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Witness: Wm. Edward Blunk
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: EO-2011-0390

SURREBUTTAL TESTIMONY

OF

WM. EDWARD BLUNK

ON BEHALF OF

KCP&L GREATER MISSOURI OPERATIONS COMPANY

Kansas City, Missouri
April 2012

"[redacted]**" Designates "Highly Confidential" Information Has Been Removed.**
Certain Schedules Attached To This Testimony Designated "Highly Confidential" Have Been Removed Pursuant To 4 CSR 240-2.135.

SURREBUTTAL TESTIMONY

OF

WM. EDWARD BLUNK

Case No. EO-2011-0390

Q: Please state your name and business address.

A: My name is Wm. Edward Blunk. My business address is 1200 Main Street, Kansas City, Missouri 64105.

Q: Are you the same Wm. Edward Blunk who prefiled Direct Testimony in this matter on behalf of KCP&L Greater Missouri Operations Company ("GMO" or the "Company") for the territories served by St. Joseph Light & Power ("L&P") and Missouri Public Service ("MPS")?

A: Yes.

Q: What is the purpose of your Surrebuttal Testimony?

A: My Surrebuttal Testimony serves two purposes. First, my Surrebuttal Testimony will show that GMO's fuel adjustment clause ("FAC") charges would have been the same as those actually experienced if GMO had employed the alternate hedge strategy that Staff proposes in its Direct/Rebuttal[1] Testimony. Company witness Ryan Bresette will show that GMO's FAC charges would have been the same as those actually experienced if GMO had accounted for the hedges the way Staff proposes in its Direct/Rebuttal Testimony.

Second, my Surrebuttal Testimony will dispel doubts that may have been sown by Staff witnesses in their Direct/Rebuttal Testimony regarding GMO's use of natural gas

[1] Staff Witness Eaves refers to his prefiled testimony as "Direct/Rebuttal" and other Staff witnesses designate their testimony as "Rebuttal" Testimony. My Surrebuttal Testimony is responsive to both.

derivatives to cross hedge electricity price risk. I will show that GMO's hedges were reasonable and prudent when measured by industry standards for hedging and when judged by the Commission's prudency standard. My testimony yields the following conclusions:

1) GMO would have the same hedge loss that Staff is challenging if it had employed Staff's proposed alternate hedge strategy (i.e. build and/or buy generation facilities).
2) Staff's analysis is fatally flawed and there are serious doubts regarding its value.
3) GMO's use of natural gas futures to cross hedge electricity was prudent.
4) GMO's use of natural gas futures to cross hedge electricity would be expected to be lower cost than Staff's suggested alternative of using more purchased power agreements.
5) From the Company's perspective, this case is not really about the reasonableness of cross hedging. Rather, as Staff witness Charles Hyneman stated on page 14 of his Rebuttal Testimony when explaining why GMO did not want to move hedge adjustments above the line, "Aquila [GMO] was afraid that the Staff would recognize only hedging gains and not hedging losses...." In the prior Prudence Review when the derivative side of the cross hedges made money Staff did not seek a prudence disallowance. This case is really about Staff's misunderstanding or misinterpretation of hedge accounting and its apparent presumption that GMO's hedging activities are imprudent because there were losses on the financial derivative side of the hedge transaction during this FAC period. Those derivative losses Staff is challenging are tied to and driven by the same key factor which drove the gains GMO experienced in

the physical market side of the hedges. Staff has not challenged the physical market gains.

Q: Who are the Staff witnesses your Surrebuttal Testimony will be addressing?

A: My testimony primarily responds to testimony filed by Dana E. Eaves, but I also respond to, or reference, statements made by Ms. Lena M. Mantle and Mr. Charles R. Hyneman. Throughout Mr. Eaves testimony he refers to "Staff." It appears from the context of Mr. Eaves' prefiled testimony, and clarifications made in deposition testimony, that when Mr. Eaves referred to "Staff" he was referring to himself; but that is not clear in his written testimony. Unless otherwise indicated by the context of my discussion, when I use the term "Staff" I am referring to Mr. Eaves.

Q: How is your testimony organized?

A: I first review the underlying claims supporting Staff's position in this proceeding. Second, I show that Staff's alternative hedge strategy would yield the same hedge loss. Third, I examine the errors, or flaws, in Staff's analysis. Fourth, I address Staff's determinations regarding prudence. Finally, I present my recommendations to the Commission as a result of this case.

Q: Is there an easy way to get the key points of your testimony?

A: Yes. My testimony will cover many details regarding hedging and determining the reasonableness of a hedge. For someone that does not work with these concepts on a regular basis, hedging and derivatives may be confusing. Most of us do not have the time to learn a new complex discipline. Therefore, I recommend focusing on three things in my testimony:

1) Study Tables 1 and 2 so you can see how a hedge is constructed and how it works.

2) Review Schedule WEB-8 which delineates significant errors and misinterpretations in Staff's testimony

3) Review Schedule WEB-20 which addresses the Commission's prudence standard point by point.

The rest of my testimony provides the background and support for those key schedules.

I. CHARACTERIZATION OF STAFF'S CLAIM

Q: Now that you have read the testimony of the Staff witnesses, how would you characterize Staff's claim?

A: Staff is making two claims. First, Staff is claiming that no reasonable person would employ a common practice of cross hedging to protect its customers from the "risk of skyrocketing prices."[2] To substantiate that claim, Staff relies on a flawed statistical analysis to argue -- contrary to its own calculations and the repeated observations of Southwest Power Pool's ("SPP") market monitor[3] -- about the relationship between natural gas prices and power prices in SPP.

Staff's second claim is that GMO has erred for the past several years in its accounting for natural gas derivatives used to hedge purchased power. Staff witness Lena Mantle is now arguing those costs should be recorded in a particular account -- an account which she says Staff never intended for the recovery of such costs.[4] Staff concludes that if the costs were recorded in Staff's recommended account, such costs

[2] Chairman Jeff Davis, Concurring Opinion, Case No. ER-2007-0004, p. 3. "Skyrocketing fuel and purchased power prices can compound rate risk for consumers because, when they necessitate a rate case, the company will also seek recovery of their rate case expenses as well as other expenses."

[3] Among other responsibilities, the Market Monitoring Unit ("MMU" or "market monitor") examines supply and demand fundamentals, trade volumes, prices, revenue, revenue adequacy, participant bids, and other market metrics for the Federal Energy Regulatory Commission ("FERC") and the Independent System Operators ("ISO"). The results of those monitoring efforts are reported in the State of the Market reports.

[4] Lena M. Mantle, Rebuttal Testimony, Case No. EO-2011-0390, p. 11, l. 18.

should be disallowed because of changes in certain details Staff recently requested in the FAC tariff sheet.[5][6]

Q: Now that Staff has clarified its claim, are there any adjustments or corrections that you would make to proposed disallowance?

A: Yes. By reviewing the rebuttal testimonies of Ms. Mantle at page 10 and Mr. Eaves at page 7, we see that Staff has clarified that their proposed disallowance is the result of changes to GMO's FAC tariff which Staff claims does not include hedging gains and losses associated with on-peak spot market purchases of electricity. As Company witness Tim Rush explains, the modified FAC tariff was not effective until September 1, 2009, and Staff erred by applying the modified FAC tariff to the first few months of the review period. Schedule WEB-7 revises my Schedule WEB-5 to show that the real amount Staff should be claiming is not recoverable through the FAC mechanism is ** [redacted] ** if the language in the tariff sheets in effect during the FAC review period is the basis for non-recovery.

Q: Does that mean that almost half of Staff's proposed disallowance is a function of Staff errors and misinterpretations that have no bearing on the alleged imprudence?

A: Yes. About half of Staff's initial proposed disallowance is either an error or misinterpretation by Staff.

[5] Lena M. Mantle, Rebuttal Testimoy, Case No. EO-2011-0390, p. 10.
[6] Dana E. Eaves, Direct/Rebuttal Testimony, Case No. EO-2011-0390, p. 7.

II. STAFF'S ALTERNATIVE HEDGE STRATEGY YIELDS THE SAME HEDGE LOSS

Q: At pages 5 and 6 of Staff witness Lena Mantle's Rebuttal Testimony, it seems she is saying Aquila should have purchased the Aries plant in 2000, thereby implying that if Aquila had purchased the Aries plant in 2000, GMO would not have these hedge losses today. If Aquila had purchased the Aries plant in 2000, would GMO have these hedge losses today?

A: Yes. If Aquila had purchased the Aries plant in 2000, GMO would have essentially the same hedge losses today as those Staff has charged are imprudent in this case.

Q: Why would GMO have the same hedge losses today if it owned Aries?

A: Ms. Mantle is correct that GMO would have less purchased power but she did not point out that GMO would still have the same load. It is the obligation to serve customer load that creates the risk. If GMO owned Aries, or Dogwood as it is known today, its customers would still face energy market price risk. In SPP, that on-peak energy market price risk is driven by the price of natural gas.

Q: Can you explain why GMO would have the same hedge losses today if it owned Aries and had lower purchased power risk?

A: Yes. As discussed by Ms. Mantle at page 8 of her testimony, the heat rate or the efficiency at which a power plant converts fuel into electricity must be considered when determining the volume of fuel to hedge. The weighted average heat rate that was used to determine the potential volume of GMO's cross hedges was 8,517 Btu/kWh.[7] Ventyx's Velocity Suite reports that over the audit review period June 2009 through November 2010, the capacity weighted average heat rate for the Dogwood Energy

Facility (formerly Aries) was 8,755 Btu/kWh[8] and the generation weighted average heat rate was 8,483 Btu/kWh.[9] Consequently, there is little reason to believe that GMO would have forecasted a heat rate for Aries significantly different than the heat rate it used to determine the volume of cross hedges.

The factors that determine the magnitude of the hedge adjustment are (1) the volume of hedges, and (2) movement in price from the time a hedge is placed until it is closed. GMO uses the same hedge program for both the natural gas it consumes as fuel and for its cross hedges. The price movement of natural gas futures contracts is not affected by whether GMO uses cross hedges or direct hedges. GMO's customer load or MWh requirement is not affected by whether GMO uses cross hedges or direct hedges. As I have shown, the heat rate GMO used for its cross hedges was essentially the same as experienced by Aries/Dogwood over the audit review period. With all of the variables being the same, I can say that GMO would have the same loss on the derivative side of its hedges whether it owned Aries and self-generated or used natural gas cross hedges and purchased power.

Q: When Ms. Mantle said on page 6, "GMO's generation is a hedge against fuel cost, but as long as spot market prices for electricity are lower than GMO's cost to generating energy with its own generation, GMO should be buying electricity on the spot market," was she describing an option?

A: Yes. Owning a power plant has often been described as owning a "real option." A "real option" is not a derivative instrument, but a choice to use the plant to generate power, so

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[7] GMO's hedge program is a discretionary program which under certain market conditions will not place hedges. Schedule WEB-9 reflects the weighted average heat rate of hedges actually placed.
[8] Velocity Suite Online, Virtual Analyst Power, Unit Benchmark Analyst
[9] Velocity Suite Online, Virtual Analyst Power, Unit Generation and Emissions Report Analyst

as to avoid "buying electricity on the spot market". But such a choice has an acquisition cost, equal to the cost of owning the plant. Thus, Ms. Mantle's statement fails to acknowledge the choice's acquisition cost, which can be very large.

III. FATAL FLAWS INVALIDATE STAFF'S FOUNDATIONAL ANALYSES

Q: Earlier you said Staff's analysis is fatally flawed and there are serious doubts regarding its value. What are those fatal flaws in Staff's analysis?

A: There are numerous flaws in Staff's analysis. I would place those flaws into four categories. First, there are the errors related to how a hedge works. Second, there are the errors associated with data analysis. Third is the failure to use the Commission's standards to evaluate prudence. And finally, there is the accounting error which Company Witness Ryan Bresette will address. I delineate many of the flaws, errors, and misinterpretations in Schedule WEB-8.

Q: What is Staff's error with regard to how a hedge works?

A: A hedge is constructed by linking a futures or derivative transaction with a similar cash or physical transaction. It is the simultaneous offsetting of physical and futures positions that neutralizes the market volatility. I did not find where Staff made any effort to show the cash or physical gain that offset the futures loss and neutralized the market risk.

Q: Please illustrate how a hedge works.

A: When constructing a hedge you perform two transactions which can be described as: (1) buy what you sell, and (2) sell what you buy. Table 1 illustrates how this works using natural gas futures to cross hedge on-peak spot electricity prices. For the sake of this illustration, let us assume a market implied heat rate of 10 MMBtus/MWh, which is the same as 10,000 Btus/kWh.

Table 1: Illustration of Hedge Mechanics with Derivative Loss				
	A	B	C	D
		Physical Market	Futures Market	Net Impact
1	February	NEED: 1 MWh on-peak power for August forecast price is $50.00/MWh	BUY: 10 MMBtus August natural gas futures at $5.00/MMBtu = $50.00	
2	August	BUY: 1 MWh on-peak power for August at $40.00/MWh	SELL: 10 MMBtus August natural gas futures at $4.00/MMBtu = $40.00	
3	**Change**	GAIN: $10.00	LOSS: $10.00	$10.00 - $10.00 = **$0.00**

Q: Using your illustration in Table 1 above, please explain what Staff is recommending.

A: Using the numbers in my example in Table 1, Staff has taken no issue with the $10.00 gain in the physical or spot market shown in cell B3. Staff has not recommended that the spot market gain be disallowed. On the other hand, Staff is arguing that the loss on the futures market shown in cell C3 is imprudent. Staff has not recognized that the true impact of the hedge is shown in the sum of the change in the spot market (cell B3) plus the change in the futures market (cell C3) which is shown in cell D3, Net Impact of Changes.

Q: In the prior audit review period, GMO showed a hedge gain. Please illustrate how GMO could have a hedge gain.

A: Using my table again but with different numbers, I will show how you get a hedge gain. In this example the hedge gain is $5.00, but again the net impact of the hedge is $0.00.

Table 2: Illustration of Hedge Mechanics with Derivative Gain				
	A	B	C	D
		Physical Market	Futures Market	Net Impact
1	February	NEED: 1 MWh on-peak power for August forecast price is $50.00/MWh	BUY: 10 MMBtus August natural gas futures at $5.00/MMBtu = $50.00	
2	August	BUY: 1 MWh on-peak power for August at $55.00/MWh	SELL: 10 MMBtus August natural gas futures at $5.50/MMBtu = $55.00	
3	**Change**	LOSS: $5.00	GAIN: $5.00	-$5.00 + $5.00 = **$0.00**

Q: Have you calculated the physical market change in the on-peak spot price for electricity actually associated with the Company's natural gas cross hedges?

A: Yes, I have calculated an estimate of the physical market changes for the Company's actual natural gas cross hedges.

Q: How did you calculate the physical market changes in the on-peak spot price for electricity associated with the Company's natural gas cross hedges?

A: I used the market implied heat rate assumptions that were used to determine how many natural gas futures contracts were required for hedging the electricity price risk to determine the MWh equivalent for each hedge when it was placed. Then I used the Company's forecasted market prices for on-peak electricity as determined by MIDAS™[10] at the time of the hedge transactions for the month hedged. Multiplying those two numbers gave me the value of the transaction. By comparing the value of the transaction when the hedge was placed with the value of the transaction when the hedge was closed I determined the physical market change for each hedge.

[10] For more regarding GMO's use of the MIDAS™ model, please refer to the Direct Testimony of Burton L. Crawford in Case Nos. ER-2012-0175 or ER-2010-0356.

Q: Why did you use the Company's forecasted or modeled market prices for on-peak electricity as determined by MIDAS™ instead of actual market prices?

A: As Staff noted there is not a liquid and transparent forward market for on-peak electricity, which is the reason why GMO uses cross hedges. Using modeled or forecast prices is an accepted alternative for estimating a market price when there is limited or no market price information available due to lack of liquidity or transparency.

Q: Can you show us the mechanics of GMO's actual cross hedges in a schedule similar to the tables you presented above?

A: Yes. Schedule WEB-9 uses the total or average values to show the actual mechanics of the NYMEX natural gas futures contracts used to cross hedge GMO's on-peak purchased power price risk.

Q: Can you determine the success or failure of a hedging program by only looking at the transactions in just the futures market?

A: No. You can not determine the success or failure of a hedging program by only looking at the futures market transactions.

Q: Why did Staff fail to identify the physical market change shown in cell B3 of your illustrations?

A: I do not know. I suspect Staff failed to identify the physical or spot market change shown in cell B3 because that number is not delineated in the Company's actual expenses as recorded in any of the FAC related accounts. What is observable in the Company's books is the ** [redacted] **[11] purchase shown in cell B2. Staff took no exception to those expenses.

[11] The value presented here is not the actual value recorded in Account 555 but the estimated value derived from an assessment of the market developed with MIDAS™.

Q: Why isn't the physical market change identified as such in the Company's actual expenses, recorded in the FAC related accounts?

A: If you will notice that the first word in cell B1 is "NEED" and the price is a "forecast price." NEED and forecast price represent expected transactions given our obligation to serve our customers.

Q: How do the physical market changes in the on-peak spot price for electricity associated with the Company's natural gas cross hedges compare to the futures market change?

A: The physical market changes compare very well to the futures market changes.

Q: What objective measure did you use to determine the physical market changes in the on-peak spot price for electricity associated with the Company's natural gas cross hedges compared very well to the futures market change?

A: One of the methods used to assess hedge effectiveness is the "dollar offset" method. Under that method the change in value of the derivative is compared to the change in value of the hedged item. Hedges that yield a ratio within the range of 80-120 percent are deemed "highly effective." Schedule WEB-9 shows that for the audit review period, the estimated physical market change of value for on-peak electricity was 109.6% of the actual change in value of the natural gas cross hedges.

Q: What does that 110% mean?

