Exhibit No.:	_____
Issue(s)	FAC
Witness/Type of Exhibit:	Hyneman/Surrebuttal
Sponsoring Party:	Public Counsel
Case No.:	EO-2017-0065

SURREBUTTAL TESTIMONY

OF

CHARLES R. HYNEMAN

Submitted on Behalf of the Office of the Public Counsel

EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. EO-2017-0065

July 28, 2017

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Sixth Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of The Empire District Electric Company	)))))	Case No. EO-2017-0065

AFFIDAVIT OF CHARLES R. HYNEMAN

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Charles R. Hyneman, of lawful age and being first duly sworn, deposes and states:

1. My name is Charles R. Hyneman. I am the Chief Public Utility Accountant for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

Charles R. Hyneman, C.P.A.
Chief Public Utility Accountant

Subscribed and sworn to me this 28th day of July 2017.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2017
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My Commission expires August 23, 2017.

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SURREBUTTAL TESTIMONY

OF

CHARLES R. HYNEMAN
THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. EO-2017-0065

Introduction

Q. Please state your name and business address.

A. Charles R. Hyneman, PO Box 2230, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Office of the Public Counsel ("OPC") as Chief Public Utility Accountant.

Q. Are you the same Charles R. Hyneman who filed direct and rebuttal testimonies in this case?

A. Yes, I am.

Q. What is the purpose of your surrebuttal testimony?

A. This testimony responds to the rebuttal testimonies of Empire witnesses Blake Mertens and Robert Sager. I will also respond to the rebuttal testimony of Staff witness Dana Eaves.

Rebuttal of Empire Witness Blake Mertens

Q. Empire witnesses Mertens and Sager seek to interpret the Public Utilities Fortnightly article attached to your direct testimony to support Empire's position that it was prudent in not responding to the 2009 changes in the natural gas market. Does this article support Empire's position in this case?

A. No. The Public Utilities Fortnightly article "*Hedging Under Scrutiny: Planning ahead in a low cost gas market*" ("hedging article"), was published in February 2012. I included this

article in my direct testimony because it provided evidence of the reactions from state regulatory commissions, commission staffs, and other intervenors in 2010-2011.This was just after the revolutionary changes in the natural gas market in 2009. The hedging article is relevant to the natural gas market prior to February 2012 and therefore relevant to Empire's hedging transactions at issue in this case, which took place at various times between 2010 and 2015.

Q. Was this article specifically selected because it was published during the time Empire's hedging transactions at issue in this case were made?

A. Yes. This hedging article is often-quoted in the regulatory environment by both utilities and non-utility parties. It was selected specifically because of its high acceptance and the time period it was written, that is, to avoid hindsight bias.

Q. At page 14 of lines 1 through 4 of Mr. Mertens rebuttal testimony he states that it appears to him that you do not agree with the conclusions and recommendations set forth in the hedging article. Is he correct?

A. No. He must have misunderstood my direct testimony. To be clear, I accept and significantly agree with substantially all of the statements and conclusions reached in this hedging article. I do, however, have some disagreements with a few of the authors' statements. I provide as Schedule CRH-S-1 a detailed analysis and commentary on the complete hedging article.

Q. What is the essential information included in the hedging article?

A. The article provides many examples where regulatory commissions, commission staffs and intervenors take direct and specific actions to force utilities to make changes in natural gas hedging plans based on 2009 changes in the natural gas market. Most of these actions were being demanded in the same 2010-2011 period when Empire continued to engage in hedging transactions that led to significant hedging losses at issue in this case.

Q. Do Empire witnesses Mertens and Sager indicate that they agree with this hedging article?

A. Yes. They did not suggest disagreement with any of the facts or conclusions reached by the authors of the hedging article who were at the time energy consultants with Concentric Energy Advisors ("Concentric"). Mr. Mertens even attached a copy of this article to his rebuttal testimony as an expression of agreement with the facts and conclusions reached in this article.

Q. On September 21, 2015 did Concentric provide a response to the Louisiana Public Service Commission's request for proposal ("RFP") for consulting work on a Commission rulemaking docket on hedging?

A. Yes. I reviewed the case docket filings on the Louisiana Public Service Commission's website. Concentric's response to this RFP is attached as Schedule CRH-S-2

Q. What is significant about Concentric's response to the Louisiana Public Service Commission's RFP?

A. This RFP, at page 3, provides a good description of the various stages of the natural gas market from 2005 through 2015, when Concentric's response to this RFP was submitted.

In this RFP response Concentric describes, for the Louisiana Public Service Commission, the changes in the natural gas market from 2005, when hedging was favored, until 2009 and the impact of the shale gas revolution. In 2009 the hedging programs that had been structured to avoid upside risk (like Empire's hedging program) became uncompetitive and subject to regulatory scrutiny. This is the same regulatory scrutiny that is well described in the hedging article and in my comments on this hedging article in Schedule CRH-S-1.

Concentric goes on to describe the market changes since the middle of 2012 where price risk was no longer present and hedging positions decreased. Concentric writes:

• Upside. From 2005 through the beginning of 2009 the hedging programs were focused on avoiding price increases (the "Upside" risk). In general, hedging in a market with an upside trend favored the hedging programs because it allowed for more competitive prices, price certainty and reduced volatility;

• Downside. By the middle of 2009 the perspective changed with the increased importance of non-conventional sources of natural gas ("Shale" gas) and the hedging programs that had been structured to avoid upside risk became uncompetitive and subject to regulatory scrutiny. Prices that were $18.99/MMBtu in February 2003 plummeted to $1.86/MMBtu in the Spot (next-day delivery) markets. Hedging programs started incorporating a focus on avoiding uncompetitive prices, opportunity costs and less concern on upside risk; and

• Sideways. Since the middle of 2012 we have now entered a timeframe where prices have either softened or traded within a ranged (moved "sideways"). The upside or downside risk considerations of the earlier periods are no longer that present and we have now entered a period where a balanced approach that weighs the upside and the downside risk driving the hedging programs and leading largely to fewer hedged positions.

NYMEX Futures Prices (Forward Price Curves)

Q. Mr. Mertens expresses concern that OPC did not cite to any specific NYMEX futures prices (or "forward price curves") in 2010-2015 when Empire was buying the hedges that caused the hedge losses at issue in this case. Did OPC include any NYMEX futures prices similar to what Mr. Mertens provides in Table BAM-2 of his rebuttal testimony?

A. No.

Q. Please explain why not.

A. The use of NYMEX futures prices in the near-term (no more than a few months into the future) may provide some limited value in such an analysis. The use of NYMEX futures

prices past this period provide very little, if any, value to a forecast of natural gas prices. NYMEX futures prices are not designed to forecast natural gas prices.

