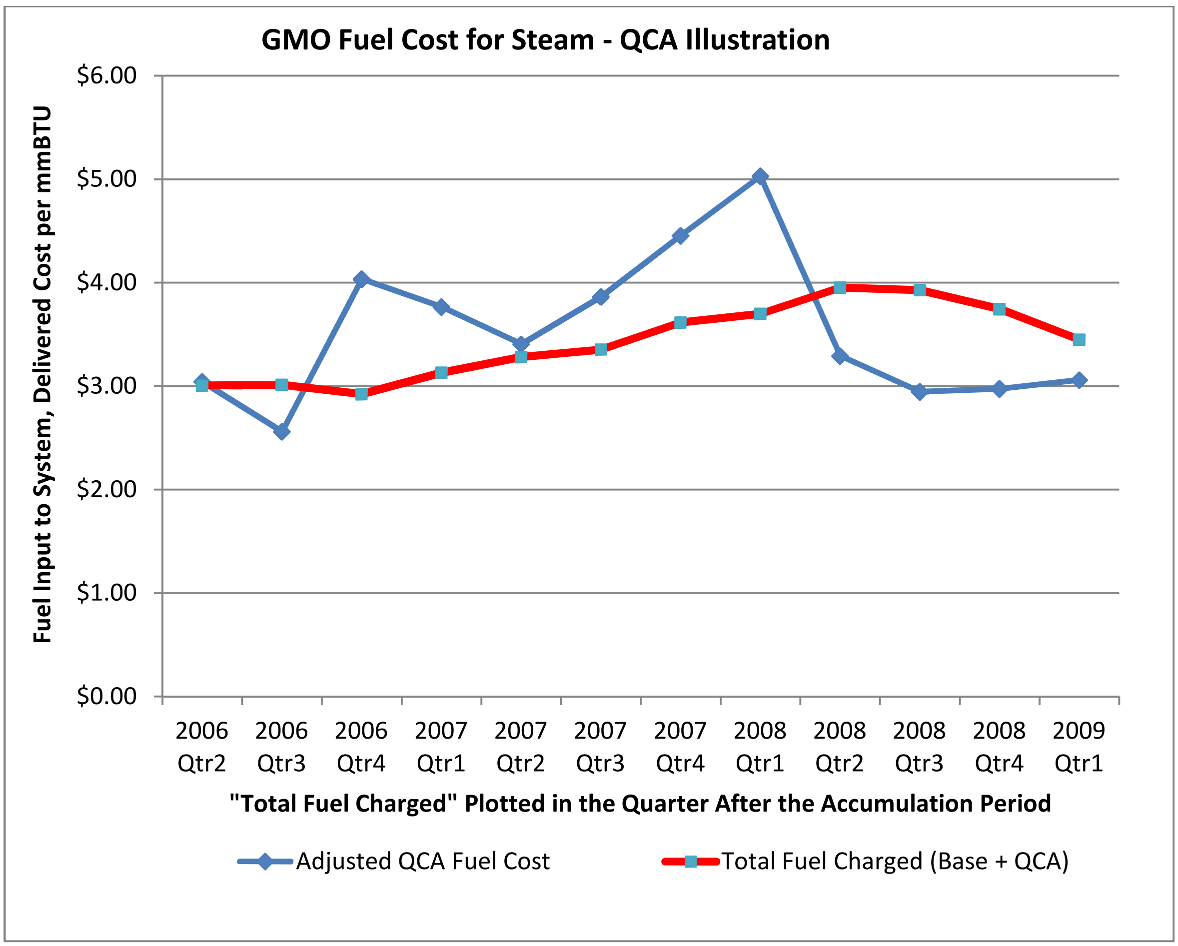
A No. However, in my opinion (not a legal opinion) the bottom line was a correct and supportable result based on my understanding of the facts. The 2006 and 2007 costs of the Hedge Program are being refunded. That history notwithstanding, I am advised that the Commission will necessarily base its decision in this case on the record in this case. As such, I will do my best to submit testimony in this proceeding to address the relevant aspects of the Hedge Program. My goal is to assist the Commission in reaching a proper result based on the record in this case. That said, it is my understanding that all discovery materials from the prior case are usable in this matter.