A: It means that by hedge accounting standards, GMO's natural gas cross hedges for on-peak electricity were in hindsight "highly effective." That is, the hedges did what they were supposed to do. The electricity price movement was offset by a similar movement in the price of natural gas.

Q: Is the Net Impact of **[redacted] shown in cell D3 of Schedule WEB-9 imprudent?**

A: No. The dollar offset ratio shows that GMO's hedges were "highly effective." The value I show as Net Impact in cell D3 is considered normal for "highly effective" hedges.

Q: What did Staff present as the key analysis that it relied upon to determine the use of natural gas derivatives to cross hedge on-peak power purchases was not reasonable?

A: Mr. Eaves holds up a correlation analysis as the crux of Staff's claim that GMO's use of natural gas futures to cross hedge on-peak power purchases was imprudent. That analysis is discussed at page 17 of his Direct/Rebuttal Testimony. Because that analysis used just one day of data, I will refer to it as the "one day" analysis. It was on the basis of that "one day" analysis that Staff determined natural gas prices and on-peak electricity prices "are not correlated."[12]

Q: When did Mr. Eaves perform the "one day" analysis which he says is the crux of Staff's imprudence argument?

A: Attached as Schedule WEB-10 is a copy of Mr. Eaves' response to Data Request No. 0115 wherein Staff said the "one day" correlation analyses was performed after the Staff Report was filed. In his deposition on April 10th, Mr. Eaves confirmed that he performed the analysis -- evidently the key factor in determining Staff's position that GMO was imprudent -- after Staff filed its Report with the charge of imprudence. The Staff Report was filed November 28, 2011, and Mr. Eaves Direct/Rebuttal Testimony was filed March 21, 2012, so it appears that Mr. Eaves performed Staff's key imprudence analysis in that time period.

[12] Dana E. Eaves, Direct/Rebuttal Testimony, Case No. EO-2011-0390, p. 17, l. 15.

Q: Even if Mr. Eaves had performed his "one day" analysis before he declared the cross hedges imprudent, would you have any issues with his analysis?

A: Yes. There are several errors or issues with Mr. Eaves "one day" analysis.

Q: Please list the major errors with Staff's use of analysis of price movements for just one day in August 2009.

A: The following is a list of the more obvious errors with Staff's "one day" analysis:

- With over 500 days of data readily available Staff randomly chose 1 day of data and suggested that 1 randomly chosen day was representative.
- Staff misinterpreted or misunderstood the Company's data filings made pursuant to 4 CSR 240-3.190 ("3.190 data filings").
- Staff relied exclusively on hindsight data.
- Staff used the wrong New York Mercantile Exchange ("NYMEX") pricing data or misinterpreted the data used.
- Staff's calculations can not be verified or replicated.

Q: Why did Staff err when it chose to use only 1 day of data?

A: The review period represents a period of about 547 days. Normally when you deliberately exclude data from an analysis you have a good reason for that rejection. Staff did not explain why it rejected the other 546 days of the review period. This is especially troublesome because all of the data Staff used was available before the audit began. The reason for choosing just one day out of 547 was not due to unavailability or cost of data.

Q: At page 18, Mr. Eaves answered the question "Would the results change if Staff had chosen a different period for its analysis?" with a "No." Did Mr. Eaves err in his answer?

A: Yes. Mr. Eaves erred in his answer. The word "period" as defined by Macmillan Dictionary means "an amount of time during which something happens."[13] As Dr. Woo illustrates in his Surrebuttal Testimony increasing the amount of time or number of days used to for the correlation analysis drastically changes the results.

Q: How did Staff misinterpret or misunderstand the Company's 3.190 data filing?

A: The Company's monthly 3.190 data filings include spot purchases plus all other purchases. The 4 CSR 240-3.190 Reporting Requirements for Electric Utilities and Rural Electric Cooperatives paragraph (1)(E) require:

> Megawatt amount and delivery prices of hourly purchases and sales of electricity from or to other electrical services providers, independent power producers, or cogenerators, including the parties to purchases and sales, and the terms of purchases and sales.

Those monthly 3.190 data filings show all power purchases by hour by day by counterparty. Mr. Eaves has no discussion in his testimony explaining how he filtered or adjusted that data to account for the longer term purchases which are included in the data. Instead of scrubbing the data Mr. Eaves suggests he combined GMO's data with data from KCPL.[14] Since the 3.190 data filings include longer term transactions, the 3.190 data may not be representative of the prices that GMO faced on the spot market. The SPP pricing data Staff used to calculate the 0.8941 correlation[15] between natural gas and power prices does not have that issue.

[13] http://www.macmillandictionary.com/dictionary/american/period#period_8
[14] Dana E. Eaves, Direct/Rebuttal Testimony, Case No. EO-2011-0390, p. 18, line 18.
[15] Dana E. Eaves, Direct/Rebuttal Testimony, Case No. EO-2011-0390, p. 15, line 6.

Q: How did Staff err in its "one day" analysis by only using hindsight data?

A: The prudence standard Staff quotes in its Staff Report at page 5 says,

> [T]he company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight.

Since the hedges that are being evaluated in this review were placed before June 1, 2009, Staff should have limited its reasonableness evaluation to data available before June 1, 2009. The "one-day" of data that Staff is relying on was August 3, 2009[16], obviously occurring after the June 1, 2009 date.

Q: Which error with Staff's analysis of price movements on one day in August 2009 is most at odds with the use of futures markets to hedge?

A: I think the most significant error with Staff's "one-day" analysis is Staff's view that using a futures contract which settles monthly to hedge prices that change more frequently than monthly is imprudent. As Staff noted, electricity prices can change hourly and the NYMEX settles its natural gas contract monthly. In fact every futures market that I know of settles less frequently than the physical market it hedges. To argue that a hedge program which uses a futures contract which settles less frequently than the physical market it is hedging is imprudent is saying that all hedging programs for all commodities that use futures contracts are imprudent. To reiterate, all futures markets settle less frequently than the cash market it hedges. This Staff criticism is not realistic or appropriate given the way futures markets work in the real world.

[16] Dana E. Eaves, Direct/Rebuttal Testimony, Case No. EO-2011-0390, p. 17, line 5.

Q: If Mr. Eaves' analysis was valid, would it also follow from his logic that the use of natural gas futures to hedge natural gas is imprudent?

A: Yes. As Mr. Eaves noted, the NYMEX natural gas futures contract settles once a month. What Staff did not note is physical natural gas prices are determined much more frequently than just monthly. Like most physical markets, the physical natural gas market does not have a settlement. Instead, organizations like Platts[17] survey industry participants and publish an index price which they hold out as representing the plethora of prices reported to them. If you correlated 16 contiguous weekday midpoint prices for Henry Hub from the middle of one month with the NYMEX's Henry Hub settlement price for that month, you would get the same kind of result Mr. Eaves did with his "one day" calculation when he correlated the 16 hourly average prices from the on-peak middle of one day with the NYMEX settlement price for that month. In Table 4, I compare my calculation of the "one day" correlation coefficient using Mr. Eaves 16 hours of electricity price data and NYMEX settlement price for August 2009, with the correlation I calculated from 16 weekdays of natural gas prices from August 2009 and the NYMEX settlement price for August 2009, the same month Mr. Eaves used for his analysis. Both result in correlation coefficients of approximately 0.

[17] Platts is a leading global provider of energy, petrochemicals and metals information, and a recognized source of benchmark price assessments for those commodity markets.

Table 4: Correlation Comparison	
Data Series	Correlation Coefficient
NYMEX August 2009 settlement Vs. 16 peak spot market electricity for August 3, 2009 (per Eaves workpapers)	-2.04E-15 essentially 0
NYMEX August 2009 settlement Vs. Gas Daily midpoint Henry Hub for 8/5/09-8/26/09 weekday	2.07E-15 essentially 0

Q: Since virtually every futures contract for every commodity traded on a futures exchange settles less frequently than its equivalent physical market, why doesn't Mr. Eaves' issue cause a problem with hedging for everyone, including natural gas utilities?

A: Public utilities, including GMO, evaluate the potential hedge using a longer term relationship than just one day.

Q: If Mr. Eaves had used more than one day of data would he have found correlations strong enough to support using natural gas to cross hedge electricity?

A: Yes. Dr. Woo presents analyses in his Surrebuttal Testimony that show how natural gas prices are highly correlated with hourly on-peak electricity prices when a reasonable time period is used for the analysis.

Q: Did Staff provide the workpapers supporting the "one day" analysis in Mr. Eaves' testimony?

A: Yes.

Q: Do you have any other issues with data Staff used for its "one day" analysis besides what you have already identified?

A: Yes. At page 17, Mr. Eaves says he used "GMO's actual NYMEX monthly natural gas settlement price" to construct Staff's "one day" correlation analysis. In Staff's workpaper, which I have attached as Schedule WEB-11, that NG Price is shown as $3.41. My issue with Staff representing the $3.41 as a NYMEX contract settlement price is, assuming the number may be rounded, the only day the August 2009 contract settled at $3.41 was July 9, 2009, which was weeks before the establishment of the Last Day Settlement Price (LDSP) or Contract Settlement Price (CSP) when the contract expired. GMO reported a contract settlement price for the August 2009 natural gas futures contract of $3.379 in its response to Data Request No. 0065. Attached as Schedule WEB-12 is a chart I found in just a few moments of looking on the internet showing the NYMEX natural gas contract settlement price history since January 2007. It shows that since 2007 no contract has settled within 3 cents of $3.41.

Q: Did any of the workpapers Staff provided have the formulae intact?

A: No.

Q: Were you able to replicate the correlation coefficient presented in Mr. Eaves' testimony using the data provided in Staff's workpapers?

A: No. I was not able to replicate correlation coefficient presented in Mr. Eave's testimony using the data provided in Staff's workpapers. Using the data Staff provided, my calculation results in a correlation coefficient about double the one shown in Mr. Eaves' testimony.

Q: At page 10 of your Direct Testimony, you cite four different annual *State of the Market Reports* prepared by SPP's market monitor. Did Staff prepare any other analyses in an attempt to refute the MMU's or the Company's determination that natural gas and on-peak power prices in SPP are highly correlated?

A: Yes. Starting at page 15 of Mr. Eaves' Direct/Rebuttal Testimony, he refers to another analysis Staff prepared. In that analysis, Staff used data from November 2010 through October 2011 to calculate a correlation coefficient.

Q: Are there any issues with using that analysis for evaluating prudence?

A: Yes. The most obvious issue with the correlation analysis using data from November 2010 through October 2011, is all but one month of that data is after the June 2009 through December 2010 audit review period. I will refer to that analysis as the "after the period" analysis.

Q: How does Staff's "after the period" analysis relate to an examination of prudence in this case?

A: Staff's "after the period" analysis should have no bearing in evaluating prudence in this case. All but one of the months in Staff's correlation analysis are after the last month in the review period. Prudence is based on what was known at the time a decision is made. The decision to use natural gas to cross hedge electricity purchases for June 2009 through November 2010 was made well before November 2010, the first month included in Mr. Eaves analysis.

Q: Did Staff explain why its "after the period" analysis was relevant to evaluating the prudence of using natural gas derivatives to cross hedge on-peak power purchases?

A: No.

Q: Did Mr. Eaves explain why Staff chose the 12 months of November 2010 through October 2011 for calculating its correlation coefficient?

A: No. Mr. Eaves did not explain why Staff chose the 12 months of November 2010 through October 2011. Of the 30 12-month periods in Mr. Eaves' data set that either bordered or included any month of the audit period, the 12-month period Staff chose had the 2nd lowest correlation. 28 of the 30 12-month periods in Mr. Eaves' data set had higher correlations than the one he presented.

Q: When would the 12-month period Staff analyzed be relevant for evaluating prudence of GMO's hedges?

A: Probably never. Regression analyses are used *ex ante*, before the hedges are placed to determine the effectiveness of the proposed hedge. The next audit review period will start December 2010. Staff's 12 months of November 2010 through October 2011 does not precede December 2010. Staff's 12-month correlation would not even serve well for a hindsight review of the next audit review period.

Q: Why are regression analyses used *ex ante* to determine the effectiveness of proposed hedges?

A: As explained by Company witness Ryan Bresette, Accounting Standard Codification ("ASC 815") requires hedgers to make an *ex ante* showing that a derivative will be "highly effective" before it can qualify for certain hedge accounting.

Q: Have any authorities defined how to determine if a hedge is "highly effective?"

A: Yes. The Staff of the Securities and Exchange Commission ("SEC") prescribed an *ex ante* test using correlation analysis.[18] That test required that the derivatives and the hedged item exhibit an R-squared of at least 0.80 with respect to their price fluctuations.

Q: What does an R-squared of 0.80 mean?

A: R-squared is a statistic that measures the strength of the relationship between two data sets. Specifically it gives the proportion, or if multiplied by 100 the percent, of the variability in one data set explained by the variability in another set. In this case an R-squared of 0.80 means changes in natural prices explain 80% of the changes in electricity prices.

Q: Does the SEC's test apply to cross hedges?

A: Yes. The SEC's test applies to all hedges, including cross hedges. That this test is applicable to cross hedges is plainly shown in *Derivatives and Hedge Accounting*, CME Group, March 2, 2012, at page 2 which is attached as Schedule WEB-13. The example CME used to explain the concept is a cross hedge between jet fuel and heating oil.[19]

Q: Does that mean the SEC was making an allowance for other factors that might affect the price of the hedged commodity?

A: Yes it appears the SEC took the position that a hedge should be recognized as "highly effective" even though there may be other factors influencing the price of the hedged commodity.

[18] *Derivatives and Hedge Accounting*, CME Group, March 2, 2012, p. 3, attached as Schedule WEB-8.
[19] *Ibid.*

Q: In the case of GMO's hedges, what might be some of those other factors?

A: In the case of GMO's cross hedges some of the factors the SEC effectively left room for are weather, system congestion, and unplanned outages.

Q: Who is the CME Group that published the *Derivatives and Hedge Accounting* report and why are they an authority on hedging?

A: The CME Group owns and operates several futures exchanges including the NYMEX. The NYMEX has been in the business of facilitating hedging since 1882 and the Chicago Board of Trade, which is also part of the CME Group, listed the first futures contract in 1864. CME Group is the world's leading derivatives marketplace. CME Group provides the widest range of benchmark futures and options products available on any exchange, covering all major asset classes.

Q: If a proposed hedge fails to exhibit an R-squared of at least 0.80 does that mean it is not a viable hedge?

A: No. As Company Witness Ryan Bresette explains, it may mean the hedge receives different accounting treatment. The mere fact that the Financial Accounting Standards Board defined the hedge treatment for hedges that were less than "highly effective" meant it expected that companies would use hedges that were less than "highly effective."[20]

Q: Staff's "after the period" analysis used a 12-month period to calculate a correlation coefficient. What would be the 12-month period relevant to this case?

A: It would be the 12-month *ex ante* period. The 12 months proceeding the review period were June 2008 through May 2009. Those 12 months also represent what was known at

[20] *Statement of Financial Accounting Standards No. 133: Accounting for Derivative Instruments and Hedging Activities*, Financial Accounting Standards Board, June 1998, pp.5

the time and would be useful in evaluating the prudence of the decision to use natural gas derivatives as a cross hedge for electricity price risk.

Q: Using the data from Mr. Eaves' workpapers, what was the correlation coefficient between the NYMEX settlement price and SPP's LIP price for that 12-months preceding the review period?

A: Using the data from Mr. Eaves' workpapers, the correlation coefficient for the 12 months preceding the review period was 0.9411.

Q: Does that mean the *ex ante* correlation analysis for the 12 months preceding the review period would qualify NYMEX natural gas futures as "highly effective" hedges for SPP LIP prices?

A: Yes. The 0.9411 correlation coefficient for the 12 months preceding the review period exceeds the SEC's R-squared threshold of 0.80 for determining a hedge is "highly effective."

Q: Does that mean it would also be reasonable to use NYMEX natural gas futures to hedge SPP electricity prices?

A: Yes.

Q: Did Staff offer any support for its argument that such high correlations should be ignored and GMO's use of NYMEX natural gas futures to hedge SPP electricity prices was unreasonable?

A: Yes. At page 20, Mr. Eaves cited a rulemaking issued by the Public Utility Commission of Texas ("PUCT") in 2001, focused on constructing an artificial "price to beat" rate. It was used as part of the deregulation process in Texas and expired January 1, 2007.[21]

[21] Direct/Rebuttal Dana E. Eaves, Schedule DEE-7, pp. 112-129.

Q: Did Staff point out that the PUCT's rulemaking was issued in 2001?

A: No. Even though Mr. Eaves attached a copy of Project 21409, *Rulemaking Relating to Price to Beat*, before the Public Utility Commission of Texas to his testimony as a Schedule, he did not state in his Direct/Rebuttal Testimony that the number he quoted from that report was published more than a decade ago.

Q: Did Staff point out that the PUCT's rulemaking preceded the deregulation of Texas's electricity market and how that deregulation may have changed market dynamics?

A: No. Mr. Eaves did not discuss how the PUCT's rulemaking preceded major changes in the Electric Reliability Council of Texas ("ERCOT") market.

Q: Was the number Mr. Eaves cited from the Project 21409, *Rulemaking Relating to Price to Beat* adopted by the PUCT in its order?

A: No. It was merely an assertion by an interested stakeholder, Reliant. Ultimately, the PUCT made the "NYMEX Henry Hub natural gas prices, as reported in the *Wall Street Journal*"[22] a significant component of the "price to beat."

Q: Have there been significant changes in the energy market since 2001 that would materially alter that assertion?

A: Yes. There have been many changes in the energy market since 2001 that could materially alter the context for an assertion made in 2001. For example, natural gas fired generation net summer capacity almost doubled from 2000 to 2009. Just from 2000 to 2002 it increased 46%. Consequently natural gas fired generation in the United States

[22] Direct/Rebuttal Dana E. Eaves, Schedule DEE-7, p. 127.

increased 53% from 2000 to 2009. As a percent of total U.S. generation, natural gas fired generation increased from 16% in 2000 to 24% in 2009.[23]

Q: Did Mr. Eaves explain why he believed a rulemaking issued in 2001 with an expiration of January 1, 2007[24] was useful or otherwise relevant in 2010 given all of the change in the energy industry since 2000?