One problem is that NYMEX futures prices beyond a maximum of one year suffer from a significant lack of liquidity. A lack of liquidity means that there are little or no open contracts for natural gas delivery in two or three years into the future. With little or no trading in these natural gas futures contracts, NYMEX futures prices provide no value to any forecast of actual future natural gas prices.

Q. Has the Commission ever indicated that it believes NYMEX futures are an appropriate method for forecasting prices?

A. No, not that I am aware. I know that in the past, Staff rate case auditors Staff' natural gas Procurement Analysis Department ("PAD") auditors strongly opposed any notion that NYMEX futures prices have and material correlation with spot natural gas prices.

Q. Did Mr. Mertens state at page 8 line 11 that the Commission indicated that NYMEX futures are an appropriate method for forecasting prices?

A. Yes. He did not provide a reference to the document in testimony, so OPC issued a data request seeking this information. Though Empire objected to this question based on relevance and other factors, it did provide a response. The cite for this alleged Commission support is "ER-2004-0570 Transcript of proceedings; Tr. 613 – 699".

Q. Did you review these transcript pages?

A. Yes. However I found no indication at all that, in this rate case hearing, the Commission supported NYMEX futures as a method to forecast future natural gas prices. I also reviewed the Commission Report and Order in this case and the Commission made no mention of NYMEX futures. Base on my review I can only conclude that Mr. Mertens' statement of Commission support is incorrect.

Q. In addition to a lack of liquidity and low trading volume, are there other inherent problems with placing reliance on the accuracy of prices in a futures market?

A. Yes. My opinion on other problems with using futures prices for this purpose was best explained by GMO witness Edward Blunk at page 21 of his August 15, 2016 rebuttal testimony in Case No. ER-2016-0156. The NYMEX futures market prices have embedded in them a "premium for term", or a premium to compensate for the lack of market liquidity price risk. This "premium for term" distorts the futures prices as representative of the actual expected price of natural gas to be delivered in that contract month. Stated another way:

> 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 as compensation for that greater risk.

Q. In addition to the two problems with the use of NYMEX futures prices in a natural gas market evaluation that you described above, what are some additional weaknesses of using NYMEX futures prices to predict actual natural gas prices?

A. The main weakness is just the fact that NYMEX natural gas futures prices are not a good predictor of future actual natural gas prices. The empirical evidence that I have both produced and reviewed in past Missouri rate cases show there is no material correlation between the prices in the two markets. Both Staff regulatory economist Dr. Kwang Choe and I have testified on several occasions before the Commission that NYMEX futures prices are a bad predictor of futures prices (See Schedules CRH-S-7 and S-8).

Q. Are you aware of Dr. Choe's educational background?

A. Yes. Dr. Choe received a Bachelor of Arts, Master of Arts, and Doctor of Philosophy degrees in economics. His undergraduate degree is from the University of California, San Diego, his graduate degrees are from the University of Missouri, Columbia. He worked in the department of economics at the University of Missouri, Columbia as a graduate teaching instructor from 1997 to 1999, and as a graduate teaching assistant from 1991 to 1993 and from 1996 to 1999. He was also a visiting assistant professor in the department of economics at the University of Missouri, Columbia.

Q. Were the positions taken in past Staff rate case testimony taken by both you and Dr. Choe concerning the lack of correlation between NYMEX futures prices and subsequent actual natural gas prices bolstered by the testimony of Aquila, Inc. ("Aquila")?

A. Yes. The Missouri electric utility operations of Aquila were acquired by Great Plains Energy in 2008. Great Plain Energy renamed these properties KCP&L Greater Missouri Operations Company, or GMO. I will refer to Aquila for events pre-2008 and GMO for events that occurred after July 2008.

In Aquila's 2004 Missouri rate case (ER-2004-0034), Aquila opposed using NYMEX futures prices as a predictor of actual natural gas prices. I described Aquila's position on NYMEX futures forward price curves in my rebuttal testimony filed on November 18, 2005 in Aquila rate case ER-2005-0436. I have attached this testimony as Schedule CRH-S-3.

Aquila opposed using NYMEX futures prices as a predictor of actual natural gas prices and preferred to rely on a collection of studies by industry experts to reach conclusions about the trends in the natural gas market going forward. This is an approach I consider to be reasonable and prudent and much preferable to blind reliance on prices listed on a commodities futures exchange.

Q. Summarize Aquila's position on the validity of NYMEX futures prices as a predictor of future prices.

A. Aquila's method to predict future natural gas prices was to calculate the average of six industry analysts' gas price estimates that were made in March 2003. Aquila's took the position that NYMEX futures prices should not be used as a basis for setting rates. Aquila's rationale concerning the inherent limitations of using NYMEX futures (Mr. Mertens' forward price curves) in Case No. ER-2004-0034 included the following:

> … the use of NYMEX futures is questionable in both the near term as well as the long term for predicting future spot prices.
>
> The near term futures can be highly volatile and react to short-term events irrationally.
>
> On the other hand, futures for years such as 2005 and 2006 are illiquid and lightly traded making them potentially meaningless as far as predicting future physical prices.
>
> Kwang Y. Choe, a Regulatory Economist with the Commission, …describes in great detail why the correlation between NYMEX futures and future spot prices is very weak and not suitable for ratemaking.

Q. Can you provide an example based on past NYMEX futures forward price curves and the resulting actual spot market prices that reflect the lack of validity in the use of futures prices to project actual prices?

A. Yes. The following example is taken from the 2005 and 2006 NYMEX forward price curves provided by Empire's witness Mr. Brad Beecher at page 3 of his rebuttal testimony in Case No. ER-2004-0570.

On January 1, 2004 NYMEX's "prediction" of average natural gas prices for 2005 was $4.94. The actual average price for 2005 was $8.81, a difference of 78%.

Also on January 1, 2004 NYMEX's "prediction" of average natural gas prices for 2006 was $4.72. The actual average price for 2006 was $6.75, a difference of 43%.

Date	NYMEX-Forward Curve	Henry Hub-Actuals
	2005	2005
1/1/2004	$4.94	$8.81

Date	NYMEX-Forward Curve	Henry Hub-Actuals
	2006	2006
1/1/2004	$4.72	$6.75

Source: Empire witness Brad Beecher's rebuutal testimony ER-2004-0570 p. 3

Henry Hub Natural Gas Spot Price

https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm

Q. What is your conclusion concerning the use of NYMEX futures (forward price curves) to estimate future natural gas prices?

A. As noted above, they are simply one tool that can be used (with caution) by industry experts in natural gas market price projections. While futures prices are of no value by themselves, they may be of some value when used with other components of natural gas price projections and analyses.