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

A Yes. For GMO 85% 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. The following chart illustrates the smoothing effect of the QCA. The blue line is a graph of the quarterly fuel costs per mmBtu for the steam system (Adjusted QCA Fuel Cost"). The red line depicts the quarterly system fuel costs that have been charged to customers. Due to the design and operation of the QCA the large peaks and valleys are greatly mitigated in the rates charged to customers.

Chart 1. QCA Illustration



Q HOW DOES THE QCA OPERATE TO MITIGATE THE VARIATIONS IN GMO'S FUEL COSTS?

A The principal reason for the smoothing is that fuel cost variations from each quarter are collected from customers over the following twelve-month period. 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 happen to move up and down from quarter to quarter.

Indeed, while fuel prices and costs have gone up and down from quarter to quarter (the blue line with diamond markers in Chart 1), the fuel cost in rates have 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 GMO 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, it is neither accident nor coincidence. That was the intended effect. Chart 1 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 AS A DESIGN ELEMENT 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 accumulated quarterly variation due 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 (25%) of what the impact would be if recovered in a single quarter.

After application of the 80% tracking provision, roughly 20% (25% x 80%) 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 GMO.

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

A GMO was concerned with its ability to recover fuel costs in a timely manner 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 and is 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 GMO to its customers, absent a finding of imprudence. In effect, the customers instead of GMO would be insuring the performance of the coal boiler. The ongoing financial incentive to achieve a minimum 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 GMO 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 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, all based on Aquila-supplied numbers from the rate case. 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, GMO 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 GMO 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 GMO'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 GMO 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 PRUDENCE CHALLENGE 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 GMO 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 GMO, 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 GMO hedge program are the subject of this prudence challenge. 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 GMO.

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

A No. Unfortunately, for all practical purposes GMO proceeded as though the QCA mechanism did not exist.

DESIGN OF A HEDGE PROGRAM

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 GMO program was to mitigate volatility in the price of natural gas. GMO 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 of 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 GMO'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 GMO?

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, GMO (Aquila) adopted a model for contract structure it had used at in its LDC electric businesses. The GMO 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 GMO 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. GMO 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, GMO 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 GMO'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, GMO held all that they purchased until at or near expiration.

Q DID GMO 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. GMO chose to sell put options.

Q WHY WOULD GMO SELL OR BUY A PUT?

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

Apparently GMO 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, GMO 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 GMO 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 accuracy 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 and I would not expect such an approach to be condoned by a commission.

Q HOW DOES THE POINT YOU MAKE ABOUT VOLUMES AFFECT 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 GMO 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.

<u>RESULTS OF THE HEDGE PROGRAM</u>

Q CAN YOU SUMMARIZE WHAT HAPPENED WITH THE GMO 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 ultimately 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 GMO. Yet, this risky hedge program that would potentially produce windfall costs or windfall profits was the unilaterally designed and implemented product of GMO.

Q CAN YOU DESCRIBE SOME OF THE RESULTS OF GMO'S HEDGE PROGRAM?

A Yes. I will illustrate 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. The same perverse effects arose repeatedly. 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 had come 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 GMO 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, GMO had sold puts for October with a $6 strike price. This meant GMO was providing price protection for a counter party at $6. In effect, GMO had 160,000 mmBtu in costly hedge positions and the cost was spread over only the 58,939 mmBtu physically used to produce steam.