A: No.

Q: Did Mr. Eaves explain the importance of a 2001 rulemaking focused on deregulating ERCOT's energy market to the SPP energy market of 2009-2010?

A: No. Mr. Eaves argued that Dr. Woo's references to Pacific Northwest were irrelevant to SPP. Frankly, Dr. Woo's use of a 2011 study of the Pacific Northwest is far more useful for understanding today's energy market in SPP than Mr. Eaves use of a position statement made by an interested party in a 2001 rulemaking related to ERCOT.

Q: Are there more recent studies of the relationship between natural gas prices and power prices in ERCOT?

A: Yes. Dr. Woo referenced one of the more recent studies showing the strong relationship between natural gas prices and power prices in ERCOT in his Direct Testimony. (Woo Direct Testimony, pp. 21-22, fn.39).

Q: Are there any other issues with the alleged relevance of the PUCT rulemaking to this case?

A: Yes, there are other issues with representing the text Mr. Eaves quotes from the PUCT rulemaking as relevant to this case. Nowhere in any of the 140 pages of the rulemaking

[23] U.S. Energy Information Administration / Annual Energy Review 2010. http://www.eia.gov/totalenergy/data/annual/#electricity

[24] Direct/Rebuttal Dana E. Eaves, Schedule DEE-7 p. 113.

is there any explanation of how the 17% Mr. Eaves cited was calculated. The number was merely "asserted" by one of the participants in that proceeding.

Q: Do you know of any Texas-based energy companies that would have been affected by the PUCT's rulemaking that use or have used natural gas derivatives to cross hedge electricity price risk?

A: Yes. On page 4 of Energy Future Holdings 2009 annual report Texas Competitive Electric Holdings Company LLC ("TCEH")[25] which is the parent of Luminant and TXU Energy states:

> The strong historical correlation between natural gas prices and wholesale electricity prices in the ERCOT market provides us an opportunity to manage our exposure to variability of wholesale electricity prices. We have established a long-term hedging program designed to reduce exposure to changes in future electricity prices due to changes in the price of natural gas. Under the program, TCEH has entered into market transactions involving natural gas-related financial instruments, and as of December 31, 2009, has effectively sold forward approximately 1.6 billion MMBtu of natural gas (equivalent to the natural gas exposure of approximately 200,000 GWh at an assumed 8.0 market heat rate) for the period January 1, 2010 through December 31, 2014....[26]

IV. PRUDENCE

Q: What part of GMO's hedge program is Staff challenging as imprudent?

A: There are three aspects of GMO's hedge program that Mr. Eaves either addressed in the Staff Report or his Direct/Rebuttal Testimony: 1) purchased power contracts, 2) natural gas derivatives used to hedge natural gas used to fuel the Company's power plants, and 3) natural gas derivatives used to hedge purchased power. As stated on Page 8 of the Staff Report, Staff found no indication of imprudence by GMO for entering into long-term and

[25] TCEH refers to Texas Competitive Electric Holdings Company LLC, a direct, wholly-owned subsidiary of EFC Holdings and an indirect subsidiary of EFH Corp., and/or its subsidiaries, that are engaged in electricity generation and wholesale and retail energy markets activities. Its major subsidiaries include Luminant and TXU Energy. TXU Corp. reported using cross commodity hedges to manage electricity price risk as early as 2003.

short-term power contracts. At page 3 of his Direct/Rebuttal Testimony, Mr. Eaves made it clear Staff is not proposing a prudence adjustment for hedging natural gas used to fuel the Company's power plants. "Staff's adjustment is only related to GMO's use of NYMEX Natural Gas Futures contracts to hedge its on-peak energy spot market purchases." The only part of GMO's hedge program Staff is challenging as imprudent is the practice of using natural gas derivatives to cross hedge purchased power.

Q: Staff cited the Commission's prudence standard in its Staff Report. How would you recap that standard?

A: There are two key words in the Commissions discussion of prudence which give us two tests: improvidence and inefficiency. The first test of prudence examines the reasonableness of the company's conduct based on information known or knowable at the time a decision was made, specifically avoiding the use of hindsight. The second test of prudence looks at how efficiently a decision was implemented. It incorporates hindsight to determine if the implementation of that decision was efficient, or if the price the company paid was reasonable. Finally, there must also be a detrimental impact upon customers from the Company's alleged imprudence.

Q: How can you determine if a company's conduct was reasonable at the time a decision was made?

A: The first thing to do is determine what was known at the time the decision was made. From there you can perform a variety of tests. One objective test is if the practice is taught or endorsed by reputable entities. Another objective test is if other companies

[26] Annual Report Form 10-K for the fiscal year ended December 31, 2009, Energy Future Holdings Corp., February 2010, p. 4.

under similar circumstances behaved similarly. A third test which might blend objective and subjective measures is to evaluate the motive for the conduct.

Q: Why is it important to distinguish information that was known "at the time" from information that is only known in hindsight?

A: According to the Commission's prudence standard Staff cited in is Report, prudence is "judged by asking whether the conduct was reasonable at the time, under all circumstances, considering the company had to solve its problem prospectively rather than in reliance on hindsight."[27]

Q: Has Staff clearly distinguished information that was known or knowable "at the time" from information that is only known in hindsight?

A: No.

Q: Is Staff aware of the importance of distinguishing between information that was known "at the time" from information that was only known in hindsight?

A: Apparently so. At page 19 Mr. Eaves expressed that it was his opinion that GMO should have performed studies relating to cross hedging activities prior to implementing cross hedging.

[27] Staff Report p. 5, also Direct/Rebuttal Dana E. Eaves, Schedule DEE-1-7.

Q: At page 19 Mr. Eaves said, "Staff is not aware of any detailed studies or analysis performed prior to GMO implementing its cross hedging activities." He based that position on GMO's response to Data Request No. 0085. Can you prove that you or GMO were aware of studies or analyses showing a correlation between natural gas and SPP power prices strong enough to support cross hedging before June 2009?

A: Yes but first I will take note of how Mr. Eaves misinterpreted Data Request No. 0085. As shown in Schedule WEB-14, in Data Request No. 0085 Staff did not ask for studies performed prior to GMO's implementation of cross hedging Staff asked for:

> Please provide **any** studies and/or analyses that GMO or its consultants have performed showing the correlation between Southwest Power Pool on-peak purchased power price and NYMEX natural gas futures price. Has GMO performed or caused to be prepared any studies detailing GMO's exposure to cross commodity (gas-to-electric) price risk? [emphasis added]

Merriama-Webster.com defines "any" as:

> Definition of ANY
> 1: one or some indiscriminately of whatever kind:
> a : one or another taken at random <ask any man you meet>
> b : every —used to indicate one selected without restriction <any child would know that>
> 2: one, some, or all indiscriminately of whatever quantity:
> a : one or more —used to indicate an undetermined number or amount <have you any money>
> b : all —used to indicate a maximum or whole <needs any help he can get>
> c : a or some without reference to quantity or extent <grateful for any favor at all>
> 3 a : unmeasured or unlimited in amount, number, or extent <any quantity you desire>
> b : appreciably large or extended <could not endure it any length of time>[28]

I provided a study which showed the correlation between NYMEX Henry Hub natural gas futures and SPP on-peak power prices exceeded 0.90.

[28] http://www.merriam-webster.com/dictionary/any

GMO (formerly Aquila) began cross hedging on-peak electricity purchases with NYMEX natural gas before 2005. KCPL acquired Aquila and formed GMO in 2008. We do not have workpapers that were prepared in 2004 before Aquila first decided to cross hedge but we do have documented in Company witness Jerry G. Boehm's Surrebuttal Testimony from ER-2005-0436 an analysis prepared by Aquila refuting Staff's claim that there was no correlation between natural gas and power prices.[29]

Perhaps more relevant to this case is a demonstration that shortly before the audit review period I personally and GMO corporately were aware of the very strong relationship between the price of natural gas and power in SPP. In Surrebuttal Testimony filed April 2009 addressing my Rebuttal Testimony in Case ER-2009-0090 Staff witness Michael S. Proctor made it clear there was a very strong relationship between the price of natural gas and power in SPP. At page 5 Dr. Proctor said:

> Specifically, regressing SPP North around the clock (ATC) annual prices against average annual natural gas price at the Henry Hub for the years 2003 through 2008 yields a regression coefficient of 87.23%. This means that of the total variation in electricity prices occurring over these five years, **87.23% of that variation is explained by variation in natural gas prices. In SPP there is little doubt that natural gas prices drive electricity prices for most hours of the year.** [emphasis added]

While I do not remember the day I first read Dr. Proctor's testimony you can rest assured that in preparation for cross examination in May 2009 or earlier I read Dr. Proctor's testimony since it was directed at me.

Q: Who is Dr. Michael Procter?

A: At page 27 of her deposition, Ms. Mantle described Dr. Procter as the most knowledgeable person regarding electricity price risk hedging on Staff prior to his departure from Staff.

[29] Jerry G. Boehm, Surrebuttal Testimony, Case No. ER-2005-0436, pp. 7.

Q: What was known June 1, 2009 regarding the use of NYMEX natural gas futures and options to cross hedge electricity price risk?

A: Below is a summary of the facts from this case and work done at Missouri University of Science and Technology. This list does not represent all that was known regarding the established practice of cross hedging.

- In the mid-1990s, EPRI developed and started presenting its "Value and Risk in Energy Markets" workshops which discussed "correlation hedging," because "often we can only hedge using a commodity whose price is highly correlated to but not identical to our commodity."[30]
- Since 1999, Dr. C.K. Woo had published several articles or reports on the topic of cross-hedging. Those articles were published in a variety of journals and are listed in Schedule CKW-1.
- Karthik Viswanathan of Missouri University of Science and Technology had issued a thesis "Formulating Hedging Strategies for Financial Risk Mitigation in Competitive U.S. Electricity Markets," in 2008 which specifically discussed, "Cross-hedging Using Natural Gas Futures."[31]
- PGS Energy had been teaching multiple courses including "How to Financially Hedge Natural Gas & Electricity Price Risk," which explicitly discussed and illustrated the practice of using NYMEX natural gas futures contracts to hedge electricity price risk since 2001.

[30] Electric Power Research Institute, Inc / The Brattle Group, "Value and Risk in Energy Markets," slide 8-53, 2007
[31] Karthik Viswanathan, *Formulating Hedging Strategies For Financial Risk Mitigation In Competitive U.S. Electricity Markets*, a thesis presented to the Faculty of the Graduate School of the University Of Missouri – Rolla, 2008, http://scholarsmine.mst.edu/thesis/pdf/Viswanathan_09007dcc8047876c.pdf, last accessed 4/16/2012

- January 18, 2008, Dana Eaves, Kwang Choe, Janette Davidson, Janis Fisher, Roberta Grissum, Chuck Hyneman, Lesa Jenkins, Sherri Kohly, Phil Lock, Derick Miles, and Bob Schallenberg of the MPSC Staff participated in PGS Energy's course "How to Financially Hedge Natural Gas & Electricity Price Risk" which explicitly discussed and illustrated the practice of using NYMEX natural gas futures contracts to hedge electricity price risk. Other Staff had attended earlier presentations of the same course, the predecessor course and other courses by PGS Energy that also discussed and illustrated the practice of using NYMEX natural gas futures contracts to hedge electricity price risk. A more complete list of Staff's attendance of PGS Energy's seminars was provided in Staff's response to Data Request No. 0083 which is attached as Schedule WEB-15.
- In ER-2005-0436, GMO's "Missouri Natural Gas & Purchase Power Hedge Strategy – Implementing the Market Neutral Approach – Update" of February 25, 2005, which stated, "Aquila will convert projected on-peak purchase power quantities into equivalent quantities of natural gas. To determine the equivalent number of natural gas contracts to hedge on-peak purchased power, a market heat rate is computed." Attached to Charles R. Hyneman's Direct Testimony as Schedule 2-2 HC.
- In ER-2007-0004, Mr. Hyneman attached GMO's natural gas and purchased power hedge strategy of February 25, 2005 to his Surrebuttal Testimony as Schedule 4-2 HC, which stated, "Aquila will convert projected on-peak purchase power quantities into equivalent quantities of natural gas. To determine the equivalent number of natural gas contracts to hedge on-peak purchased power, a market heat rate is computed."

- July 10, 2007, GMO replaced its market neutral hedge strategy with one developed by Kase and Company. The first sentence of the 2007 strategy document stated, "Aquila, Inc. (the company) purchases spot gas and power that equates to approximately 10 BCF per year of natural gas."
- In ER-2009-0090 Staff Witness Dr. Michael Proctor had determined that 87.23% of the variation in SPP's electricity prices was explained by variation in natural gas prices and that there was little doubt that natural gas prices drove electricity prices for most hours of the year in SPP.[32]

Q: Under the Prudence Standard discussed in the Associated Natural Gas decision referenced in the Staff Report at pages 5-6, "the Commission must determine the detrimental impact of that imprudence on the utility's ratepayers." In the case at hand, was there any detrimental impact of using natural gas futures contracts to hedge the price of electricity?

A: No. When both sides of the hedge transaction are considered—the physical market and the futures market—then there is no detrimental impact of the Company's cross-hedging activities on customers. The loss that Staff disallowed on the futures market side of the transaction is offset by the gain on the physical market side of the transaction. As a result, there is no detrimental impact of using natural gas futures contracts to hedge the price of electricity. As I have already discussed, Staff improperly considered only one side of the hedge transaction, and simply disallowed the loss in the futures market without apparently considering the offsetting gain in the physical market side of the transaction.

[32] Michael Proctor, Surrebuttal Testimony, Case No. ER-2007-0090, p. 5.

Q: Is cross hedging electricity price risk using natural gas futures contracts a common practice in the electric industry?

A: Yes. It is a widely utilized practice that is taught by EPRI and PGS Energy Training. In a letter to David Stawick, Secretary of the Commodity Futures Trading Commission the National Rural Electric Cooperative Association, American Public Power Association and Large Public Power Council said,

> Some energy companies hedge multiple commodity risks, such as an electric utility hedging the commercial risks of its input (natural gas as fuel) and output (electric generation/deliverable electric energy). **Cross-commodity hedging is also commonplace.**[33] [emphasis added]

Q: In your Direct Testimony you attached as Schedule WEB-1 a description for PGS Energy's webinar "How to Financially Hedge Natural Gas & Electricity Price Risk." Have you attended that webinar?

A: Yes. PGS offers that webinar either as a live webinar or as a prerecorded webinar available on demand. I attended the recorded and available on demand version of the webinar.

Q: Do you know if any members of the Staff have attended PGS Energy's webinar "How to Financially Hedge Natural Gas & Electricity Price Risk?"

A: In response to GMO's Data Request No. 0083, Staff indicated that many members of Staff including Mr. Eaves and Mr. Hyneman have attended either "How to Financially Hedge Natural Gas & Electricity Price Risk" or other training by PGS Energy programs

[33] The "Not-For-Profit Electric End User Coalition," letter to David Stawick, Regarding: Comments on Notice of Proposed Rulemaking on Further Definition of "Swap Dealer," "Security-Based Swap Dealer," "Major Swap Participant," "Major Security-Based Swap Participant" and "Eligible Contract Participant," under Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Act") (17 CFR Part 240). February 22, 2011, p. 9. http://www.publicpower.org/files/PDFs/CommentLetteronEntityDefintitionsNOPRFiledFeb222011.pdf

that included instruction on how to use NYMEX natural gas futures to hedge electricity price risk.

Q: At page 21, Mr. Eaves said that PGS Energy's webinar does not validate GMO's hedging practices. Do you agree with that assertion?

A: No. The webinar that Mr. Eaves, many other Staff and I have attended does validate the use of natural gas futures to hedge electricity price risk. In fact, the second 90-minute session of the webinar was largely focused on "How to use natural gas futures contracts to hedge electricity price risk." Attached as Schedule WEB-16 **(HC)** are the 22 slides from the "Hedging Electricity Price Risk with Natural Gas Futures Contracts" part of the webinar.

Q: Some of the slides from PGS Energy's webinar show a Marketer between the Power Customer and the Power Supplier and the Marketer is interacting with the NYMEX. Can only Marketers interact with the NYMEX?

A: Anyone can transact with the NYMEX. About all it takes is an account with a broker and enough money to fund your position. In the "Hedging Electric Power Supply Prices With NYMEX Natural Gas Futures" example shown on slides 67-72 of Schedule WEB-16, GMO performs both the Power Supplier and Marketer functions. GMO's customers are the Power Customer.

Q: In your Direct Testimony, you told about your informal survey to determine if other electric utilities used natural gas derivatives to cross hedge electricity price risk. Even though your survey was informal and had only a few respondents, does it satisfy your test of other companies under similar circumstances behaving similarly?

A: Yes. Some companies view their hedge strategies as a competitive advantage and may be reluctant to share them.

Q: Mr. Hyneman refers to your informal survey at page 30 of his Rebuttal Testimony where he said "What Mr. Blunk does not say is that none of the electric utilities in Missouri, including Mr. Blunk's employer KCPL, engage in cross hedging electricity price risk." Do any of the other electric utilities in Missouri engage in cross hedging electricity price risk?

A: Let me start my answer by pointing out that at the time Mr. Hyneman prepared his testimony, he did not have the Company's response to Staff Data Request No. 0089 which gave Staff the actual responses to my survey. Consequently, Mr. Hyneman could not have known that Ameren was one of the respondents to my survey. He also could not have known that in response to my survey Ameren said they use NYMEX natural gas futures to cross hedge electricity price risk. Attached as Schedule WEB-17 is a copy of Ameren's response to my survey which was included in our response to Staff Data Request No. 0089.