Q. At page 8 lines 9 through 18 of his rebuttal testimony Mr. Mertens made certain statements regarding NYMEX futures and your direct testimony. Please address each of these statements.

A. Mr. Mertens' testimony makes the following statements:

> NYMEX futures are a reasonable method of forecasting natural gas prices.
>
> In File No. ER-2004-0570, the Commission indicated that NYMEX futures are an appropriate method of forecasting prices.
>
> In Mr. Hyneman's Direct Testimony, he cites to a chart sponsored by Dana Eaves of the Commission Staff ("Staff") in Staff's Report in

> File No. ER-2016-0156 (GMO). This chart, which references NYMEX futures, is used by Mr. Hyneman to make the point that Staff shares in Mr. Hyneman's assessment that natural gas prices are expected to remain stable in the future.
>
> From these statements, it appears Mr. Hyneman takes no issue with using NYMEX futures as a reasonable indicator of future natural gas prices.

Mr. Mertens states that NYMEX futures are a reasonable basis for forecasting natural gas prices. In my testimony above, I have shown the opposite to be true. In addition to the evidence presented above, I have attached a chart as Schedule CRH-S-4to this testimony.

This chart was attached to Staff witness Dr. Kwang Choe's testimony in Empire's rate case No. ER-2006-0315. This chart compares futures prices to spot prices from January 2000 through July 2006. A quick glance at this table will lead readers to conclude quickly that NYMEX futures prices are not good at predicting actual natural gas prices.

Mr. Mertens' statement that in "File No. ER-2004-0570, the Commission indicated that NYMEX futures are an appropriate method of forecasting prices" is not supported. I found no reference to Commission support for the use of NYMEX prices as reasonable projections of future natural gas prices in the case's Report and Order or in the hearing transcripts referred to by Empire in its response to OPC's data request. I am aware that Staff has taken the opposite position in the utility rate case and to my knowledge; Staff has always maintained that NYMEX futures are a bad predictor of actual future natural gas prices.

At page 22 of my direct testimony in this case, I described Staff's position on GMO's hedging in its GMO 2016 rate case Cost of Service Report, where Staff recommended that GMO suspend its natural gas fuel hedging as well as purchased power hedging. I also included a NYMEX futures chart that Staff used in the GMO rate case as support for its position. Mr. Mertens states that I used this chart to point out that Staff shares in my

assessment that natural gas prices are expected to remain stable in the future. That is not correct.

My point in using this chart was to illustrate the inconsistency in Staff's position with GMO and Empire. Staff continues to deny that it recommended that GMO suspend its natural gas fuel hedging although that is exactly what it did in its Cost of Service Report, throughout the rate case, and continuing on through the settlement of the rate case where GMO agreed to suspend its natural gas fuel hedging. My inclusion of this chart has nothing to do with my particular view on the utility of NYMEX futures prices, but was included to portray an accurate and complete representation of Staff's position on GMO's hedging in GMO's 2016 rate case.

Finally, Mr. Mertens attempts to grossly mischaracterize my testimony to support his position on the utility of NYMEX futures for prediction of natural gas prices. His conclusion that "Mr. Hyneman takes no issue with using NYMEX futures as a reasonable indicator of future natural gas prices" is faulty reasoning based on incorrect and distorted facts. I take every issue with this statement.

I do believe that NYMEX futures, at least in the near term, can provide some minimal and incremental value to an analysis of the natural gas market, but due to the inherent weaknesses and limitations described above, that is as much support as I can give. My conclusion on the value of forward price curves is shared by Staff over many years and by other utilities, such as Aquila.

Q. Is the reason that natural gas price futures, or forward price curves are of no value by themselves the main reason why you did not include specific NYMEX futures price curves in OPC's direct testimonies in this case?

A. Yes. The only value of NYMEX futures price curves would be in the context of an overall evaluation of changes in the natural gas market using the same approach I describe used by

Aquila. That approach is to obtain as much relevant and reliable information from industry experts on the issue and use professional judgment to make the decisions on hedging.

In this case NYMEX futures prices would be used to support other price analyses in the short-term. This is the type of evaluation Empire should have made, but apparently did not make, in response to the revolutionary change in the natural gas market.

Q. You stated in past utility rate cases you took the position that there was no correlation between NYMEX futures prices and subsequent actual natural gas prices. Has Empire provided any analysis to show there is any correlation between NYMEX futures prices and subsequent actual natural gas prices?

A. No. Relevant information in this case would be if Empire proved a significant positive correlation existed in 2010-2015, provided evidence that the futures prices showed continued high prices and price volatility, and that Empire has documentation reflecting reliance upon these futures prices in its decisions not to make any changes to its hedging practices. None of this relevant information was provided in this case. While this information alone would not be sufficient to prove prudence on Empire's part, it would be helpful to explain why Empire decided to take no actions in response to the 2009 changes in the natural gas market.

Q. Please elaborate on the lack of price volatility in Mr. Mertens' Table BAM-2, which is the data Mr. Mertens states OPC should have used as a part of its prudence analysis.

A. Mr. Mertens provided forward prices curves for natural gas deliveries in each month in 2015 as the futures price existed on the last calendar date of each month in 2010 and in each month in 2011. A portion of the data he presents in Table BAM-2 is presented below. Ignoring the problems with the usefulness of futures market prices this far out into the future, and assuming this data has some degree of reliability and validity, one can only reach a conclusion similar to the one reached by Mr. DaFonte, that there is no volatility in these

futures prices. It is not clear at all how Mr. Mertens can conclude that the futures prices he reflects in the forward curves in Table BAM-2 reflect any significant volatility.

Futures Months	6/30/2011	7/29/2011	8/26/2011
1/1/2015	$5.89	$5.80	$5.69
2/1/2015	$5.86	$5.77	$5.65
3/1/2015	$5.77	$5.68	$5.57
4/1/2015	$5.49	$5.42	$5.31
5/1/2015	$5.50	$5.44	$5.32
6/1/2015	$5.54	$5.47	$5.35
7/1/2015	$5.58	$5.51	$5.38
8/1/2015	$5.61	$5.54	$5.41
9/1/2015	$5.62	$5.55	$5.42
10/1/2015	$5.67	$5.59	$5.45
11/1/2015	$5.81	$5.72	$5.58
12/1/2015	$6.04	$5.96	$5.80

Q. If OPC were to disregard the problems inherent with the use of forward price curves and use the data Mr. Mertens included in Table BAM-2 as evidence, would this evidence support OPC's conclusion that the post-2009 natural gas market was non-volatile?