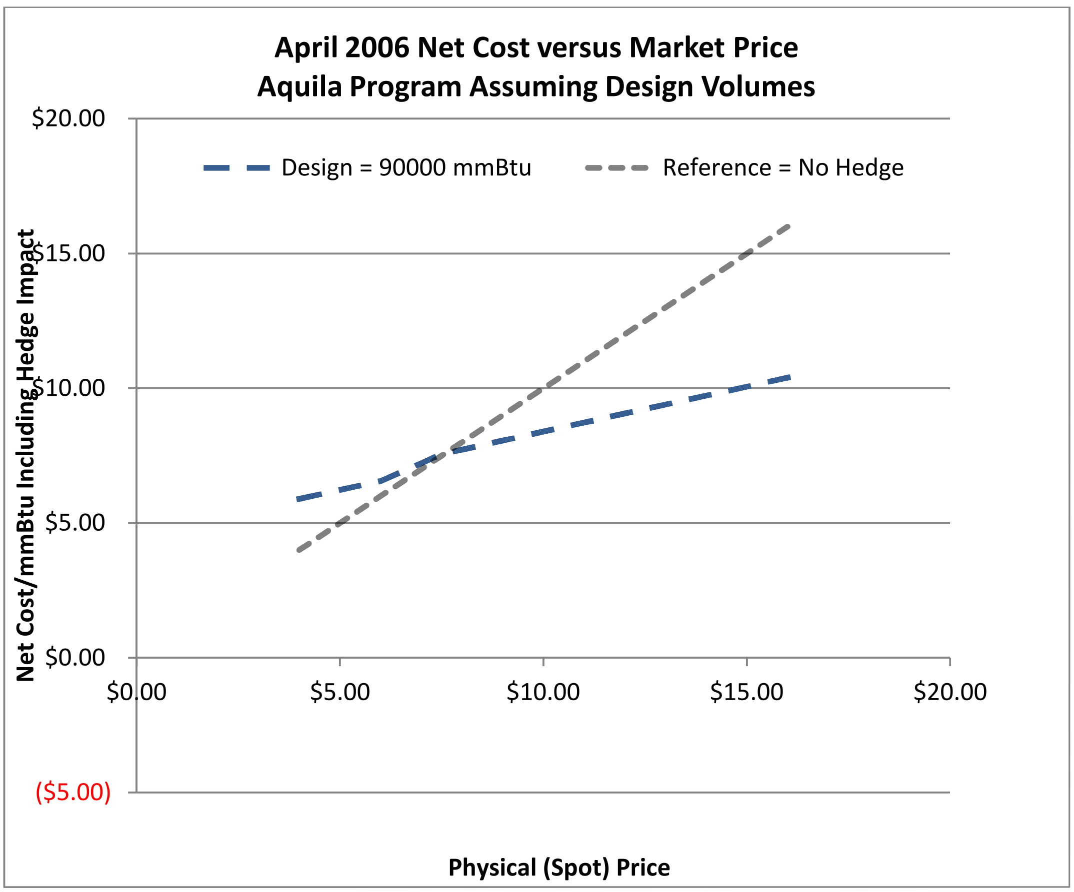
Q TURNING NOW TO APRIL 2006, HOW MANY CONTRACTS HAD BEEN PURCHASED ON FEBRUARY 16 FOR APRIL DELIVERY?

A GMO purchased 30,000 mmBtu in futures, 30,000 mmBtu in call options, and sold 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 2. GMO 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 GMO'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 GMO 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. GMO paid $14,100 for the April call options and was paid $2,100 for the put options.