Q: Does KCPL hedge purchased power price risk?

A: No. KCPL does not have the purchased power price risk that GMO does.

Q: How does KCPL's exposure to price risk for purchased power compare to GMO's?

A: In 2010 GMO's purchased MWhs were 43.7% of Total Sales of Electricity while KCPL's purchased MWhs were 6.8% of Total Sales of Electricity.[34] In relative terms, GMO's exposure to purchased power price risk was more than 6 times KCPL's exposure.

Q: In your Direct Testimony, you documented the Commission's concern about passing market price volatility to Missouri ratepayers, and its desire for public utility companies such as GMO to use hedging to protect Missouri's ratepayers from such risk. Did Staff discuss how GMO's cross hedging program protected Missouri's ratepayers from market price uncertainty?

A: No. The Staff Report and testimony focused on just one piece of the equation, the derivative hedge adjustment.

Q: Did Staff present any quantitative analysis comparing GMO's purchased power hedging program with an alternative?

A: No. Staff's testimony can be characterized as saying they do not know of a reasonable alternative to using natural gas derivatives to cross hedge GMO's purchased power risk. Perhaps the closest Staff came to presenting an alternative approach was in Ms. Mantle's testimony. Ms. Mantle suggested that if GMO owned Aries, it would not need to hedge purchased power, but she offered not quantitative analysis of that suggestion. As I discussed earlier, Ms. Mantle's suggestion would yield the same derivative hedge adjustment as natural gas cross hedges for purchased power.

[34] Calculated from FERC Form 1, p. 327, l. 15g, Megawatt Hours Purchased; p. 301, l. 10d, TOTAL Sales to Ultimate Consumers; p. 301, l. 11d, Sales for Resale for 2010.

Q: Why did GMO feel it should hedge the ratepayers' risk of volatile electricity prices?

A: Both Mr. Heidtbrink and I have explained the Company's motivation for cross-hedging in our Direct Testimony. Essentially, the Company believed it was prudent and reasonable to attempt to mitigate the impact of volatile spot purchased power prices on our customers since increasing costs would be directly borne by our customers, in the absence of a hedging program. We also believed that the Commission expected that public utilities, both electric companies and natural gas LDCs, would adopt hedging programs to protect their customers from volatile prices.

Q: At page 22 of his Direct/Rebuttal Testimony, Mr. Eaves questions the Company's interpretation of Chairman Davis's Concurring Opinion from ER-2007-0004. Do you agree with Mr. Eaves' characterization of statements made by Chairman Jeff Davis in his Concurring Opinion in Case No. ER-2007-0004?

A: No.

Q: As a utility manager with risk management responsibilities, how would you characterize Chairman Davis' statements?

A: First, I would put Chairman Davis' statements in context. GMO was implementing a fuel adjustment clause that would transfer 95% of the market risk for purchased power from the Company to its customers. The record of Case No. ER-2007-0004 shows there were significant issues surrounding Aquila's implementation of its "market neutral" hedge program. I believe Chairman Davis recognized the possibility of a case like this one. I also believe that Chairman Davis was concerned about the market risk that would now be borne by GMO's customers. In other words, I believe Chairman Davis understood what Staff Witness Hyneman noted in his Direct Testimony at page 14, "Aquila was afraid that

Staff would recognize only hedging gains and not hedging losses..." Therefore, I conclude that Chairman Davis was exhorting GMO to adopt a hedging program that would shield its customers from the fuel and purchased power risks that would flow through the FAC.

Q: Was GMO's hedging program prudently designed?

A: Yes.

Q: Are you familiar with the *Joint Report on Natural Gas Market Conditions, PGA Rates, Customer Bills & Hedging Efforts of Missouri's Natural Gas Local Distribution Companies* filed on February 24, 2006, in Case No. GW-2006-0110 ("Joint Report")?

A: Yes, I am.

Q: At page 7 of her Rebuttal Testimony, Staff witness Lena Mantle appears to be saying that the issues related to market volatility discussed in the Joint Report are not relevant to electric utilities, because electric utilities convert natural gas to electricity which is delivered to its customers, while natural gas utilities deliver the natural gas as a final product. She then goes on to say "the electric utility makes a choice on the efficiency of the conversion of natural gas to electricity which affects the ultimate cost to the consumer." She concludes by agreeing that the same principles apply for hedging natural gas for gas utilities and electric utilities, but electric utilities must consider the efficiency of the conversion from natural gas to electricity. Did GMO consider the efficiency of the conversion from natural gas to electricity or heat rate in its use of natural gas cross hedges for electricity purchases?

A: Yes. GMO uses the market implied heat rate from the Company's market model to convert its expected energy purchases from MWh of electricity to MMBtus of natural gas.

Q: Does GMO's hedging program conform with the principles and recommendations presented in the Joint Report?

A: Yes. The hedge program GMO adopted in 2007 conforms very well with the principles presented in the Joint Report.

Q: You said the second test of prudence relies on hindsight to determine if the implementation of that decision was efficient, or if the price the company paid was reasonable. Did Staff present any analysis to show whether the Company paid too much for using natural gas derivatives to cross hedge electricity price risk?

A: No. The number Staff has disallowed as imprudent has very little relevance in determining prudence by itself. As I showed earlier, the hedge adjustment is only part of the equation. If you just look at the hedge adjustment, you have no idea if your hedge program cost too much. For example, if a given company had a $5 million hedge loss is that prudent? What if the hedge loss was $100 million? What if it was just $3,000? Which number is prudent? You can not tell by only looking at the loss. Much like buying insurance or even buying something on credit, you must put the payment in context to understand the cost. An easy way to do that is convert the payment into a percentage of the total underlying value like I did in my Direct Testimony. You then have a number you can compare to alternatives or with others in similar situations to determine if you paid too much. Staff made no such comparison.

Q: Why does GMO use natural gas derivatives to cross hedge electricity purchases instead of just using bilateral or forward electricity contracts to protect its customers from electricity market price volatility?

A: The Company and Staff agree in this case that there is no organized market in the SPP Region whereby GMO could have purchased electric futures contracts. As a result, if the Company is to hedge its customers' electric price risk, then another alternative must be considered. The overall cost of the hedge program using natural gas futures contracts is less expensive than if GMO had used bilateral contracts or forward electricity contracts.

Q: Why would the cost of hedging be higher using electricity forward contracts rather than cross hedging with NYMEX natural gas futures contracts?

A: There are multiple reasons why the cost of cross hedging electricity price risk with NYMEX natural gas futures and options is lower than using bilateral contracts for electricity. Perhaps the largest component of that cost difference would be the premium for term. GMO may place a hedge up to three years before the delivery month. The more illiquid the market the more likely there will be a premium for term. That is, when there is not an abundance of sellers, the few sellers that might exist will consider the risks they face in the price they will sell at. The further into the future they are committing, the more price risk they see. Consequently sellers will embed in their price a premium for longer term.

Another cost associated with a market such as the bilateral electricity market that lacks a liquid secondary market, is the cost of adjusting commitments. GMO's expected requirements change from time to time. As those expectations change, the Company adjusts its hedge volumes. There is a limited secondary market for electricity bilateral or

forward contracts. Because of the unique elements of each deal, GMO could suffer a significant loss should it need to reduce the volume hedged with electricity forward contracts.

In addition to those more obvious costs, the expected cost of hedging would be higher as the counterparty risk would be higher. The longer the term or the further into the future the commitment, the higher the probability that a counterparty will default before or during the term of the deal.

Q: Is GMO the only company to experience hedge losses in this time period?

A: No. In response to Data Request No. 0058 which I have attached as Schedule WEB-18, I noted that

> Ameren reported that its Ameren Illinois Company (AIC) subsidiary experienced a hedge loss of $352 million in 2010 and $422 million loss in 2009 on power derivative contracts. In addition to those realized losses, at December 31, 2010, AIC had deferred $181 million of loss on power derivative contracts as a regulatory asset. In other words, while GMO lost $1.80/MWh of power purchased in 2010, AIC lost $18.15/MWh.

Q: What tests did Staff employ to determine if the Company's actions were "reasonable at the time?"

A: It appears from both his Direct/Rebuttal and Deposition Testimonies that Mr. Eaves believes the crux or linchpin of his argument regarding GMO's use of natural gas derivatives to cross hedge electricity price risk is a correlation analysis that he did after he declared the Company's hedge programs to be imprudent in the Staff Report.

Q: At page 56 of his Deposition Testimony, Mr. Eaves identified three factors he felt the Commission should consider in evaluating the prudence of GMO's cross hedges and his proposed disallowance. In your words, what were those three tests?

A: The three factors Mr. Eaves identified at page 56 are:

1) high correlation between the two markets

2) the risk being hedged and the value of that risk

3) the premium paid to mitigate the risk

Q: Did Mr. Eaves analyze any of those factors before he filed his charge of imprudence in the Staff Report?

A: Apparently not. Through out Mr. Eaves Deposition Testimony and in response to Data Requests he made statements consistent with the one at page 117 of his Deposition where he said, "I didn't do any formal analysis. Otherwise, I would have attached it to my report [Staff Report]."

Q: Did you provide Staff any analyses that you or GMO prepared which directly addressed Mr. Eaves three-prong test?

A: Yes.

Q: What did you provide Staff to show the high correlation between the NYMEX natural gas futures market and the SPP physical market for on-peak electricity?

A: In my response to Staff Data Request No. 0085, I provided a correlation analysis which showed a 93.3% correlation between NYMEX natural gas contract settlements and the average of SPP on-peak prices reported by SNL.[35] That is a very high correlation. In fact, the 93.3% correlation between NYMEX natural gas and average hourly SPP on-peak prices was greater than correlation between NYMEX natural gas contract settlements and average daily physical natural gas prices on either of the two main pipelines serving our region.

[35] SNL Financial collects, standardizes and disseminates corporate, financial, market and M&A data — plus news and analysis — for the banking, financial services, insurance, real estate, energy and media/communications industries.

Q: Did your response to Staff Data Request No. 0085 include the correlation analyses which showed that the correlation between NYMEX natural gas and average hourly SPP on-peak prices was greater than the correlations between NYMEX natural gas contract settlements and average daily physical natural gas prices of either of the two main pipelines serving west central Missouri?

A: Yes. Southern Star Central Gas Pipeline ("SSCGP") and Panhandle Eastern Pipeline ("PEPL") are the main interstate pipelines serving west central Missouri. My response to Staff Data Request No. 0085 included several correlation calculations. Among those were calculations showing the 90.2% correlation between NYMEX natural gas contract settlements and the average daily physical gas prices on SSCGP. It showed the 89.9% correlation between the NYMEX settlement and PEPL prices.

Q: The Henry Hub is the pricing point for natural gas futures contracts traded on the NYMEX. Did your response to that Data Request show the correlation between NYMEX Henry Hub natural gas contract settlements and the average daily physical market prices for Henry Hub?

A: Yes. It showed that the correlation between NYMEX's Henry Hub futures contract settlements and the average daily physical natural gas prices at Henry Hub had a 97.6% correlation.

Q: Do I understand you correctly that the natural gas futures contract that represents natural gas in the same state or form at the same location is not perfectly correlated with the daily physical market?

A: Yes. That is a reality of the futures markets. While the futures contracts derive their value from certain underlying physical markets, they likely will not be perfectly correlated with the daily physical markets for the same commodity at the same location.

Q: What did you provide Staff to show the risk being hedged and the value of that risk?

A: As shown in Schedule WEB-19, which is my response to Staff Data Request No. 0059, I provided an assessment of GMO's purchased power risk for 2009-2012. That risk assessment identified an annual exposure for on-peak power price risk of **[redacted]**.

Q: What did you provide Staff that identified the premium paid to mitigate that risk?

A: In my response to Staff Data Request Nos. 0056 and 0059, I compared the total hedge adjustment for GMO's hedge program from January 2009-December 2010 to the current market cost of "at-the-money" call options. In that Data Request I showed that the effective premium of GMO's program was essentially the same as the current market price for "at-the-money" call options.

Q: As you understand Mr. Eaves' three-prong test, did GMO fully satisfy that test?

A: Yes. (1) GMO established the strong correlation between NYMEX natural gas futures contract settlements and SPP on-peak power prices. (2) GMO determined that its risk exposure to on-peak power prices was material and warranted hedging. And (3), GMO

established that it did not overpay for the risk protection it received from its hedge program.

Q: What tests did Staff perform to evaluate the prudence of GMO's use of natural gas derivatives to cross hedge electricity price risk before it filed its Report in November?

A: I did not see in the Staff Report, Mr. Eaves' written testimony or hear in his deposition any other analyses or tests that were performed prior to the November filing of Staff's Report.[36] I know it was not until late February that Mr. Eaves asked for any of the Company's analyses showing the correlation between Southwest Power Pool on-peak power prices and NYMEX natural gas futures prices.

Q: If Mr. Eaves did not perform any analyses evaluating the Company's use of natural gas cross hedges for purchased power or the reasonableness of using natural gas to cross hedge electricity price risk, how did he determine GMO's hedges were imprudent?

A: I attended Mr. Eaves deposition and as I understand what he said is 1) "GMO was out of the money considerably the majority of the time, and I just don't see any analysis that GMO has done to back that up that would make it a prudent action"[37] and 2) he "kept running into the roadblock of using a monthly price, a monthly fixed settlement price to hedge an hourly price."[38] Mr. Eaves did not think there would have been ratepayer harm had GMO's hedges been in-the-money.[39]

[36] Dana Eaves, Deposition Testimony, File No. EO-2011-0390, April 10, 2012, p. 117 lines 2-3
[37] Dana Eaves, Deposition Testimony, File No. EO-2011-0390, April 10, 2012, p. 58 lines 18-21
[38] Dana Eaves, Deposition Testimony, File No. EO-2011-0390, April 10, 2012, p. 117 lines 10-12
[39] Dana Eaves, Deposition Testimony, File No. EO-2011-0390, April 10, 2012, p. 58 lines 16-17

Q: Does the fact that GMO experienced a loss on the derivative side of its hedges mean that ratepayers were harmed?

A: Absolutely not. The reason for hedging is to mitigate risk. In that regard, a hedge is like insurance. To say a ratepayer is harmed when only looking at the derivative side of a hedge is like saying you were harmed because you paid a premium for fire insurance on your house, the house did not burn down, so you did not get a settlement payment from the insurance company. As I showed in my Direct Testimony, the price GMO paid for its "insurance" was very reasonable and lower than alternatives. Were you harmed because you paid the insurance premium but house did not burn down? No. Can you demand that the insurance company return your premium? No. Staff is essentially saying, the house did not burn down, so they want the premium back.

Q: Has Mr. Eaves been able to substantiate his claim that GMO's hedging activities were imprudent?

A: No. While Mr. Eaves has expressed his opinion that GMO's hedging activities were imprudent, he has not satisfied the tests for determining those hedging activities were imprudent. In Schedule WEB-20 I delineate the key phrases of the Commission's prudence standard as quoted by Staff on page 5 of its Report. For each phrase or element of that standard I recap the evidence from Staff's testimony, Staff's Report, or my testimony to show how Staff failed substantiate any point.

Q: At page 5, Mr. Eaves acknowledged the need to adjust Staff's claim for the Stipulation and Agreement as to Certain Issues in Case No. ER-2007-0004. He also noted that on March 7, 2012, you filed a correction to Schedule WEB-5 of your Direct Testimony. Have you provided the data necessary to verify your adjustments and corrections of Staff's proposed disallowance?

A: Yes. That data was provided in response to Data Request No. 0056.3, a few days after Mr. Eaves filed his Direct/Rebuttal Testimony.

Q: Do you believe Staff will adopt your corrections?

A: Yes. Mr. Eaves made it clear in his testimony that it was not his intent to include the values associated with the ER-2007-0004 Stipulation and Agreement. The original response to Data Request No. 0056 did not identify which hedge adjustments were attributable to hedges covered by the ER-2007-0004 Stipulation and Agreement. It was not until after Staff filed its Report that I realized they needed more granularity in my response to Data Request No. 0056 than specified in the request.

V. CONCLUSION AND RECOMMENDATION

Q: What conclusions do you draw from your review of this case?

A: Julie Ryan and Julie Lieberman said it well in the February 2012 issue of *Public Utilities Fortnightly*.

> While it's tempting to look at historical hedging based on current information and perfect hindsight, the regulatory standard for what is reasonable and prudent must consider the availability of information and what was known at the time hedging decisions were made.[40]

[40] "Hedging Under Scrutiny: Planning ahead in a low-cost gas market", Julie Ryan and Julie Lieberman, *Public Utilities Fortnightly*, February 2012, p. 12.

Staff has had multiple opportunities to evaluate GMO's hedging practice of using natural gas derivatives to cross hedge electricity price risk between initiation of its program in 2004 and this case. All of the hedges Staff is now contesting were placed after Staff reviewed GMO's hedge program in ER-2005-0436 and ER-2007-0004. In other words, if Staff had an issue with the prudence of using natural gas derivatives to cross hedge electricity price risk, it had multiple opportunities to express that concern before the hedges it is now challenging were placed.

The fact that Staff filed this case with an erroneous belief regarding ratepayer harm and without any credible evidence of imprudence is already causing Missouri's electric utilities with FACs to reconsider whether they should hedge to protect their customers from energy market risk. If the Commission wants Missouri's electric utilities with FACs to hedge their customer's energy market risk, the Commission needs to clearly state that position.

The decision to employ natural gas cross hedges for electricity could have been easily evaluated by the Commission or its Staff before the Company placed any of the hedges. Other public utility commissions have found as the Public Utilities Commission of the State of Colorado did in its Decision No. C09-0596, Docket No. 08A-095G, "the hedging plan must be pre-approved and subsequent cost recovery should be based on how the utility carried out its plan – not on a hindsight comparison of how the hedging program performed compared to the market."

Q: Do you have any recommendations for the Commission regarding hedging?