A. Yes, it would. If this evidence were credible (and it is not) Mr. Mertens' Table BAM-2 provides additional evidence in support of OPC. The forward price curves in Mr. Mertens' Table BAM-2 show the significant lack of volatility in the post-2009 natural gas market.

Q. Does the NYMEX forward price curve in Table BAM-2 meet the Commission's definition of volatility?

A. No. It is not consistent with the Commission's definition of volatility. In its May 22, 2007 Report and Order in Case No. ER-2007-0002, on page 23, the Commission defined volatility as "[M]arkets in which prices are volatile tend to go up and down in an

unpredictable manner." The forward price curves in Table BAM-2 do not go up and down in an unpredictable manner.

Liberty Utilities Position on the Post-2009 Natural Gas Market

Q. Did the individual who is currently responsible for Empire's fuel procurement program recognize that the 2009 revolutionary change in the natural gas market eliminated price volatility from the market?

A. Yes. Mr. Francisco DaFonte, Liberty Utilities' current Vice-President of Energy Procurement stated the shale revolution was the single most influential factor which caused the 2009 change in the natural gas market. Empire is a subsidiary of Liberty Utilities, which is owned by Algonquin Power & Utilities Corp ("APUC"). At the date of this testimony, Mr. DaFonte was Liberty Utilities' Senior Director of Energy Procurement.

Mr. DaFonte included the following discussion in his May 2014 testimony in Docket No. DG -14-133 before the New Hampshire Public Utilities Commission ("NHPUC"):

> Q. Mr. DaFonte, to what do you attribute this decline in NYMEX natural gas prices and price volatility?
>
> A The single most influential factor in the reduction and stability of natural gas prices has been the emergence of shale gas in both the supply area and the market area. The proliferation of shale gas has led directly to numerous pipeline projects being constructed to deliver these volumes into the market…

Mr. DaFonte stated that Liberty's customers were paying for a hedging program that was developed to manage natural gas price volatility at a time when natural gas supplies were tight and gas prices fluctuated considerably. He explained that the natural gas market dynamics have changed with the increase of shale gas production and the volatility in NYMEX futures prices (forward price curves) has been muted and shows continued signs of stability through 2020.

Q. What were Mr. DaFonte's responsibilities as Vice President, Energy Procurement for Liberty?

A. Mr. DaFonte testified before the Missouri Commission in two cases, GM-2012-0037 and GR-2014-0152. At page 2 of his July 30, 2014 rebuttal testimony in GR-2014-0152, he testified that he was responsible for all gas and electric supply portfolio management functions including procurement, planning, forecasting, scheduling, hedging, and on-system transportation for Liberty's natural gas and electric utility companies in California, Georgia, Missouri, Illinois, Iowa, New Hampshire and Massachusetts.

Q. Did you request through a data request a short telecom meeting with Mr. DaFonte to discuss his 2014 testimony and how he is applying his hedging conclusions and positions to Empire?

A. Yes, however Empire objected to making Mr. DaFonte available for discussions.

Q. While the evidence put forth by OPC in this case makes it clear Empire failed to make any serious evaluation of the 2009 natural gas market changes, did Liberty Utilities, the utility that now owns Empire, perform such an analysis of the 2009 natural gas market?

A. Yes.

Q. Did the Liberty Utilities natural gas market evaluation include employing the use of NYMEX futures forward price curves as supported by Mr. Mertens in his rebuttal testimony?

A. Yes. The stated purpose of Mr. DaFonte's May 2014 testimony was to support Liberty Utilities' petition to the NHPUC to allow it to stop price hedging natural gas. The stated purpose of Mr. DaFonte's testimony was to "present the Company's proposal to modify its existing commodity hedging program to better stabilize the cost of natural gas supplies

acquired to serve its customers." Mr. DaFonte told the NHPUC that Liberty's hedging program did not provide customers with meaningful benefits. He stated that due to little volatility in the natural gas market (in 2013 and 2014) customers were not seeing any offsetting benefits to the hedging losses they were paying in utility rates.

Q. Mr. DaFonte's stated in his testimony that "[W]ith the clear lack of price volatility, hedging of the NYMEX would have little benefit to consumers." Using forward price curves, is Mr. DaFonte's conclusion inconsistent with Mr. Mertens' rebuttal testimony?

A. Yes. Mr. DaFonte referred to the clear lack of volatility in the NYMEX futures forward price curves. This "lack of volatility" in the forward price curves was the basis of Liberty's conclusion, at the latest in May 2014, that price hedging on the NYMEX provides little benefit to Liberty's ratepayers. Mr. DaFonte found no volatility in NYMEX futures prices in his 2014 analysis using forward price curves. Mr. DaFonte concluded NYMEX futures prices (forward price curves) have been muted and showed continued signs of stability through 2020.

Mr. DaFonte stated in testimony that

> "…. the NYMEX reached a peak price of approximately $13.00per Dth in 2008. Since that time, the NYMEX futures prices have dropped precipitously. In fact, Since January 2009, the average settlement price for the NYMEX has been approximately $3.85 per Dth. With the clear lack of price volatility, hedging of the NYMEX would have little benefit to consumers. As further evidence of the continued projected stability in the NYMEX natural gas futures market, as of May 6, 2014 the first future month that was trading over $5.00 on the NYMEX was January 2020.

Mr. Mertens provides examples of NYMEX futures forward price curves at page 11 of his rebuttal testimony as Table BAM-2. These tables reflect that these forward price curves

show significantly stable and non-volatile natural gas prices. When such non-volatility was found by Liberty Utilities, they found no ratepayer benefit in continuing to hedge. When this non-volatility is found by Empire, they use it, somehow, as a justification to hedge.

Q. Did you attach these Liberty Utilities hedging regulatory documents to this testimony?

A. Yes, they are attached as Schedule CRH-S-5.

Q. Was the information that was available to Liberty Utilities in 2013 and 2014 the same information that was available to Mr. Mertens, Mr. Doll, Mr. Sager and other Empire employees in 2013 and 2014?

A. Yes, it was.

Q. Given access to the same information, how do you explain the different actions taken by Liberty Utilities in New Hampshire and Empire (now Liberty Utilities Midwest)?

A. My explanation is that Liberty Utilities of New Hampshire acted prudently in response to change in the natural gas market and Empire did not. Liberty Utilities of New Hampshire showed concern about its customers and did not believe it was prudent for Liberty to force its customers to pay for hedging losses that no longer provided a benefit. Empire's lack of response to the changes in the natural gas provides an indication that it believed it was prudent to have its customers pay for hedging losses that no longer provided a benefit.

Empire was imprudent and did not show such a concern about its customers. Empire made no changes to its very highly-hedged rigid and inflexible natural gas procurement policies after the natural gas market went through a massive overhaul and changed from one of high prices and high volatility to one of low prices and very little volatility.