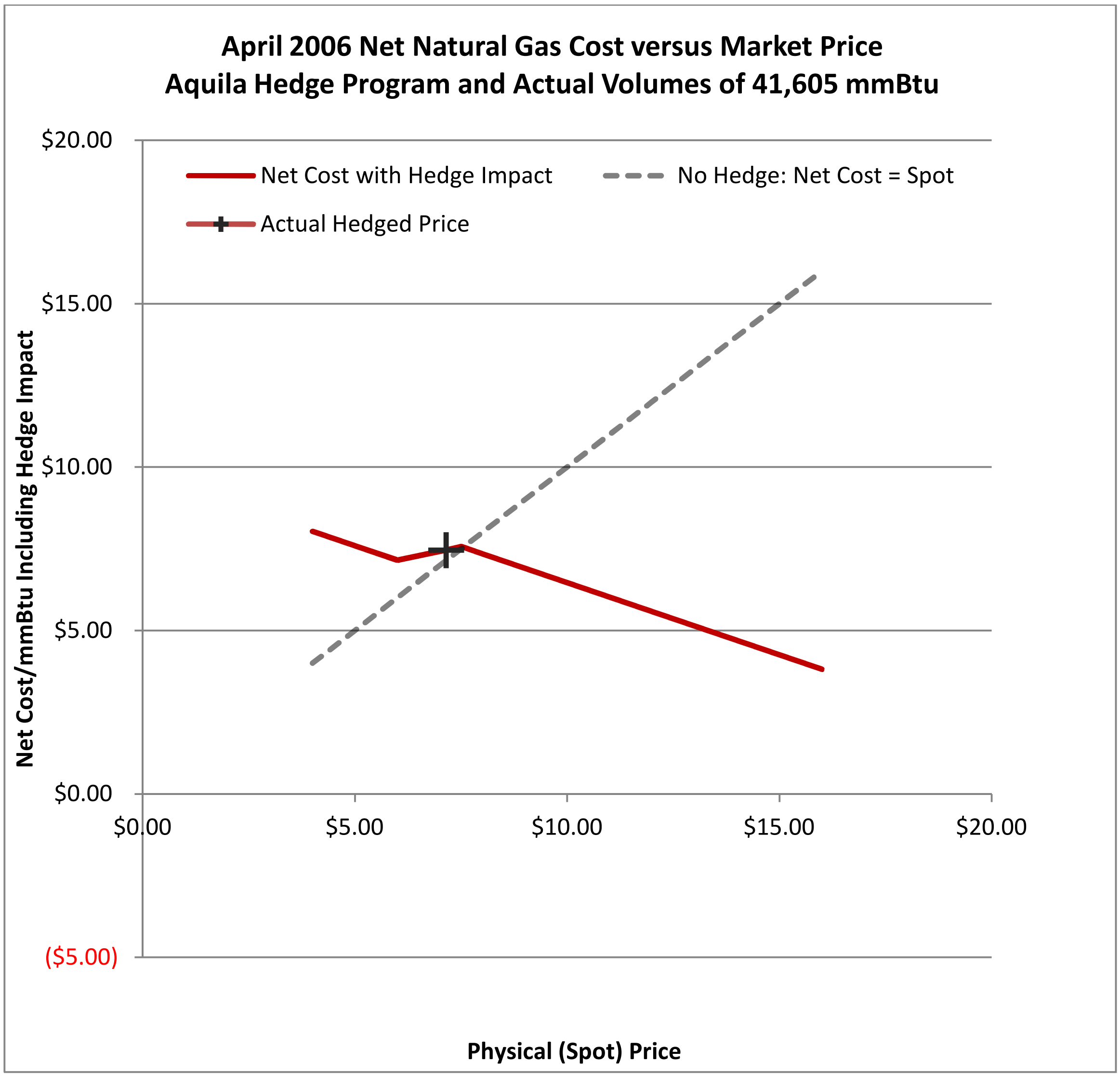
Q DID THE VOLUMES COME IN AT 90,000 MMBTU ACCORDING TO THE HEDGE PROGRAM PLAN?

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. GMO'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, GMO'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 3. Impact of April 2006 Hedge Positions at Actual Physical Volume



Q WHAT IS THE INTERPRETATION OF CHART 3?

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 3 PROVIDE ANY INFORMATION ABOUT THE EFFECTIVENESS OF THE GMO HEDGE PROGRAM?

A Yes. The GMO hedge program was immediately out of kilter because GMO 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?