A: Yes. First, I recommend that the Commission reject Staff's proposed disallowance and refund recommendations.

Second, I recommend that the Commission develop a process to avoid similar disputes over the Company's hedging programs in the future. Ken Costello, Senior Institute Economist for the National Regulatory Research Institute put it this way:

> Commissions should establish guidelines up front. These guidelines can act as general policy statements on different aspects of hedging, including cost recovery, which constitutes a prudent decision on the part of the utility, and the necessary elements of an acceptable hedging strategy. In hedging with financial derivatives, utilities need to know from their regulators what are the "rules of the game." Otherwise, they will be reluctant to hedge even when it would be in the interest of the consumers. Especially in an environment where rules are vague and all direct gains of hedging go to consumers, utilities understandably would have little incentive to hedge.
>
> State commissions also need to strike a proper balance between "signing off" on a hedging strategy and micro-managing the execution of the plan. Commissions lack the necessary information to direct a utility's hedging activities on a daily basis or to advise a utility on every decision. This does not preclude a commission from evaluating the execution of a hedging strategy. But as an overall policy, it would be preferable for commissions to convey, prospectively, clarity to utilities than to partake in costly and contentious hindsight reviews that frequently turn into "Monday morning quarterbacking." Hedging is one those activities, similar to the purchasing of insurance, where by design it is expected to result in a net loss to consumers. Consequently, hedging is vulnerable to ex post regulatory interpretation. But, in view of the intent to avoid large losses or harm—a "peace of mind-type" benefit—hedging with the result of higher prices to consumers or lower profits to a utility can still be regarded as successful and prudent.
>
> In sum, commissions should not tell utilities how to hedge; second-guessing lies counter to the traditional prudence standard and, more important, discourages utility hedging. Yet, a commission has a legitimate and useful role to play in evaluating the reasonableness of (1) a utility's hedging strategy, prospectively, and (2) the execution of the strategy itself.[41]

Q: Does that conclude your testimony?

A: Yes.

[41] Ken Costello, Senior Institute Economist, National Regulatory Research Institute, "Regulatory Questions on Hedging: The Case of Natural Gas", *Electricity Journal* at 51 (May 2002).

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Third Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of KCP&L Greater Missouri Operations Company	))))	Case No. EO-2011-0390

AFFIDAVIT OF WILLIAM EDWARD BLUNK

STATE OF MISSOURI)
) **ss**
COUNTY OF JACKSON)

William Edward Blunk, appearing before me, affirms and states:

1. My name is William Edward Blunk. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Supply Planning Manager.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of KC&PL Greater Missouri Operations Company consisting of fifty-one (51) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby affirm and state that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

William Edward Blunk

Subscribed and affirmed before me this 30th day of April, 2012.

Nicole A. Wehry
Notary Public

My commission expires: Feb. 4, 2015

NICOLE A. WEHRY
Notary Public - Notary Seal
State of Missouri
Commissioned for Jackson County
My Commission Expires: February 04, 2015
Commission Number: 11391200

SCHEDULE WEB-7

THIS DOCUMENT CONTAINS HIGHLY CONFIDENTIAL INFORMATION NOT AVAILABLE TO THE PUBLIC

Partial Recap of Staff's Errors and Misinterpretations

	Staff's Errors or Misinterpretations	**Why It Is A Problem**
1	Contention that owning Aries would have yielded a different hedge adjustment [Mantle at 6, Mantle deposition at 21]	GMO would have hedged the same volume of natural gas with Aries as it did for cross hedges for electricity.
2	Failed to recognize GMO's use of market heat rate to determine hedge volume. [Mantle at 8]	Since 2005 GMO has consistently stated cross hedge volumes are determined using market heat rate.
3	Applied wrong FAC tariff sheet to June through August 2009. [Mantle at 10, Mantle deposition at 9, Eaves at 6]	Correct FAC tariff sheet for June through August 2009 did not delineate specific items included in each account. All costs charged to 547 and 555 were included.
4	Failed to adjust claim for 2007 Stipulation and Agreement, "ultimate settlement values will not be subject to challenge as to prudence disallowance" [Eaves at 5; Eaves deposition at 36]	Even though Staff has the necessary information, Staff's prudence adjustment is overstated because it does not reflect this Stipulation.
5	Hedge mechanics: Represented derivative gain/loss as the entire hedge. [Eaves at 4]	A hedge is constructed by combining offsetting transactions in two different markets. It is the combination of the offsetting positions that mitigates the risk.
6	Hedge mechanics: Failed to identify the offsetting physical market change.	Without identifying the physical market change it is impossible to calculate the "dollar offset ratio" which is used in hindsight to evaluate hedge effectiveness
7	Presumed "in the money" meant no ratepayer harm. [Eaves deposition at 58]	Being "in the money" or "out of the money" is a function of market price movement. Joint Report pointed out that prudent programs can be "out of the money".
8	Determination that GMO was imprudent before performing analysis [Data Request 0115, Eaves deposition at 92]	MPSC prudence standard, "Utility's costs are **presumed** to be prudently incurred however the presumption does not survive a '**showing** of inefficiency or improvidence.'"
9	"One day" analysis only used hindsight data [Eaves at 17]	MPSC prudence standard, "The company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight."

	Staff's Errors or Misinterpretations	**Why It Is A Problem**
10	"One day" analysis used only one day of data [Eaves at 17]	With 547 days of hindsight data and many more days of foresight data available, Staff presented a sample of much less than 1% as representative.
11	"One day" analysis misinterpreted 3.190 data [Eaves at 18]	Mixed forward, capacity related, and spot purchases and assumed the mix represented spot market offerings.
12	Characterized a correlation coefficient of 0.8941 as "strong positive association" but too weak to support hedging [Eaves at 15]	Staff's position contradicts industry practice regarding the determination of hedge effectiveness.
13	Distorted meaning of "highly correlated" and "strong positive association"	Proposed changes for hedge accounting qualification would reduce expectations from "highly" to "reasonably" effective. Staff's position contradicts the FASB.
14	Failed to report 0.9411 *ex ante* 12 month correlation [Eaves workpapers]	MPSC prudence standard specifies that prudence "the company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight."
15	"One day" analysis used erroneous data. No NYMEX contract month has settled at the price used by Staff. [Eaves workpapers]	It is impossible to determine the relationship between SPP energy prices and NYMEX natural gas settlement prices unless the correct NYMEX settlement prices are used.
16	"One day" analysis calculations can not be replicated, even using erroneous data used by Staff. [Eaves workpapers]	If an analysis can not be replicated, perhaps it is erroneous.
17	When "one day" analysis yielded correlation of approximately 0, failed to examine the validity of study. [Eaves at 17]	The "one day" analysis conflicts with expressed views and analyses of SPP, Dr. Procter, Dr. Woo, and many others.
18	11 of 12 months of data in Staff's "after the period" analysis were after the audit period [Eaves at 16]	MPSC prudence standard specifies that prudence "the company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight."

	Staff's Errors or Misinterpretations	**Why It Is A Problem**
19	"After the period" analysis period may have been chosen because of unusually low value [Eaves workpapers]	There was no explanation given why an analysis using data that followed the review period had any bearing on the review period.
20	No acknowledgment of hedge accounting standards resulting from FAS 133 for determining "highly effective" hedges	The Financial Accounting Standards Board has been addressing the appropriateness of hedges and cross hedges for decades. Accounting for derivative based hedges must conform to those standards.
21	Presented an "assertion" from 2001 that was not adopted nor substantiated as representative of today's market place. [Eaves at 20]	The assertion was not substantiated with analysis.
22	Ignored the impact on power market of significant additions of gas-fired generation since 2001. [Eaves at 20]	Natural gas-fired capacity almost doubled from 2000 to 2009. Natural gas-fired generation increased 53% from 2000 to 2009. That increased reliance on natural gas would be expected to increase the relationship between on-peak power prices and natural gas prices.
23	Failed to recognize that the order which came out of the rulemaking made natural gas prices a significant component of "Price to beat" electricity price. [Eaves at 20]	The PUCT's order contradicts the "assertion" plucked from the position of one of the participants in the rulemaking.
24	Failed to recognize that the PUCT rulemaking expired 2 years before the audit review period	The PUCT rulemaking has no bearing on time period under consideration in this case.
25	Presented 2001 PUCT rulemaking as more relevant than Staff's own analyses prepared at a time relevant to this review. [Eaves at 20]	Staff's own analyses in 2007 and 2009 showed high correlation between natural gas and power prices in SPP.
26	Failed to research Texas utilities' use of cross hedging. [Eaves at 20]	TXU Corp reported using natural gas to cross hedge electricity price risk as early as 2003. TXU Corp was subject to PUCT rulemaking which Staff presented as evidence that natural gas price movements had little impact on power price movements.
27	Failed to identify verifiable prudence tests	If there is to be any objectivity to evaluating prudence, then there need to be clearly defined tests.

	Staff's Errors or Misinterpretations	**Why It Is A Problem**
28	Failed to distinguish information known "at the time" from information only known in hindsight	MPSC prudence standard specifies that prudence "the company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight."
29	Failed to evaluate the hindsight cost of GMO's hedge program in the context of its risk exposure. [Eaves deposition at 56, 117]	GMO provided its risk assessment and an analysis of actual cost versus risk in DR 0059.
30	Failed to compare the results of GMO's hedge program to other similar programs to determine efficiency. Eaves deposition at 117]	GMO provided analyses of actual cost to alternatives in DR 0059 and Blunk Direct.
31	Failed to demonstrate any point of inefficiency or improvidence	There is no foundation for either a claim of inefficiency or improvidence.
32	Misinterpreted FERC Accounting to assume hedge adjustments recorded in Account 547 would be reported the same way in Account 555.	The buy and sell of natural gas derivatives are netted in Account 547. Similar electricity derivative transactions are not combined. The buy is recorded in Account 555 while the sell is recorded in Account 447.

SCHEDULE WEB-9

THIS DOCUMENT CONTAINS HIGHLY CONFIDENTIAL INFORMATION NOT AVAILABLE TO THE PUBLIC

Company Name: KCPL GMO
Case Description: 2010 KCPL GMO FAC: Fuel Adjustment Clause
Case: EO-2011-0390

Response to Steiner Roger Interrogatories – Set KCPL_20120327
Date of Response:

Question No. :0115
On page 11 of the Rebuttal Testimony of Dana Eaves, he states: "Staff's analysis shows there is not a sufficient correlation between the natural gas prices of NYMEX natural gas futures contracts and on-peak spot market prices for electricity to justify GMO's hedging program."

a. Please provide any and all workpapers, documents, power point presentations, slides, or training course materials that support this Staff analysis.

b. Please provide the dates on which Mr. Eaves prepared any workpapers or other documents that support this analysis.

c. Please provide any and all workpapers, documents, power point presentations, slides, or training course materials in Staff's possession that would support a contrary conclusion that there is or may be a sufficient correlation between the natural gas prices of NYMEX natural gas futures contracts and on-peak spot market prices electricity that would support the reasonableness of a cross-hedging program between natural gas futures contracts and on-peak spot market prices for electricity.

d. When did Mr. Eaves first reach this conclusion?

RESPONSE: (do not edit or delete this line or anything above this)

a. Staff previously provided all workpapers with the filing of Mr. Eaves' direct/rebuttal testimony that supported Staff's statements.

b. Mr. Eaves did not date his workpapers. To the best of his knowledge, they were prepared after the filing of Staff's report but prior to the filing of Staff's direct/rebuttal testimony.

c. Mr. Eaves does not possess or have knowledge of workpapers that would support a contrary conclusion.

d. Prior to the filing of Staff's prudency report.

Attachment: None

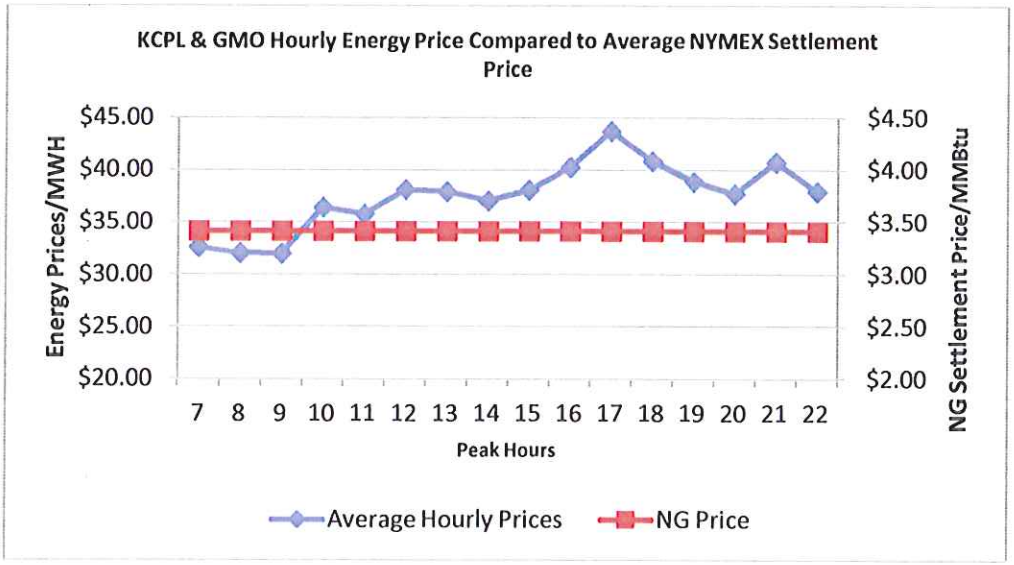
GMO Purdency
EO-2011-0390
Source: 3.190 monthly filings

Prepared by: Dana Eaves

Date	Average Hourly Prices	NG Price	Peak Hours
03-Aug-09	$32.57	$ 3.41	7
03-Aug-09	$32.02	$ 3.41	8
03-Aug-09	$31.95	$ 3.41	9
03-Aug-09	$36.38	$ 3.41	10
03-Aug-09	$35.74	$ 3.41	11
03-Aug-09	$38.09	$ 3.41	12
03-Aug-09	$37.89	$ 3.41	13
03-Aug-09	$37.01	$ 3.41	14
03-Aug-09	$38.05	$ 3.41	15
03-Aug-09	$40.21	$ 3.41	16
03-Aug-09	$43.66	$ 3.41	17
03-Aug-09	$40.80	$ 3.41	18
03-Aug-09	$38.86	$ 3.41	19
03-Aug-09	$37.68	$ 3.41	20
03-Aug-09	$40.70	$ 3.41	21
03-Aug-09	$37.90	$ 3.41	22

-1E-15

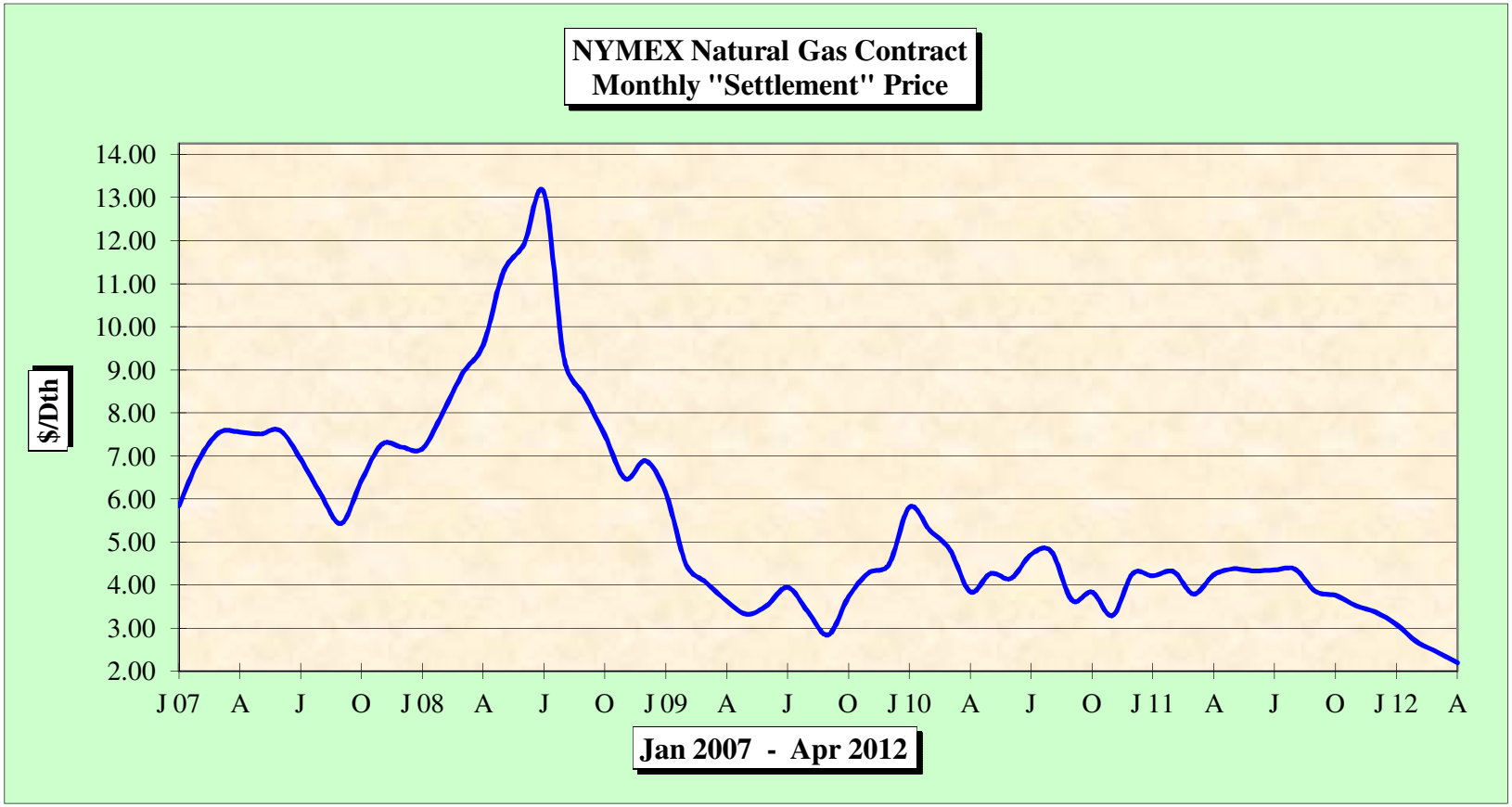
Correlation
0.0000000



NYMEX - NATURAL GAS CONTRACT SETTLEMENT PRICE HISTORY

Monthly Settlement Price

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR AVG
2007	5.838	6.917	7.547	7.558	7.508	7.591	6.929	6.110	5.430	6.423	7.269	7.203	6.860
2008	7.172	7.996	8.930	9.578	11.280	11.916	13.105	9.217	8.394	7.472	6.469	6.888	9.035
2009	6.136	4.476	4.056	3.631	3.321	3.538	3.949	3.379	2.843	3.730	4.289	4.486	3.986
2010	5.814	5.274	4.816	3.842	4.271	4.155	4.717	4.774	3.651	3.837	3.292	4.267	4.393
2011	4.216	4.316	3.793	4.240	4.377	4.326	4.357	4.370	3.857	3.759	3.524	3.364	4.042
2012	3.084	2.678	2.446	2.191									2.600



This report reviews U.S. generally accepted accounting practices (GAAP) applicable to derivatives and hedging applications. Statement of Financial Accounting Standards no. 133, "Accounting for Derivative Financial Instruments and Hedging Activities" (FAS 133) was implemented originally in 1999. International Accounting Standard 39 (IAS 39) for international reporting became effective in 2001. Canadian Institute of Charted Accountants statements 3855 and 3865 (CICAs 3855 and 3865) became effective in 2006 for Canadian reporting.