Outline of Commission Prudence Standards in OPC's Direct Testimony

Q. Mr. Mertens' second issue with your direct testimony is that he disagrees with the Commission's prudence standards as you define and described them. He also claims that you created your own prudence standard which he states is not applicable to this FAC prudence case. Please summarize your discussion of the Commission's prudence standards in your direct testimony.

A. In direct testimony I provided a description of the Commission's prudence standard as articulated by the Commission in Commission Report and Orders. I did not create any new standard. My intent was to accurately portray the Commission's prudence standard and that is what I accomplished.

Q. Did Mr. Mertens explain why he disagreed with the Commission's prudence standard as outlined in your direct testimony?

A. No. Because he provided no support for these statements in his rebuttal testimony, I issued a data request seeking information to understand the basis of his disagreement (see Schedule CRH-S-6). OPC's data request 1006 part c reads "[R]eference Blake Mertens' rebuttal testimony at page 4 line 10. Please list and describe every reason why Mr. Mertens believe Mr. Hyneman's definition of the prudence standard is "incomplete." Mr. Mertens response was:

> As stated in Mr. Mertens' rebuttal testimony, neither Mr. Hyneman nor Mr. Riley have provided "any evidence of the natural gas forward curves at the times the hedges were executed." Rather they have referenced settled prices which would not be known at the time hedges were placed. In addition, no forecasts have been provided which predicted the settled futures prices or spot prices for the audit period. This demonstrates a limited and misguided view and misapplication of the prudence standard by using "perfect information."

Q. Did Mr. Mertens' response address the question in the data request asking for the basis of his testimony that your definition of the Commission's prudence standard in was incomplete?

A. No. He did not address the question at all. To me, that indicates he had no support for this statement in his rebuttal testimony. His response was unrelated to the "definition" of the prudence standard which he testifies he disagrees with. His response went to a completely different point indicating, incorrectly, that OPC is required to prove imprudence and he did not like the fact that OPC did not include forward curves as part of OPC's direct testimony.

OPC Met the "Serious Doubt" Requirement of Commission's Prudence Standards

Q. Mr. Mertens asserts that OPC has failed to create "serious doubt" as to the prudence of Empire hedging losses at issue in this case. Please comment.

A. Whether or not OPC met the Commission's requirement that it raise "serious doubt" as to the prudence of Empire's hedging practices and policies is a decision for the Commission. I am convinced that OPC met and exceeded the standard as defined by the Commission several times over. The overwhelming evidence provided by OPC is that Empire made no evaluation of the 2009 changes in the natural gas market and that it continued to employ the same rigid and inflexible hedging policy that was initially designed in 2001 for a completely different natural gas market in terms of price and volatility. This is the imprudent action. This imprudent action led to Empire charging its customer over $13 million in unreasonable and unnecessary hedging losses.

Empire ignored the massive change in the natural gas market in 2009 and acted as if the shale revolution did not occur. The fact that Empire did not react in any way to post-2009 new natural gas market, and this lack of action led to millions of dollars in hedging losses, is sufficient evidence, by itself, to meet the "serious doubt" burden required by the

Commission's prudence standards. Empire now has the burden to show that its lack of reaction to the new gas market was prudent and reasonable.

The results of previous Staff FAC reviews provides no support of Empire's prudence

Q. Mr. Mertens concludes that Empire's 2010-2015 hedge purchases were prudent, at least in part, because Staff has never found imprudence in past FAC cases. Is this a reasonable conclusion?

A. No. Even if Staff conducted actual FAC audits instead of high-level reviews and the audits were conducted by well-trained and experienced auditors, this fact still should not be considered as support for Empire's prudence in this case.

As noted in Staff witness Eaves' rebuttal testimony, the Commission was not supportive of Staff's proposed hedging adjustments in a 2011 GMO FAC case (EO-2011-0390). Given that Commission decision, and especially the language chosen by the Commission to support its decision, I do not believe Staff is likely to bring natural gas hedging prudence issues before the Commission for a long time. Therefore, the lack of Staff proposing a hedging prudence adjustment is influenced by the fact that Staff is limited in the types of adjustments it will consider bringing before the Commission.

Q. Is this opinion based on your work on Staff and particularly your work on the hedging issue in Case No. EO-2011-0390 and other prudence cases?

A. Yes, it is.

Q. Did the Commission also express concerns about the inherent weakness of FAC reviews when it granted Empire an FAC in 2008?

A. Yes. At page 44 of its Report and Order in ER-2008-0093, the Commission expressed concerns about adequate training and other resources available to Staff to perform quality FAC audits. The Commission stated:

> Empire suggests a prudence review is the only incentive it needs to control its fuel costs and that therefore a 100 percent pass-through plan would be appropriate. However, an after-the-fact prudence review is not a substitute for an appropriate financial incentive, nor is an incentive provision intended to be a penalty against the company. Rather, a financial incentive recognizes that fuel and purchased power activities are very complex and there are actions that Empire can take that will affect the cost-effectiveness of those activities.
>
> A prudence review is necessarily limited by the availability of trained people with the time available to devote to a detailed examination of the company's actions. The Commission does not doubt that its Staff will do a good job of conducting a prudence review, but there are limits on the ability of Staff to uncover exactly all the records and data needed to establish whether a given decision is prudent.
>
> A prudence review can be expected to evaluate the major decisions a utility makes. However, an electric utility makes thousands of small decisions every hour regarding fuel, purchased power, and off-system sales. It is not practical to expect a prudence review to uncover and evaluate every one of those decisions. (footnotes omitted)

Q. Did you address some of your concerns with the breadth and depth of Staff's FAC reviews in your rebuttal testimony in this case?

A. Yes. However, because Mr. Mertens uses the lack of negative findings in Staff's previous FAC reviews as positive evidence of prudence, I will address this issue further in this testimony

Q. Please continue.

A. I do not believe the current design and application of Staff's prudence reviews provides adequate protection to Missouri ratepayers. I was employed by Staff as a regulatory auditor from April 1993 through November 2015 and was a senior regulatory auditor when Staff's FAC department was created and FAC prudence audits began around 2009. The knowledge I gained as a Staff auditor during this period led me to conclude that, for the most part, FAC

reviews conducted by Staff FAC personnel are not performed with nearly the same rigor, focus, and scope as Staff rate case auditors-performing rate case fuel and purchased power audits.

Q. What is the reason why Staff rate case auditors perform more thorough audits of utility fuel and purchased power costs?

A. Utility fuel and purchased power costs in rate cases are performed by Staff auditors who have significant experience in regulatory auditing. Rate case audit scope, policies, procedures, and cost of service adjustments have historically been created by senior auditors and auditing managers who have auditing education and 20 to 30 years of regulatory experience.