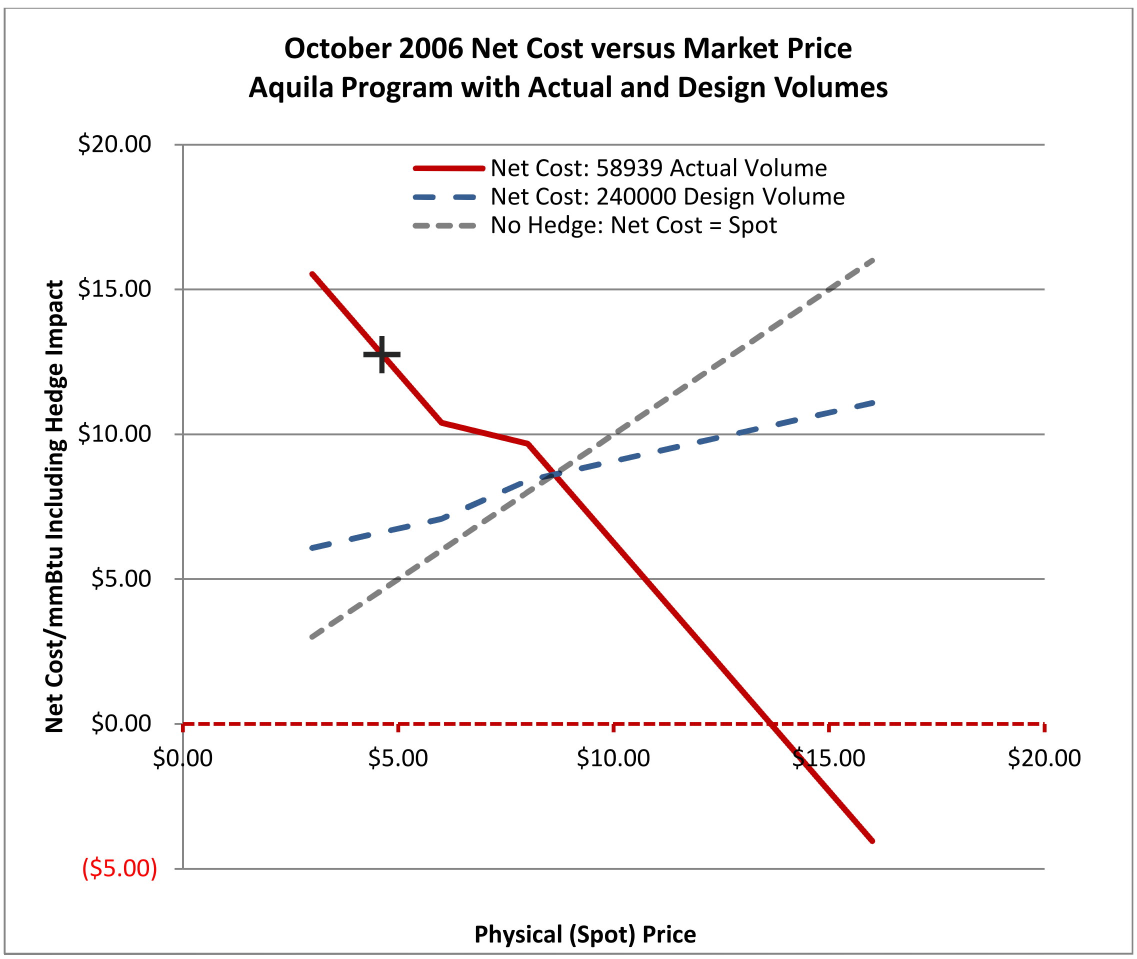
A No.

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 4. October 2006 Hedge Analysis



A Chart 4 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 GMO 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.

<u>**SALES FORECAST AND GAS REQUIREMENTS FORECAST**</u>

Q DID GMO 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 <u>small</u> change in load would result in a relatively larger impact on gas usage. It follows that a <u>substantial</u> change in load would have a very large impact. Triumph came on line as a new customer and there were other expansions. Load grew, but not as much as planned and as one of the results with gas being the swing fuel was usage that was far less expected.

Sales were less than GMO's forecast, and, by extension, GMO'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.

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 both 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 case HC-2010-0235 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. Sommerer 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 GMO DO ANY OF THIS?

A While AGP has worked diligently to discover what was done, I have found no indication of any GMO 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, GMO 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 GMO 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 GMO.

Q DID AGP SEEK TO DISCONTINUE THE PROGRAM?

A AGP saw the adverse results flowing through the QCA rates and based on the high costs asked GMO to discontinue the program in October, 2007. The request was confirmed in writing at GMO's request.

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

A My conclusion is one of imprudence, as summarized in the Imprudence section at page 2 above.

Q DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A Yes it does.