Appendix 1 provides a high-level summary of the implications of these standards. While the standards applicable in different jurisdictions are a bit different, they generally align with the precedents established by FAS 133.

We focus on the application of FAS 133 to U.S. entities using exchange-traded derivatives such as those offered by CME Group; and, to over-the-counter (OTC) derivatives. We begin with a brief introduction to FAS 133, emphasizing the concepts relevant to our discussion. Specifically, why and how the concept of hedge effectiveness is important and the difficulties experienced by practitioners. It is followed by an examination of the impact of these standards on corporate usage of derivatives. We conclude with a discussion of recent developments in this regard. [1]

Historical Background - Prior to the deployment of the current standards, hedge accounting practices were outlined in a document known as FAS 80, Accounting for Futures Contracts. FAS 80 originally became effective in 1984.

But FAS 80 had several shortcomings. *E.g.*, its applicability was confined to exchange-traded futures and options and not to OTC derivatives. Further, accounting treatment for options per FAS 80 could be misleading insofar as the option cost or premium typically was amortized over the life of the contract, possibly obscuring significant gains/losses in option value.

FAS 133 superseded FAS 80. Further, it extended its reach to include OTC derivatives that previously were not generally recognized in publicly disclosed accounting statements, particularly by non-financial institutions.

Actually, there has been a large number of amendments, clarifications and interpretations to the requirements of FAS 133 over the years. Appendix 2 to this document provides a chronology of Statements of Financial Accounting Standards (SFAS) governing the disclosure and accounting requirements of derivative instruments. But FAS 133 remains at the core of current derivatives accounting practices.

Rationale for FAS 133 - While derivative instruments, such as forwards, futures and swaps, may result in significant gains or losses, they are often initially transacted at zero cost. Certainly in the case of futures, they may be transacted at a sizable notional value and may require initial performance bonds or "margins" to secure the financial surety of the transaction. But they may nonetheless be transacted absent any up-front cash expense.

This may be modified in the case of "non-par" swaps where the parameters of the trade are established at levels away from current market values, necessitating an up-front payment between the two counterparties. Further, options require an up-front payment of an option premium. But these up-front payments are typically small relative to the notional, nominal or principal value of the transaction.

Throughout the life of a derivative contract, its value may bear little or no resemblance to its initial cost. Under those circumstances, traditional accounting practices that require instruments to be booked and carried at historical cost in financial statements become essentially meaningless. As such, disclosure of their fair market replacement, liquidation or non-par value becomes a logical choice. *I.e.*, derivative contracts should logically be marked or recognized at their fair value.

The first major tenet of FAS 80 is a requirement that all derivative instruments that fall within the scope of the statement be recognized as an asset or liability at their "fair value." Ideally, this may be accomplished by a "mark-to-market" process. In some cases where market prices are unobservable, one must revert to a "market-to-model" process.

Fair value accounting for derivatives may give rise to distortions of true financial conditions when applied

[1] This document is intended to provide an appreciation and overview of the elements of derivatives and hedge accounting. It is not intended to be referenced as specific advice regarding any particular accounting situation. The applicability of particular accounting treatments is driven by the myriad specific circumstances affecting a practitioner and the complex interpretation of a large body of accounting prescriptions. Thus we recommend that practitioners consult their accountant or legal counsel regarding the application of specific accounting treatments.

to a hedging situation. Assume, for example, the derivative contract represents a "perfect hedge" for another item on the balance sheet, *e.g.*, commodity inventories or financial assets such as stocks and bonds. To the extent that the gains/losses in the derivative instrument offset precisely against those assets that are the subject of the hedge, there is no change or impact upon the financial condition of the reporting entity.

Difficulty arises to the extent that gains/losses in the derivative instrument are marked to fair value and recognized in current earnings while gains/losses in the hedged items are carried on the books at historical cost. This may result in an artificial volatility in reported earnings and a distortion of the value of the reporting entity.

The second major tenet of FAS 133 is to require "hedge accounting" treatment to match gains (losses) in a derivative instrument with losses (gains) in the hedged asset or liability. Hedge accounting treatment may be deployed under certain conditions where documentation is maintained regarding the hedge and the derivatives and hedged instrument correlate to a prescribed degree.

Recording of derivatives at their fair value and hedge accounting treatment that coordinates the recognition of (presumably) offsetting gains/losses in the hedging instrument and the hedged item represent the essence of FAS 133.

Fair Value Accounting – FAS 133 generally addresses accounting and reporting standards for derivative instruments. The statement defines a derivative as a financial instrument or contract that … (i) has one or more underlying items; (ii) has one or more notional amounts or payment provisions; and (iii) requires little or no initial investment and that relies on a net settlement.

The statement includes a number of exemptions and recognizes that derivative instruments may be embedded in other "host" contracts such as structured notes, leases, purchase agreements, guarantees, etc. by contractual arrangement. The statement incorporates or excludes certain types of contracts that fall under its application as outlined in appendix 3 of this document.

The default assumption under FAS 133 is that any derivative instrument holdings represent speculative or investment items unless it may be demonstrated otherwise. And, as such, any gains or losses in the value of those derivatives must be presented at their fair market value, *i.e.*, they are marked to their fair value at the conclusion of the accounting period, and realized in current income.

Applying Hedge Accounting - To apply hedge accounting practices, one must identify the specific risk that is being addressed with the hedging transaction. The statement recognizes a number of different types of risks including … (i) interest rate risk; (ii) price risk; (iii) exchange rate risk; and (iv) credit risk.

The statement generally recognizes three different types of risk exposures which may qualify for hedge accounting treatment.

1. *Fair Value Exposure* – Refers to the change in fair value of an on-balance sheet asset, liability item or a yet-to-be recognized firm commitment. In this situation, the derivative instrument must be marked to their fair value as if it were a speculative or investment item. Likewise, the risk exposure is marked to its fair value. Thus, the offsetting gains and losses are marked and recognized in current earnings contemporaneously.

2. *Cash Flow Exposure* – Represents the changes in cash flow of an on-balance sheet item or an expected future transaction. The financial results associated with the derivative instrument are categorized as either "effective" or "ineffective." The ineffective portion of those gains or losses is recognized in current earnings. The effective component is carried initially as "other comprehensive income" (OCI) but subsequently reposted as income during the accounting period in which forecasted cash flows are recognized. Note that FAS 133 will recognize hedges as ineffective when the hedge results exceed the expected cash flow.

3. *Net Foreign Investment* – Refers to the firm's exposure to changes in the value of net foreign investment or operations due to exchange rate risks. One may use derivative or non-derivative instruments (or assets/liabilities denominated in the same currency as the hedged investment) for hedging purposes. Gains or losses in the value of the hedge are reported as "other comprehensive income" outside of current earnings and subsequently recognized in current earnings when investment gains or losses are realized similar to a cash flow hedge.

Qualifying for Hedge Accounting – In order to qualify for hedge accounting treatment, one must

specifically identify the hedged item and the instrument used to accomplish the hedge. Further, one must document the objective and strategy associated with a hedge along with the methodology utilized to assess hedge effectiveness.

To qualify for hedge accounting treatment, it is necessary to demonstrate that the hedge is likely to be highly effective for addressing the specifically identified risk exposure. There are two generally accepted methodologies to demonstrate the effectiveness of a hedge … (i) via a logical argument that considers the critical terms of the derivative instrument in question; or (ii) by statistical analysis.

Specific criteria demonstrating hedge effectiveness must be met prior to the application of the hedge (on an *ex ante* basis) and on a subsequent ongoing basis (on an "*ex post*" basis). Documentation of such demonstration is essential. If the criteria cannot be adhered to on an ongoing basis, hedge accounting must be discontinued. As such, gains and losses in the derivative would be marked to fair value and shown in current earnings. Adjustments in the value of the hedged item to sync with (presumably offsetting) gains and losses in the derivative instrument are discontinued.

Logically demonstrating the ex ante effectiveness of a hedge through a critical terms analysis requires that all the critical terms of the contract, *e.g.*, notional value, delivery grade, delivery date, delivery location, settlement procedure, etc., match up exactly with the hedged item. For example, crude oil futures traded at NYMEX may be deployed to hedge West Texas Intermediate, Low Sweet Mix, New Mexican Sweet, North Texas Sweet, Oklahoma Sweet, or South Texas Sweet crude oil with 0.42% sulfur by weight or less, with an API gravity or 37bp – 42 bp, deliverable at Crushing, OK.[2]

Futures contracts may be difficult to qualify via the critical terms analysis route to the extent that it may be rare that one wishes to hedge precisely or near precisely the item which may be delivered against a futures contract.

Application of a correlation analysis for the purpose of establishing *ex ante* effectiveness of the hedge requires that the derivatives and the hedged item exhibit a correlation coefficient of at least 0.90 (or an R-squared ≥ 0.80) with respect to their price fluctuations. This criterion was prescribed informally (but publicly) by the staff of the Securities and Exchange Commission (SEC). *E.g.*, if there is no liquid futures contract based on jet fuel, if the correlation between jet fuel and heating oil exceeds the threshold, the evidence validates hedge effectiveness. Hedge effectiveness in the context of futures contracts is most commonly demonstrated via the correlation methodology.

Ongoing application of hedge accounting further necessitates an *ex post* or retrospective evaluation of hedge effectiveness on a recurring basis. In other words, to qualify for hedge accounting treatment, it is necessary that the derivative(s) actually perform well.

While there is no single, definitive test prescribed by the Statement, Financial Accounting Standards Board had suggested the "80/125" rule, *viz.* the actual gains and losses of the derivative(s) should fall within 80% to 125% of the gains/losses for the hedged item. This form of *ex post* validation has been widely adopted by users of derivative instruments.

However, this ongoing evaluation may introduce some difficulties. *E.g.*, assume that a $500 million fixed-coupon bond portfolio is hedged with an interest rate swap designed to convert the coupon to floating rate coupon. In a low volatility environment, interest rates may remain reasonably stable. As such, it is perfectly conceivable that the bond position may advance in value by $10,000 while the swap is marked with a loss of say $4,000. Technically, the swap fails the test to the extent that the magnitude of fluctuations in swap value falls outside of the acceptable range of 80%-125%. However, the magnitude of these fluctuations may be regarded as insignificant "noise" relative to the aggregate value of the hedged portfolio.

Problems with Fair Value - The foregoing discussion side-steps an important consideration. Specifically, how do users identify the fair value at which to mark a derivatives instrument? The answer to this question ranges from trivial (for listed futures and options) to manageable (for standard OTC instruments) to outright perilous (for tailor-made structured products).

For listed derivatives, the fair market value is established on a daily basis by the listing exchange or the clearinghouse. Because exchanges and clearinghouses act as neutral third party facilitators, they have no incentive to distort or misrepresent fair value. Moreover, the value of most contracts is readily transparent. To the extent that listed derivatives frequently enjoy deep liquidity, there is

[2] Some crude oil of foreign origin with somewhat divergent characteristics may also qualify.

generally little dispute or controversy regarding the validity of the exchange's daily marks. Thus, the practitioner may mark-to-market based on a readily observable fair value.

Many standardized OTC derivatives including plain vanilla interest rate swaps (IRS), FX forwards, Forward Rate Agreements (FRAs), enjoy mature and liquid markets. Pricing mechanisms are generally well understood and the hurdles in valuing a seasoned derivative instrument are limited. Actionable quotes from multiple derivatives dealers may readily be surveyed for pricing purposes. Alternatively, the end-user intent on marking his books may establish the value themselves by applying a mechanical pricing convention although the burden may fall on that user to establish the validity of said method. Still, pricing difficulties are manageable.

However, there may be little hope on referencing a transparent, liquid market in the context of many customized derivatives. Thus, the process of establishing a daily fair value often relies on the application of mathematical models, i.e., the item must be "marked-to-model." But the validity of the model as well as the model inputs may become subject to question.

It is tempting to conclude that trading listed derivatives will solve the model risk problem. However, the fact that the hedger may select a customized product to address his hedging requirements inherently implies that there is a dearth of listed derivatives suitable for his needs. Or, that the execution of a strategy relying on listed products is either cost ineffective or gives rise to documentation problems that renders the strategy a worse option. Note that users must still needs to demonstrate that the hedging strategy is effective, on both an *ex ante* and *ex post* basis.

Recent Developments – In May of 2010, the FASB proposed changes to hedge accounting practices by issuing two Accounting Standards Updates (ASU) entitled "Accounting for Financial Instruments and Revisions to the Accounting for Derivatives Instruments and Hedging Activities – Financial Instruments (Topic 825)" and "Derivatives and Hedging (Topic 815)."

The proposed changes were a reaction, in part, to the subprime mortgage crisis. Thus, the changes are intended to produce more timely and representative measurements of the value of financial instruments as well as reduce the complexities inherent in such accounting. The changes may generally be categorized as follows.

- *Number of Categories & Measurement Methods* – Per current GAAP, there are multiple categories of financial instruments whose values may be measured and presented using a variety of methodologies. *E.g.*, under current GAAP, debt instruments may be carried on the books at an amortized cost, at fair value or at the lesser of cost or fair value. The proposed changes would require traded assets and liabilities to be accounted for at fair value with changes shown in net income. Assets and liabilities held for collection/payment of principal and interest could be presented in the balance sheet at either cost or fair value with changes reported as net and comprehensive income.

- *Loss Measurement* – Current GAAP utilizes various rules regarding the impairment of financial instruments based on the specific type of instrument, creating uncertainties regarding the probable magnitude of loss. The proposal would require that only instruments held in the collection/payment category would be tested for credit impairment and that such impairments could be recorded at an earlier stage in the process.

- *Qualifying for Hedge Accounting* – Current hedge accounting qualifications have been criticized as overly complex. The proposal would provide for less rigorous and more qualitative as opposed to quantitative measures to assess the *ex ante* effectiveness of the hedge. In particular, per the proposed standard, the *ex ante* expectation of hedge effectiveness would be reduced from a "highly" to "reasonably" effective. The proposal does not include any revised quantitative measures of hedge effectiveness.

The proposal remains the topic of comment and discussion and is not expected to be implemented until perhaps 2013. In particular, the broader application of fair value reporting standards is controversial in that it would introduce enhanced volatility in corporate and institutional balance sheets. This point, combined with a more liberal approach to qualifying for hedge accounting practices may portend of increase hedging activity using CME Group products.

International Developments - Note that these ASUs were developed as a part of a joint project between the FASB and the International Account Standard Board (IASB). This project was initiated in

2002 with the execution of a Memorandum of Understanding (MOU) aimed at converging international financial reporting standards (IFRS) and U.S. generally accepted accounting principles (GAAP) into a common standard.

Thus, the IASB issued an exposure draft entitled "Hedge Accounting" in December of 2010 with the intention of replacing to replace IAS 39, Financial Instruments: Recognition and Measurement.

In particular, the exposure draft proposes a complete elimination of the 80-125% standard to qualify a hedge as "highly effective." That standard would be replaced by an objective-based assessment of prospective hedge effectiveness. *I.e.*, the proposal would expand use of hedging accounting principles, similar to the reforms proposed by the FASB ASU discussed above.

For more information, please contact …

Richard Co, Director
Research & Product Development
(312) 930-3277, richard.co@cmegroup.com

John W. Labuszewski, Managing Director
Research & Product Development
312-466-7469, jlab@cmegroup.com

Appendix 1: Summary of Current Accounting Standards

	FAS 133	IAS 39	CICA 3855 & 3865
Title	Accounting for Derivative Instruments and Hedging Activities	Financial Instruments: Recognition and Measurement	Accounting for Derivative Instruments and Hedging Activities
Issuer	Financial Accounting Standards Board (FASB)	International Accounting Standards Board (IASB)	Canadian Institute of Chartered Accountants (CICA)
Effective Date	June 1, 1999	January 1, 2001	October 1, 2006
Region	US	International	Canada
Summary	FAS 133 states that all derivatives must be recorded at fair value as an asset or liability. The ability to apply hedge accounting is optional. If a derivative qualifies as a hedge, gains or losses from derivative will match or offset gains or losses from value of underlying transaction. To qualify for hedge accounting, FAS 133 provides rules and procedures for hedge effectiveness testing. If derivative is ineffective, it is marked at its fair value in the companies' earnings.	IAS 39 establishes principles for recognizing and measuring financial assets and liabilities. With respect to derivatives, IAS 39 requires companies to initially recognize their derivatives at fair value; fair value is defined as amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. Derivatives that are designated as hedged items are subject to measurements under hedge accounting requirements of IAS 39.	CICA 3855 prescribes when you recognize a financial instrument on balance sheet and at what amount, sometimes using fair value; other times using cost based measures. It also specifies how to present financial instrument gains and losses. CICA 3865 specifies how to apply hedge accounting and what disclosures are necessary when it is applied. AcG-13 applies to private companies only and it deals with identification, documentation, designation and effectiveness of hedging relationships and with discontinuance of hedge accounting.