Staff management, however, made the decision in 2008-2009 to not assign experienced regulatory auditors to perform FAC audits. FAC audits were regulatory audits performed by Staff employees with no auditing education or experience. Therefore, Staff's audit plans, audit scope, and audit procedures were created and implemented by Staff employees and managers who had no auditing education or experience.

Given that these same audit plans, scope, and procedures are in effect today, I have serious concerns about the quality of Staff FAC audits in the past (the very same audits referenced by Mr. Mertens) and Staff's FAC audits that are conducted currently.

Staff's FAC reviews do not qualify as audits. These reviews are not substantively more than high-level verifications that costs the utility says were incurred were actually incurred. These FAC reviews are more like regulatory compilations (gathering and reviewing of accounting data for accuracy) than substantive prudence reviews, let alone actual rate case-type fuel and purchased power audits.

FAC reviews have been and are currently performed at a much more superficial level. I believe this level of FAC review is the reason why Staff rarely proposes an FAC prudence adjustment.

As I noted in my rebuttal testimony, the current Manager of Staff's Auditing Department, Mr. Mark Oligschlaeger, highlighted the rarity of Staff's FAC review adjustments in his March 25, 2014 presentation "*Regulatory and Legal Framework of Audit Function*". Mr. Oligschlaeger points to the fact that FAC auditors only proposed two major prudence adjustments for FAC periods from 2007 through 2014, the date of the presentation. I am not aware that Staff FAC auditors have proposed any prudence adjustments for any Missouri electric utility since 2014. That would logically mean that Staff FAC auditors have proposed only two major utility fuel and purchased power prudence adjustments in over 10 years.

Q. Should your testimony be understood as a criticism of Staff's FAC auditors?

A. No, not at all. I have respect for the quality of the work done by Staff FAC accountants, such as Mr. Eaves. The criticism lies in the sufficiency of the FAC audits performed, the sufficiency of the audit scope, audit procedures, degree of due diligence and professional skepticism applied in FAC audits. The problem also lies in the breadth and depth of FAC auditors education and experience. These are issues that should have been addressed by Staff management when it created the FAC Department and Staff management should have made it a priority to assign several experienced auditors to this very important Staff department. Staff management decided not to devote such resource to this new audit responsibility.

Q. You were a Staff rate case auditor for over 20 years and participated in many rate cases over that period. Based on this knowledge and experience, are there major differences in the way Staff auditors perform rate case audits of utility fuel and purchased power costs compared to the way Staff FAC auditors review FAC fuel and purchased power costs in a prudence review?

A. Yes. Staff auditors who audit utility expenses in a rate case are not limited by what appears to me to be a set of self-imposed audit restrictions. Rate case auditors ask significant data requests, hold meetings and interviews of utility personnel, and perform other audit steps designed to provide reasonable assurance that the expenses included in utility costs of service are reasonable, prudent, not excessive, are necessary to provide service, and are appropriately allocated to the utility. It is only through a very thorough and aggressive audit with an attitude of "professional skepticism" can this goal of "reasonable assurance" be met. It cannot be met in any other fashion.

Q. Please continue.

A. Staff FAC auditors do not perform aggressive audits but perform merely a "high-level" reviews of utility fuel and purchased power costs. The data requests submitted to utilities in FAC prudence cases actually prevent a thorough and comprehensive review of the prudence of utility management. The data requests written by Staff FAC auditors review artificially limit the questions to prudence period, not the period where the transactions that caused the costs in the prudence period to be recorded. This is a very basic but very serious flaw in the design of Staff FAC audits.

Q. Please explain.

A. For one example, the transactions that caused Empire's hedging losses in its books in this prudence review period (March 2015-August 2016) actually took place in the period 2010 to 2015. To review these transactions for prudence, it is necessary to obtain information in discovery that Empire management had available to it when the transactions were being made. This is the essence of a prudence review. Without this information, Staff was unable to perform a prudence review of the transactions when they occurred. Staff data requests were not designed to obtain information that is needed to make a prudence determination and therefore a prudence adjustment could not have been proposed.

Most, if not all of Staff's data requests began with the preface "for the period March 1, 2015 through August 31, 2016." These data requests are not designed to obtain any information on actions or transactions entered into by Empire management prior to the FAC prudence period. But with many fuel and purchased power costs, it is only the information that existed prior tot eh prudence period (and prior to the Staff data request period) that is relevant to management decision making.

Q. Do Staff rate case auditors limit the scope of issue discovery to only the 12-month test year in a rate case?

A. No. Typically Staff rate case auditors seek data to use in an analysis for the previous three to five years. This historical data is often used to determine if the amount booked for that cost in the test year books and records is reasonable and prudent. It is also to determine appropriate rate case adjustments. The test year in a rate case is similar to the prudence period in an FAC case. There is no reason why Staff FAC auditors should limit the scope of discovery in FAC audits in such a manner. This self-imposed scope limitation can be attributed to a lack of attention by Staff management to the auditing education, training and experience of FAC Department auditors.

Q. Is the Staff's FAC Department tasked with a significant work load?

A. Yes. At a minimum they are tasked with all FAC cases for all Missouri utilities. In addition to this significant task, I am aware that these auditors also have significant responsibilities in utility rate cases. However, I do not believe that Staff's FAC department has ever had more than one experienced auditor to lead, train and perform all the work that is required. This lack of experienced resources results in less time allocated to difficult and complex audit issues.

The concerns expressed by the Commission in Empire's 2008 rate case authorizing an FAC for Empire that prudence reviews are "necessarily limited by the availability of

trained people with the time available to devote to a detailed examination of the company's actions" is certainly true and accurate.

Q. Did OPC put any time period restrictions on its data requests?

A. No. OPC's data requests, along with other audit procedures, were designed to obtain information available to Empire when it decided to engage in hedging transactions in 2010-2015.

Q. Did Empire initially object to OPC asking for information and data prior to the March 2015 start of the prudence period?

A. Yes. Ironically, Mr. Mertens criticized OPC for not using information that existed when the hedges in question were made but Empire initially objected to providing any information of data prior to the March 2015 prudence period.

KCPL and GMO 2016 suspension of all natural gas hedging activities

Q. Mr. Mertens states that OPC alleged imprudence on the part of Kansas City Power & Light ("KCPL") in File No. ER-2016-0285, GMO in File No. ER-2016-0156, and on the part of Empire in Empire's last rate case (File No. ER-2016-0023). Please comment.

A. OPC took the positions in each of these 2016 rate cases that, given the complete overhaul in the natural gas market in 2009 resulting in low price and low volatility, it is no longer reasonable to continue to hedge against high natural gas prices and high volatility in the market. Staff took a similar position as OPC in the KCPL and GMO rate cases, but not the Empire rate case.

In its respective rate cases, KCPL and GMO agreed to suspend natural gas hedging operations unless and until they determine it would be prudent and reasonable to re-start the hedging programs.

Q. Mr. Mertens states "in each of those three prior cases, as well as in the instant case, it appears OPC is alleging imprudence solely on the grounds that hedging losses have been incurred during one of the lowest natural gas spot markets we have seen in the past 15 years." Is Mr. Mertens' understanding of OPC's position in the KCPL, GMO and Empire rate cases and this Empire FAC case accurate?

A. No. It is completely inaccurate and unsupported. Mr. Mertens fails to provide a factual basis for his understanding OPC's positions in these cases. OPC's positions in these cases were not based on the fact that hedging losses have occurred in the rate case test years or the FAC prudence review period in the instant case. OPC's position was based on that same facts as in this case, and that is Empire's failure to make changes to its old, outdated, rigid and inflexible hedging policy. A policy created for a completely different market than the market Empire was in its 2016 rate case. Mr. Mertens filed testimony in this rate case on hedging so he is aware of the reasons for OPC's hedging position in that rate case.

It is very easy to throw out a false and unsupported accusation of bad faith, such as the case with Mr. Mertens in this testimony. It is much more difficult to provide evidence or support for such an allegation. Mr. Mertens did not even attempt to provide any support for this accusation of bad faith on the part of OPC.

Q. Did Mr. Mertens provide further indication that he made no attempt to get an understanding of the OPC hedging positions and the Commission's response to OPC's recommendations?

A. Yes. He testifies that the Commission did not deny recovery of any hedging costs as a result of OPC's allegation of imprudence. However, the issue of hedging cost disallowance was never put before the Commission in litigation. The suspension of KCPL and GMO's hedging programs was put before the Commission in rate case stipulations and agreements and the Commission accepted these agreements.

Q. Does OPC believe that the overall revenue requirement increase by KCPL, GMO and Empire exclude any hedging losses incurred in the test year in those rate cases?

A. Yes, it does. OPC considered the natural gas hedging issue and the test year hedging losses when it agreed to the overall revenue increase in these three cases. OPC understands of the revenue requirement increases for KCPL, GMO, and Empire is that they did not include any of the hedging losses reflected in the test year books and records.

Increase in Natural Gas Demand from the Post 2009 Low-Priced Natural Gas Market

Q. Mr. Mertens makes a point in his rebuttal testimony that OPC, in direct testimony, did not address the increase in natural gas demand as a result of low prices. Please comment.

A. It is certainly reasonable to assume that sustained lower natural gas prices would cause an increase in natural gas demand, both in usage and in new natural gas-fired generation. That was certainly a relevant issue to be considered during the transition from a high to low priced natural gas market in 2009 and it is a relevant issue today. This is also certainly an issue that Empire should have actively pursued and studied in the post-2009 market transition.

Q. If Empire sought such information in the post-2009 natural gas market, what type of information would it have found to evaluate in its decisions to continue hedging?

A. If Empire sought to acquire such information, it would not have had to look very hard to find evidence that any increase in natural gas demand as a result of the post-2009 natural gas market would not have a material impact on the natural gas market.

Q. Please continue.

A. I understand that most utilities which purchase natural gas also subscribe to the periodical *Gas Daily*. It is a highly-regarded resource and used extensively by utilities and entities that

audit utilities' natural gas purchases. I am aware that the Commission's Staff has used *Gas Daily* as a valued resource for many years. The February 28, 2013 issue of *Gas Daily* included a discussion of liquid natural gas ("LNG") exports and a discussion of the factors that affect the large supply of natural gas at that time.

The *Gas Daily* article quotes Mr. Andrew Weismann, senior energy advisor at the law firm Haynes and Boone. Mr. Weismann stated that while new gas-fired generation led to some price spikes in the past, new storage and the shale production boom has led to the almost elimination of the risk of sustained price spikes.

This is the type of information that was available to Mr. Mertens in February 2013 when he, along with other Empire management, made the decision to ignore the change in the natural gas market and to continue to engage in hedging. The following discussion was included in the *Gas Daily* article:

> **Producers must push for exports: Consultant**
>
> Right now, I think there are very serious questions about whether LNG export licenses will be granted in the next year or two or three years," Weissman said.
>
> That is the case despite several factors that limit domestic gas price volatility seen in recent years, a key sticking point in the decision over increasing US exports, he said, adding that said stable gas prices are needed to attract new demand, whether from LNG exports or other sources.
>
> While the large and rapid build-up of gas-fired power generation and limited conventional production led to some gas sharp price spikes in the 2000s, new storage development and the shale production boom provide buffers against such price jumps now, Weissman said. He said the risk of sustained price spikes has been almost eliminated and the risk premium to the futures market has been reduced to minimal levels.

Q. Are you suggesting that Empire should have relied on this one analyst's opinion that new natural gas storage development and the shale production boom mitigated any increase in natural gas prices due to the rapid build-up of gas fired generation?

A. No, not at all. Prudent utility managers would have studied this position and facts underlying the position and sought additional input from a variety of industry experts and governmental agencies such as the Energy Information Administration ("EIA"). The position of one industry analyst should be compared with the overall recommendations and analyses of industry experts. This is how other Missouri utilities have acted in the past in evaluations of the natural gas market. This is how Empire's management should have acted in performing natural gas market analyses in response to the post-2009 natural gas market.

Q. Did you review an additional Gas Daily article?

A. Yes. The following article was included in *Gas Daily's* February 19th 2013 issue. This article portrays the status of the natural gas market in 2012 and 2013 and the response to the market changes that were being made by state Commissions, Commission Staffs, and other interveners. This is the type of information that Empire should have read and taken actions to, at the very minimum; reduce the scope of its hedging operations.

As the article states, Empire "should" have been "mindful" of its lack of exposure to increasing natural gas prices. That would have been prudent behavior. Unlike other utilities, it totally ignored this lack of exposure to increasing natural gas prices.

> **Market leads users to shift hedging strategies**
>
> With gas prices and volatility low, utilities and other end-users are increasingly mindful of their lack of exposure to upside price risk, officials and analysts say.
>
> As such, they are either refraining from hedging at all, hedging smaller volumes of gas or using more flexible hedging tools.