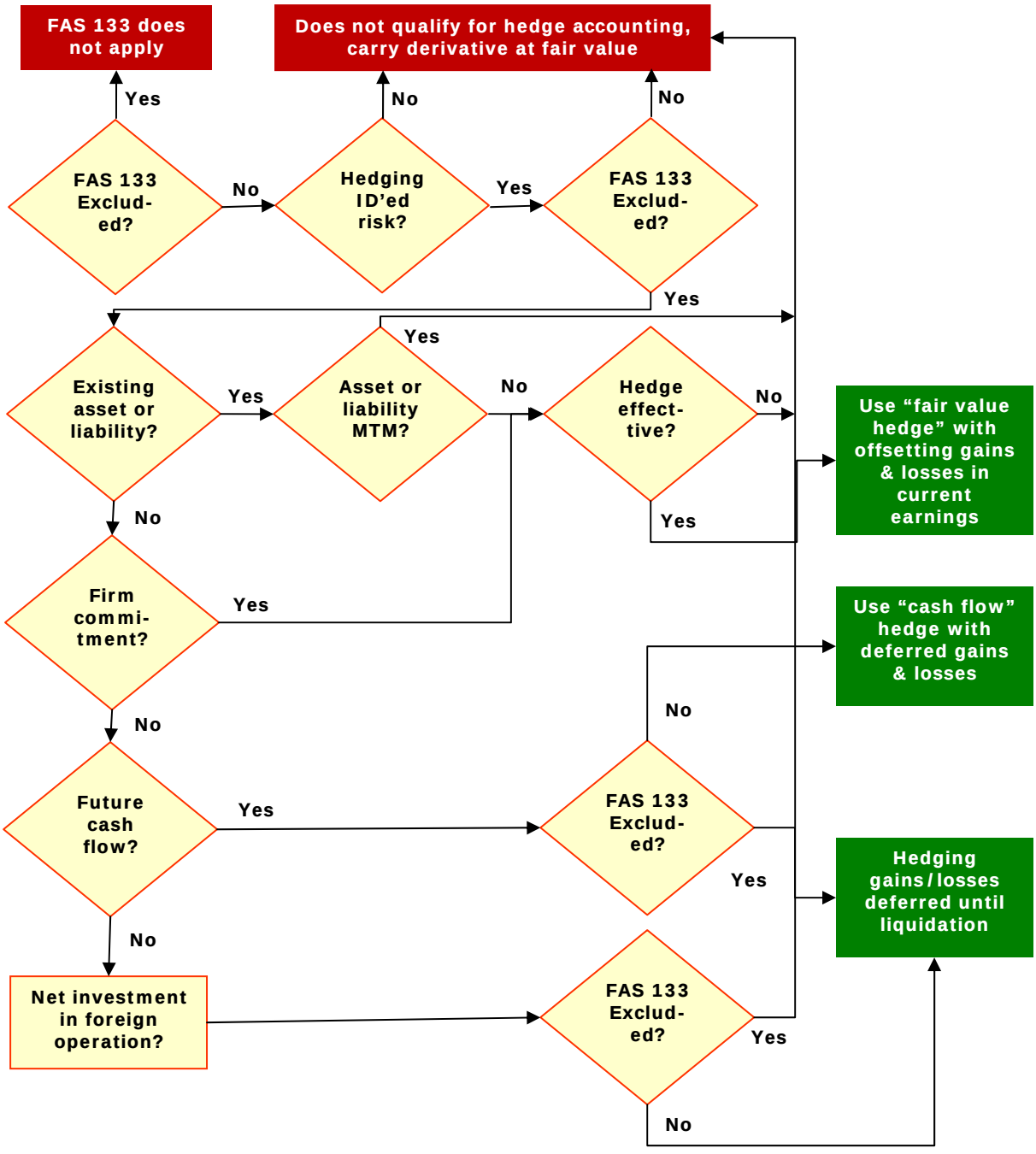
Appendix 2: Chronology of Derivatives Accounting

Year	FAS No.	Title	Requirements
1981	52	Foreign Currency Translation	Established process for valuing assets, liabilities denominated in foreign currencies.
1984	80	Accounting for Futures Contracts	Established accounting and reporting requirements for futures and options on futures, outlining accounting for fair value hedges and cash flow hedges.
1990	105	Disclosure of Information about Financial Instruments with Off-Balance Sheet Risk and Financial Instruments with Concentrations of Credit Risk	Required companies to make quantitative disclosures about market risks and credit risks related to unsettled financial instruments.
1991	107	Disclosure about Fair Values of Financial Instruments	Required companies to disclose fair market value of unsettled financial instruments.
1993	115	Accounting for Certain Investments in Debt and Equity Securities	Required that trading and available-for-sale securities be shown on balance sheet at fair market value, with changes in market value included in income or in equity section of balance sheet as component of other comprehensive income.
1995	119	Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments	Required disclosures about purposes of derivative financial instruments and about how derivatives are reported in financial statements. For derivatives used to hedge risks associated with anticipated transactions, required disclosure about nature of anticipated transactions and amounts of deferred hedging gains and losses.
1998	133	Accounting for Derivative Instruments and Hedging Activities	Required that all derivative instruments be shown on balance sheet at fair market value with accounting for changes in fair value depending on the purpose of derivative. Established new disclosure requirements superseding those in FAS 105 and 119 and amending those in FAS 107.
1999	137	Accounting for Derivative Instruments and Hedging Activities, Deferral of the Effective Date of FAS 133, an Amendment of FAS 133	Delayed the effective date of FAS 133 to fiscal years beginning after June 15, 2000.
2000	138	Accounting for Certain Derivative Instruments and Certain Hedging Activities, an Amendment of FAS 133	Made certain technical changes in way FAS 133 is to be applied to specific types of hedges.
2003	149	Amendment of FAS 133 on Derivative Instruments and Hedging Activities	Clarification to FAS 133 as well as treatment of Derivatives embedded in other contracts.
2006	155	Accounting for Certain Hybrid Financial Instruments - An amendment of FASB Statements No. 133 and 140	Permits fair value measurement of hybrid financial instrument that contains an embedded derivative that otherwise would require bifurcation; other clarifications regarding IO and PO strips, evaluation of securitized assets.
2006	157	Fair Value Measurements	Establishes a framework for measuring fair value as a market-based measurement and expands disclosures about fair value measurements.
2007	159	The Fair Value Option for Financial Assets and Financial Liabilities - Including an amendment of FASB Statement No. 115	Expands scope of assets and liabilities subject to fair value measurement per FAS 157
2008	161	Disclosures about Derivative Instruments and Hedging Activities – An amendment of FASB Statement No. 133	Requires enhanced disclosures for derivatives including CDS

Appendix 3: Contracts Impacted by FAS 133

Contract	FAS 133 Applies?	Comments
Exchange-traded stock options	Yes	
Employee stock options	No	Specifically excluded
Warrants to purchase exchange-traded securities	Yes	Marketability of exchange-traded security equivalent to net settlement provision
Warrants to purchase non-exchange-traded securities	No	No net settlement or equivalent
Exchange-traded commodity futures	Yes	
Exchange-traded financial futures	Yes	
FX forwards	Yes	
Forward contracts to purchase/sell manufactured goods	No	Normal purchases and sales of goods excluded
Interest rate / FX swaps	Yes	
Swaptions	Yes	
Casualty & life insurance contracts	No	Specifically excluded
Financial guaranty contracts	No	Specifically excluded
Mortgaged-backed securities	No	Requires an initial net investment
Options to purchase/sell real estate	No	No net settlement provision
Credit-indexed bonds or notes	Yes	
Royalty agreements	No	Specifically excluded
Weather-indexed contracts	No	If not exchange traded

Appendix 4: Applying FAS 133



Company Name: KCPL GMO
Case Description: 2010 KCPL GMO FAC: Fuel Adjustment Clause
Case: EO-2011-0390

Response to Eaves Dana Interrogatories – Set MPSC_20120221
Date of Response:

Question No. :0085
Please provide any studies and/or analyses that GMO or its consultants have performed showing the correlation between Southwest Power Pool on-peak purchased power price and NYMEX natural gas futures price. Has GMO performed or caused to be prepared any studies detailing GMO's exposure to cross commodity (gas-to-electric) price risk?

RESPONSE: (do not edit or delete this line or anything above this)

The attached spreadsheet shows an analysis of the correlations between NYMEX Henry Hub natural gas monthly settlement values and the monthly average of day-ahead on-peak prices for SPP pricing points and the average of those SPP pricing points. Overall the analysis shows that the correlation between NYMEX Henry Hub natural gas futures contract settlement values and Southwest Power Pool on-peak prices exceeds 0.90.

Regarding studies detailing GMO's exposure to cross commodity (gas to electric) price risk, the attached correlation analysis is such a study and it shows that NYMEX natural gas futures contracts have such a high correlation with SPP on-peak power prices there is minimal cross commodity risk.

ATTACHMENTS:
- MPSC0085-correlation NYMEX to SPP on-peak.xlsx
- Q0085 GMO Verification.pdf

ANSWERED BY: Ed Blunk, Supply Resources

Schedule WEB-14

Company Name: KCPL GMO
Case Description: 2010 KCPL GMO FAC: Fuel Adjustment Clause
Case: EO-2011-0390

Response to Steiner Roger Interrogatories – Set KCPL_20120207
Date of Response:

Question No. :0083

Provide a listing of all personnel of the Missouri Public Service Commission staff who have attended either PGS Energy Training's seminars or webinars on hedging natural gas or electricity price risk.

RESPONSE: (do not edit or delete this line or anything above this)

List of Missouri Public Service Commission Staff that attended PGS Energy Training: See attached: PGS Energy Training 022412.pdf

Attachment: PGS Energy Training 022412.pdf

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Allee	Anne	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Allee	Anne	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Allee	Anne	26-Jan-05	Introduction to Commodity Markets & Energy Trading	PGS Energy	3
Allee	Anne	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Allee	Anne	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	1.5
Allee	Anne	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Allee	Anne	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Allee	Anne	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Allee	Anne	03-Mar-06	PGS Energy Swaps & Electric CFD's	PGS Energy	2
Allee	Anne	20-Apr-06	Fundamentals of Energy & Electricity Options	PGS Energy	1
Allee	Anne	12-May-06	Fundamentals of VaR & Earnings at Risk	PGS Energy	2
Allee	Anne	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Bangert	Gary	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Barnes	Matt	11-Jan-05	AMR Business Case Benchmarking: Evaluation & Outlook of the North American AMR Market	PGS Energy	1.5
Barnes	Matt	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Barnes	Matt	21-Jan-05	Fundamentals of Utility Rates Part I & II	PGS Energy	3
Barnes	Matt	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Barnes	Matt	27-Jan-06	Fundamentals of Gas & Electric Utility Rates	PGS Energy	1.5
Barnes	Matt	03-Mar-06	PGS Energy Swaps & Electric CFD's	PGS Energy	2
Bax	Alan	11-Jan-05	AMR Business Case Benchmarking: Evaluation & Outlook of the North American AMR Market	PGS Energy	1.5
Bax	Alan	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Bax	Alan	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5
Bernsen	Debbie	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Boateng	Kofi	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Boateng	Kofi	21-Jan-05	Fundamentals of Utility Rates Part I & II	PGS Energy	3
Boateng	Kofi	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Boateng	Kofi	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Boateng	Kofi	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Bolin	Kim	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Bolin	Kim	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Brueggemann	Shelley	20-Apr-06	Fundamentals of Energy & Electricity Options	PGS Energy	3.5
Busch	Jim	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Busch	Jim	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Busch	Jim	15-Jan-08	Dynamic Retail Pricing, Demand Response & Integrated Resource Planning for Vertically Integrated Electric Utilities	PGS Energy	3
Cassidy	John	09-Mar-05	Introduction to the U.S. Natural Gas Industry	PGS Energy	3
Cassidy	John	16-Mar-05	Introduction to Heat Rates, Spark Spreads, Generation Atonality, Tolling & Heat Rate Linked Power Transactions	PGS Energy	3
Cassidy	John	05-Apr-05	Green Trading Update: New Trends in Environmental Financial Markets	PGS Energy	1
Cassidy	John	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5
Cassidy	John	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	1.5
Cassidy	John	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Cecil	Walt	21-Oct-10	Fundamentals of Today's US Electric Power Industry, the Smart Grid, Renewable Power, ISO Markets & Wholesale Power Transactions	PGS Energy	11
Choe	Kwang	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Choe	Kwang	21-Jan-05	Fundamentals of Utility Rates Part I & II	PGS Energy	3
Choe	Kwang	26-Jan-05	Introduction to Commodity Markets & Energy Trading	PGS Energy	3
Choe	Kwang	09-Mar-05	Introduction to the U.S. Natural Gas Industry	PGS Energy	3
Choe	Kwang	16-Mar-05	Introduction to Heat Rates, Spark Spreads, Generation Atonality, Tolling & Heat Rate Linked Power Transactions	PGS Energy	3
Choe	Kwang	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	3
Choe	Kwang	09-Dec-05	Fundamental of Energy Statistical Analysis	PGS Energy	3
Choe	Kwang	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Choe	Kwang	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Choe	Kwang	27-Jan-06	Fundamentals of Gas & Electric Utility Rates	PGS Energy	1.5
Choe	Kwang	03-Mar-06	PGS Energy Swaps & Electric CFD's	PGS Energy	2
Choe	Kwang	12-May-06	Fundamentals of VaR & Earnings at Risk	PGS Energy	1
Choe	Kwang	17-Jan-08	Fundamentals of Energy & Electric Financial Markets	PGS Energy	3.5
Choe	Kwang	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Choe	Kwang	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Davidson	Janette	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Davidson	Janette	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Davidson	Janette	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Dietrich	Natelle	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Dottheim	Steve	22-Sep-10	Project Management: The Earned Value of Management Approach	PGS Energy	4
Eaves	Dana	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Ensrud	Michael	21-Jan-05	Fundamentals of Utility Rates Part I & II	PGS Energy	3
Ensrud	Michael	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Ensrud	Michael	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Ensrud	Michael	10-Mar-05	Introduction to the U.S. Electric Power Industry Sessions I & II	PGS Energy	2.5
Ensrud	Michael	11-Mar-05	Fundamentals of Utility Rates Sessions I & II	PGS Energy	2
Ensrud	Michael	12-Aug-05	A Case Study in Siting New Transmission Lines: Successfully Developing Good Community Relations	PGS Energy	1.5
Ensrud	Michael	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	1.5
Ensrud	Michael	03-Mar-09	The Smart Grid in the Age of Obama	PGS Energy	3
Featherstone	Cary	16-Dec-04	Utility Financial Performance & Diversification: Will Credit Ratings Impact New Investment Opportunities	PGS Energy	1.5
Featherstone	Cary	26-Jan-05	Introduction to Commodity Markets & Energy Trading	PGS Energy	3
Featherstone	Cary	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Featherstone	Cary	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Featherstone	Cary	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Featherstone	Cary	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Fischer	Janis	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Fischer	Janis	26-Jan-05	Introduction to Commodity Markets & Energy Trading	PGS Energy	3
Fischer	Janis	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Fischer	Janis	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Fischer	Janis	11-May-06	Forward Energy Markets & the Fundamentals of Natural Gas & Electric Power Trading	PGS Energy	3
Fischer	Janis	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Fischer	Janis	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Fischer	Janis	22-Sep-10	Project Management: The Earned Value of Management Approach	PGS Energy	4
Gilbert	Guy	12-Aug-05	A Case Study in Siting New Transmission Lines: Successfully Developing Good Community Relations	PGS Energy	1.5
Gilbert	Guy	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Grissum	Roberta	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Grissum	Roberta	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Grissum	Roberta	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Grissum	Roberta	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	3
Grissum	Roberta	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Grissum	Roberta	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Grissum	Roberta	15-Jan-08	Dynamic Retail Pricing, Demand Response & Integrated Resource Planning for Vertically Integrated Electric Utilities	PGS Energy	3.5
Grissum	Roberta	17-Jan-08	Fundamentals of Energy & Electric Financial Markets	PGS Energy	3.5
Grissum	Roberta	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Grissum	Roberta	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Grissum	Roberta	22-Sep-10	Project Management: The Earned Value of Management Approach	PGS Energy	4

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Hagemeyer	Nila	11-Jan-05	AMR Business Case Benchmarking: Evaluation & Outlook of the North American AMR Market	PGS Energy	1.5
Hagemeyer	Nila	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Hagemeyer	Nila	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Hagemeyer	Nila	12-Aug-05	A Case Study in Siting New Transmission Lines: Successfully Developing Good Community Relations	PGS Energy	1.5
Hanneken	Lisa	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Hanneken	Lisa	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Hanneken	Lisa	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Hanneken	Lisa	11-Mar-05	Fundamentals of Utility Rates Sessions I & II	PGS Energy	2
Hanneken	Lisa	16-Mar-05	Introduction to Heat Rates, Spark Spreads, Generation Atonality, Tolling & Heat Rate Linked Power Transactions	PGS Energy	3
Hanneken	Lisa	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Harris	Bill	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Harris	Bill	10-Mar-05	Introduction to the U.S. Electric Power Industry Sessions I & II	PGS Energy	2.5
Harris	Bill	11-Mar-05	Fundamentals of Utility Rates Sessions I & II	PGS Energy	2
Harris	Bill	15-Mar-05	Fundamentals of Energy Hedge Funds	PGS Energy	1
Harrison	Paul	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Harrison	Paul	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Harrison	Paul	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Harrison	Paul	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Harrison	Paul	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Harrison	Paul	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Henderson	Wess	16-Dec-04	Utility Financial Performance and Diversification: Will Credit Ratings Impact New Investment Opportunities?	PGS Energy	1.5
Hughes	Mark	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	1.5
Hughes	Mark	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Hyneman	Chuck	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Hyneman	Chuck	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Hyneman	Chuck	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Hyneman	Chuck	15-Jan-08	Dynamic Retail Pricing, Demand Response & Integrated Resource Planning for Vertically Integrated Electric Utilities	PGS Energy	2.25
Hyneman	Chuck	17-Jan-08	Fundamentals of Energy & Electric Financial Markets	PGS Energy	3.5
Hyneman	Chuck	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Hyneman	Chuck	14-Sep-10	Project Management for Utility Capital Projects	PGS Energy	4
Hyneman	Chuck	22-Sep-10	Project Management: The Earned Value of Management Approach	PGS Energy	4
Imhoff	Tom	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Imhoff	Tom	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Jenkins	Lesa	26-Jan-05	Introduction to Commodity Markets & Energy Trading	PGS Energy	3
Jenkins	Lesa	09-Mar-05	Introduction to the U.S. Natural Gas Industry	PGS Energy	3
Jenkins	Lesa	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Jenkins	Lesa	20-Apr-06	Fundamentals of Energy Statistical Analysis	PGS Energy	1
Jenkins	Lesa	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Jones	Kennard	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Kohly	Sherri	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Kohly	Sherri	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Kohly	Sherri	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Kottwitz	John	05-Jun-06	Safety Evaluation of Inline Inspection	PGS Energy	8
Kremer	Lisa	11-Jan-05	AMR Business Case Benchmarking: Evaluation & Outlook of the North American AMR Market	PGS Energy	1.5
Kremer	Lisa	12-Aug-05	A Case Study in Siting New Transmission Lines: Successfully Developing Good Community Relations	PGS Energy	1.5
Lange	Shawn	09-Mar-05	Introduction to the U.S. Natural Gas Industry	PGS Energy	3
Lange	Shawn	10-Mar-05	Introduction to the U.S. Electric Power Industry Sessions I & II	PGS Energy	2.5
Leonberger	Bob	26-Jun-06	Pipeline Safety Seminar	PGS Energy	14.5
Lock	Phil	21-Jan-05	Fundamentals of Utility Rates Part I & II	PGS Energy	3
Lock	Phil	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Lock	Phil	27-Jan-06	Fundamentals of Gas & Electric Utility Rates	PGS Energy	1.5
Lock	Phil	20-Apr-06	Fundamentals of Energy & Electricity Options	PGS Energy	3.5
Lock	Phil	12-May-06	Fundamentals of VaR & Earnings at Risk	PGS Energy	1
Lock	Phil	17-Aug-06	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Lock	Phil	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Lock	Phil	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Majors	Keith	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Maloney	Erin	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Maloney	Erin	09-Mar-05	Introduction to the U.S. Natural Gas Industry	PGS Energy	3
Maloney	Erin	10-Mar-05	Introduction to the U.S. Electric Power Industry Sessions I & II	PGS Energy	2.5
Maloney	Erin	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5
Maloney	Erin	12-Aug-05	A Case Study in Siting New Transmission Lines: Successfully Developing Good Community Relations	PGS Energy	1.5
Maloney	Erin	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	1.5
Maloney	Erin	20-Apr-06	Fundamentals of Energy Statistical Analysis	PGS Energy	

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Maloney	Erin	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Mapeka	Paula	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Mapeka	Paula	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
McKinnie	Adam	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5
McKinnie	Adam	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
McKinnie	Adam	03-Mar-09	The Smart Grid in the Age of Obama	PGS Energy	3
Miles	Derick	18-Jul-07	Fundamentals of the US Natural Gas System	PGS Energy	3.5
Miles	Derick	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Miles	Derick	17-Jan-08	Fundamentals of Energy & Electric Financial Markets	PGS Energy	3.5
Miles	Derick	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3.5
Miles	Derick	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Moore	Richard	03-Mar-09	The Smart Grid in the Age of Obama	PGS Energy	3
Niemeier	Kay	11-Jan-05	AMR Business Case Benchmarking: Evaluation & Outlook of the North American AMR Market	PGS Energy	1.5
Niemeier	Kay	21-Jan-05	Fundamentals of Utility Rates Part I & II	PGS Energy	3
Oligschlaeger	Mark	19-Jul-07	Understanding Today's US Natural Gas Industry	PGS Energy	3.5
Oligschlaeger	Mark	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Rackers	Steve	18-Jan-05	Hedge Funds: The Next Wave in Energy Trading	PGS Energy	1
Rackers	Steve	20-Jan-05	Introduction to the Electric Power Industry Part I & II	PGS Energy	3.5
Rackers	Steve	10-Mar-05	Introduction to the U.S. Electric Power Industry Sessions I & II	PGS Energy	2.5
Rackers	Steve	16-Mar-05	Introduction to Heat Rates, Spark Spreads, Generation Atonality, Tolling & Heat Rate Linked Power Transactions	PGS Energy	1
Rackers	Steve	05-Apr-05	Green Trading Update: New Trends in Environmental Financial Markets	PGS Energy	1
Rackers	Steve	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5
Rackers	Steve	29-Sep-05	How to Really Hedge Energy & Electricity Price Risk	PGS Energy	1
Rackers	Steve	03-Mar-06	PGS Energy Swaps & Electric CFD's	PGS Energy	2
Rackers	Steve	12-May-06	Fundamentals of VaR & Earnings at Risk	PGS Energy	2
Rackers	Steve	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Rackers	Steve	15-Jan-08	Dynamic Retail Pricing, Demand Response & Integrated Resource Planning for Vertically Integrated Electric Utilities	PGS Energy	3.5
Rackers	Steve	17-Jan-08	Fundamentals of Energy & Electric Financial Markets	PGS Energy	3.5
Rackers	Steve	03-Mar-09	The Smart Grid in the Age of Obama	PGS Energy	3
Roos	David	20-Apr-06	Fundamentals of Energy & Electricity Options	PGS Energy	3.5
Roos	David	17-May-06	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	1.5
Russo	Jim	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5

PSC Employees with PGS Energy Training

Last Name	First Name	Begin	Title of Training or Seminar	Training Sponsor	MTR
Schallenberg	Bob	06-Apr-05	Broadband Powerline Business and its Technology - The Hope and Hype	PGS Energy	1.5
Schallenberg	Bob	12-Aug-05	A Case Study in Siting New Transmission Lines: Successfully Developing Good Community Relations	PGS Energy	1.5
Schallenberg	Bob	09-Dec-05	Fundamentals of Energy Statistical Analysis	PGS Energy	3
Schallenberg	Bob	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Schallenberg	Bob	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Schallenberg	Bob	17-Jan-08	Fundamentals of Energy & Electric Financial Markets	PGS Energy	3.5
Schallenberg	Bob	18-Jan-08	How to Financially Hedge Natural Gas & Electricity Price Risk	PGS Energy	3
Schallenberg	Bob	22-Sep-10	Project Management: The Earned Value of Management Approach	PGS Energy	4
Shemwell	Lera	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Solt	Tom	26-Jan-05	Understanding the US Natural Gas Industry: GAS 101 Part I & II	PGS Energy	3
Solt	Tom	05-Apr-05	Green Trading Update: New Trends in Environmental Financial Markets	PGS Energy	1
Solt	Tom	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Solt	Tom	03-Mar-06	PGS Energy Swaps & Electric CFD's	PGS Energy	2
Solt	Tom	20-Apr-06	Fundamentals of Energy Statistical Analysis	PGS Energy	3.5
Sommerer	Dave	26-Jan-05	Introduction to Commodity Markets & Energy Trading	PGS Energy	3
Sommerer	Dave	27-Jan-05	Introduction to Heat Rates Spark Spreads & Generation Economics and Tolling & Heat Rate-Linked-Transactions	PGS Energy	3
Sommerer	Dave	10-Mar-05	Introduction to the U.S. Electric Power Industry Sessions I & II	PGS Energy	2.5
Sommerer	Dave	15-Mar-05	Fundamentals of Energy Hedge Funds	PGS Energy	1
Sommerer	Dave	05-Apr-05	Green Trading Update: New Trends in Environmental Financial Markets	PGS Energy	1
Sommerer	Dave	09-Dec-05	Fundamental of Energy Statistical Analysis	PGS Energy	3
Sommerer	Dave	14-Dec-05	How to Value Energy Assets Using Real Option Analysis	PGS Energy	3
Sommerer	Dave	15-Dec-05	The Broader Impact of Hedge Funds on the Energy Market	PGS Energy	1.25
Sommerer	Dave	03-Mar-06	PGS Energy Swaps & Electric CFD's	PGS Energy	2
Sommerer	Dave	20-Apr-06	Fundamentals of Energy & Electricity Options	PGS Energy	1
Sommerer	Dave	12-May-06	Fundamentals of VaR & Earnings at Risk	PGS Energy	2
Sommerer	Dave	12-Aug-09	Fundamentals of Natural Gas Contracting	PGS Energy	3.5
Voss	Cherlyn	15-Jan-08	Dynamic Retail Pricing, Demand Response & Integrated Resource Planning for Vertically Integrated Electric Utilities	PGS Energy	2.5
Warren	Henry	03-Mar-09	The Smart Grid in the Age of Obama	PGS Energy	3
Wells	Curt	20-Apr-06	Fundamentals of Energy Statistical Analysis	PGS Energy	3.5
Wells	Curt	11-Dec-07	How to Improve Fuel Adjustment Clauses for Vertically Integrated Electric Utilities	PGS Energy	3
Wheeler	Janet	03-Mar-09	The Smart Grid in the Age of Obama	PGS Energy	3

SCHEDULE WEB-16

THIS DOCUMENT CONTAINS HIGHLY CONFIDENTIAL INFORMATION NOT AVAILABLE TO THE PUBLIC

Blunk Ed

From: Cooper, Wil L [WCooper@ameren.com]
Sent: Wednesday, January 18, 2012 12:49 PM
To: Rate Committee
Subject: RE: Hedging Practices

"Yes" to all three for Ameren Missouri.

Best Regards,

Wil Cooper

::::::::::::::::::::::::::
WILBON COOPER
Manager
Rates and Tariffs
T 314.554.3248
C 314.919.6925
F 314.612.2180
E wcooper@ameren.com

.....
Ameren Missouri
1901 Chouteau
St Louis, MO 63103
AmerenMissouri.com

From: Bielski, Casimir [mailto:CBielski@eei.org]
Sent: Wednesday, January 18, 2012 6:58 AM
To: Rate Committee
Subject: Hedging Practices

From Lois Liechti at KCPL:

1) Do you or have you ever used derivatives (futures, options, forwards, etc.) to hedge natural gas price risk?
2) Do you or have you ever used derivatives (futures, options, forwards, etc.) to hedge electricity price risk?
3) Do you or have you ever used natural gas derivatives (futures, options, forwards, etc.) to cross hedge electricity price risk?

Thanks.

Lois

Lois Liechti | Senior Manager, Regulatory Affairs | Kansas City Power & Light Company | 816.556.2612 | lois.liechti@kcpl.com

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You are currently subscribed to ratecomte as: lois.liechti@kcpl.com.

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Company Name: KCPL GMO
Case Description: 2010 KCPL GMO FAC: Fuel Adjustment Clause
Case: EO-2011-0390

Response to Eaves Dana Interrogatories – Set MPSC_20111026
Date of Response:

Question No. :0058
1. Does GMO know if any other Missouri electric utility, investor-owned, municipal or rural electric cooperatives hedge its purchased power? If yes, please describe GMO's knowledge of these activities. 2. Has GMO inquired of any other Missouri electric utility, investor-owned, municipal or rural electric cooperative, to determine if it hedges its purchased power? 3. Why does GMO hedge its purchased power? 4. Why does GMO plan to continue to hedge its purchased power given the level of hedging costs that it has experienced over the last 18 months? 5. What is unique to GMO that it should hedge its purchased power? 6. Why does the management of KCPL/GMO believe it is appropriate for GMO to hedge purchased power and not appropriate for KCPL to hedge purchased power?

RESPONSE: (do not edit or delete this line or anything above this)

1. Does GMO know if any other Missouri electric utility, investor-owned, municipal or rual electric cooperatives hedge its purchased power? If yes, please describe GMO's knowledge of these activities.
Answer: GMO's knowledge of other electric utility hedging activities comes from those entities' FERC Form 1s. EDE uses fixed-price forward physical contracts to hedge purchased power. Ameren uses derivatives principally to manage the risk of changes in market prices. The goal of Ameren's hedging program is generally to mitigate financial risks while ensuring that sufficient volumes are available to meet requirements. Contracts Ameren enters into as part of their risk management program may be settled financially, settled by physical delivery, or net settled with the counterparty. Ameren reported that its Ameren Illinois Company (AIC) subsidiary experienced a hedge loss of $352 million in 2010 and $422 million loss in 2009 on power derivative contracts. In addition to those realized losses, at December 31, 2010, AIC had deferred $181 million of loss on power derivative contracts as a regulatory asset. In other words, while GMO lost $1.80/MWh of power purchased in 2010, AIC lost $18.15/MWh.

2. Has GMO inquired of any other Missouri electric utility, investor-owned, municipal or rural electric cooperative, to determine if it hedges its purchased power?
Answer: No.

3. Why does GMO hedge its purchased power?

Answer: GMO's purchases 3.5 million – 3.9 million MWh of power to serve its load at a cost of $120-135 million/year. Those purchases represent about 40 percent of GMO's energy requirements. In other words, GMO has a significant exposure to movements in the market price for electricity. Generally electricity market prices in SPP-North are the product of natural gas prices and the "market heat rate" in a given period. The spot price of natural gas has experienced significant volatility for the past several years. Volatility in electricity prices has been even greater.

4. Why does GMO plan to continue to hedge its purchased power given the level of hedging costs that it has experienced over the last 18 months?
Answer: With over 40 percent of GMO's energy requirements being supplied through purchased power, GMO has a significant exposure to the volatility of the power market. While the 2009 and 2010 gas prices are about 40-50 percent lower than the 2007 and 2008 prices, in five of the last 12 years prices have exceeded 145 percent of the price three years prior, and four of the last 12 years prices have exceeded 160 percent of the price two years prior.

5. What is unique to GMO that it should hedge its purchased power?
Answer: GMO is heavily reliant on purchased power to serve its load. In 2010 GMO purchased more power than KCP&L and Union Electric combined. With fewer "non-requirements sales for resale" GMO purchased about twice as many MWhs as Empire District Electric. With over 40 percent of GMO's energy requirements being supplied through purchased power, GMO has a significant exposure to the volatility of the power market. KCP&L, Union Electric, and Empire District Electric combined only supplied about 7 percent of their total energy requirements with purchased power.

6. Why does the management of KCPL/GMO believe it is appropriate for GMO to hedge purchased power and not appropriate for KCPL to hedge purchased power?
Answer: GMO has much greater exposure to the natural gas and wholesale power markets than KCP&L. About half of GMO's non-wind generating capacity is natural gas. Less than 20% of KCP&L's non-wind capacity is natural gas. GMO has about 30% more natural gas fired capacity than KCP&L. GMO buys about 2.5 times as much power as KCP&L.

Attachment: Q0058 GMO Verification.pdf

ANSWERED BY: Ed Blunk, Supply Resources

SCHEDULE WEB-19

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Schedule WEB-20

Staff's Failure To Demonstrate Imprudence

MPSC Prudence Standard	Evidence
Utility's costs are presumed to be prudently incurred	Staff presumed GMO's costs were imprudent. Staff filed its Report declaring cross hedging costs imprudent BEFORE it analyzed correlations or asked GMO for its correlation analyses.
however the presumption does not survive a "showing of inefficiency or improvidence."	Staff found no indication GMO's purchases of natural gas or purchased power were imprudent. Nor did Staff suggest there was any inefficiency regarding the Company's administration of its hedge program.
Where some other participant in the proceeding creates a serious doubt as to the prudence of an expenditure,	Given the fatal flaws in Staff's analysis which it characterized as the crux of its argument, there is no foundation for a "serious doubt."
then the applicant has the burden of dispelling these doubts and proving the questioned expenditure to have been prudent.	The evidence shows: 1) natural gas is highly correlated with on-peak power prices in SPP, 2) using NYMEX natural gas futures to hedge electricity price risk has been taught across the nation for many years by such reputable organizations as EPRI and PGS Energy, 3) other utilities across the country use natural gas derivatives to cross hedge electricity, and 4) in Blunk's Direct GMO demonstrated that costs were lower than alternatives.
… the PSC noted that this test of prudence should not be based upon hindsight,	The data Staff used to construct its fatally flawed analysis upon which after it filed its Report based its argument of improvidence was not available "at the time."
but upon a reasonableness standard:	Staff presented no analyses comparing the cost of GMO's program to any other alternative risk mitigation.
The company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight.	Staff acknowledged that "Staff knows of no formal organized market that allows for spot purchased power to be hedged which would aid GMO in mitigating the risk associated with buying spot market purchased power." [Report, p.9] Staff declared GMO imprudent BEFORE it performed its fatally flawed analysis to support that position.
In effect, our responsibility is to determine how reasonable people would have performed the tasks that confronted the company.	GMO was reasonable to use natural gas derivatives to cross hedge its purchased power risk. Moreover, GMO was cost effective in the implementation of its hedge program.