> "There has been a trend to reduce the amount of fixed-price hedges in favor of incorporating more options." said Julie Ryan, a managing partner at energy risk management consultancy Aether Advisory.
>
> Utility regulators are also "catching up on awareness of downside exposure" and with that in mind, the volumes of energy needs that utilities tend to hedge are shrinking.
>
> "Right now 25% of needs or less is hedged, because the downside exposure is higher than upside in the current gas market." Moreno added.
>
> In addition, Ryan cited pressure from public utility commission staffs and consumer advocates in recent years to reduce the volume and tenor of utilities' hedging programs.
>
> According to Ryan, PUC's approaches to the current market include such diverse methods as disallowing hedging costs; issuing an order for the utility to cease hedging; continuing approval of hedging program costs; requesting utilities to update hedging programs; and requesting staff, stakeholders and the utility to collaborate to revise their programs.---Anastasia Gnezditskaia

Empire's Accusation of Hindsight Bias

Q. How do you respond to Empires assertion that OPC evaluated Empire's management based on hindsight?

A. OPC's prudence adjustment proposal in this case is consistent with the Commission's prudence standards which do not allow the use of hindsight in a prudence analysis. OPC went to great lengths in its direct testimony to set forth the Commission standards and how it applied these standards, including the standard on hindsight.

OPC evaluated Empire management's actions at the time it placed the natural gas hedges at issue in this case, between 2010-2015. OPC provided evidence restricted to what Empire management knew, could have known, and should have known at the time it engaged in its natural gas hedges. Empire's management, given its significant resources, had access to every piece of information about the natural gas market from 2010-2015 and failed to act on any of this information.

Empire's Accusation of "Perfect Information" Bias

Q. Did OPC engage in any hindsight bias in reaching its conclusion about Empire's hedging losses?

A. No, and Empire provided no evidence to support its accusation of hindsight bias.

Q. What is the meaning of the term "perfect information" Mr. Mertens mentions in his rebuttal testimony?

A. Although not well described in his testimony, I interpret the meaning of this term to be the same as hindsight bias. I take Mr. Mertens' point to be that since the natural gas market has been characterized by low prices and low volatility since 2009, OPC used the knowledge of this historical information to bias its findings of imprudence on the part of Empire's management.

Q. What is the only example Mr. Mertens cited on which he based his conclusion that OPC engaged in hindsight bias in its findings of imprudence?

A. The only examples I can find are the inclusion of a table with actual natural gas prices in my direct testimony and the fact that OPC did not rely on natural gas futures prices (forward price curves) published by the NYMEX during the time the hedges in question were placed. Empire's whole basis that OPC violated the Commission's standard against using hindsight bias is based on these two issues. Mr. Mertens states:

> This "retrospective view" and "perfect hindsight" are precisely the activities that both Mr. Riley and Mr. Hyneman engage in with their Direct Testimonies in this case.
>
> Neither Mr. Riley nor Mr. Hyneman provide the forward curves at the time the hedges were executed, and, as a result, are unable to determine what would be considered reasonable at the time.

> To avoid hindsight bias and fairly evaluate the hedging activity prospectively, you must provide the applicable forward curves to determine what the natural gas forecast was at the time rather than where the future prices eventually settled.
>
> On page 12 of Mr. Hyneman's Direct Testimony, he includes the EIA publication (Table BAM-1) of NYMEX Henry Hub spot prices from January 1997 – April 2017 to support his supposition that changes in the natural gas market have created an environment in which hedging is imprudent, and, since Empire has continued to hedge the natural gas needs of natural gas generating units, it has engaged in imprudent and unreasonable behavior. Table BAM-1
>
> Mr. Hyneman once again fails to acknowledge the "perfect information" he has when making the determination that natural gas prices were going to continue to decline and remain stable.

Q. Did you explain earlier why you did not give weight to NYMEX futures prices (forward curves) in OPC's prudence analysis?

A. Yes. While I could have provided additional evidence, the substantial evidence in this case shows that NYMEX futures prices are not reliable in predicting future natural gas prices. I noted that while forward price curves may provide some incremental value, this value is limited and must only be used in association with other evidence about the stability of the natural gas market. In this testimony I explained the value of price curves more than a few months in the future is extremely limited due to the lack of liquidity in the trade volumes and the additional "risk premiums" market participants include.

Q. Did Mr. Mertens have the opportunity to show that the natural gas market remained volatile in the 2010-2011 time period reflected in the forward price curves in his Table BAM-2?

A. Yes. Mr. Mertens provided the price curves he testifies should have been provided by OPC in its direct testimony. The price curves provided by Mr. Mertens, ignoring the inherent

weakness in using price curves for this purpose, show that the natural gas market during this time was characterized by significant price stability – a total lack of price volatility.

Q. Mr. Mertens states at page 10 line 10 of his rebuttal testimony that you failed to acknowledge the "perfect information" you had when you determined that "natural gas prices were going to continue to decline and remain stable." Did you make the determination anywhere in your direct testimony that natural gas prices were going to continue to decline and remain stable?

A. No, and Mr. Mertens was unable to cite to any testimony that makes such a determination. It appears that he stated I made such a determination because I included a chart of actual spot prices in my direct testimony for the period 1997 to 2017.

Q. By including this chart in your testimony were you making any assertion or even indication that you knew that the post 2009 natural gas market prices were going to continue to decline and remain stable?

A. No. The reason I included the chart of actual spot natural gas prices at page 12 of my direct testimony was to support the discussion concerning the evolving changes in the natural gas market. I felt a chart showing the actual historical natural gas prices would provide clarity to my discussion of the history of the natural gas market from 2003 through 2017. There was no hindsight bias, perfect information bias, and retrospective view bias either intentionally or unintentionally in my use of this historical gas price table.

Q. Mr. Hyneman, have you ensured that OPC, in the development of testimony in this case, made strong and intentional efforts to eliminate any hindsight bias in its findings and conclusions?

A. Yes. The fact that Empire cannot provide one single substantive example of hindsight bias in all the testimonies put forth by OPC is a testament to the fact that OPC was very successful in this effort. Hindsight bias is unfair, unreasonable, and potentially unethical and

will not be tolerated by me in any case before the Commission in which I have responsibility.

Empire Has Not Provided Evidence of a Prudent Hedging Policy and Procedures

Q. Mr. Mertens states in his rebuttal testimony that Empire has demonstrated its hedging actions were "reasonable at the time." Have you seen any evidence that Empire has proven or even attempted to demonstrate that its hedging policy and practices in 2010-2015 were reasonable and prudent?

A. No. The totality of Mr. Mertens' rebuttal testimony is devoted to criticizing OPC's direct testimonies. I cannot see anything of substance in Empire's rebuttal testimonies that supports, or even seriously attempts to prove its hedging policies and practices were prudent.

Q. Does Empire have the burden of addressing the doubts raised about its hedging transactions and hedging policy and prove that the hedging losses at issue are prudent?

A. Yes. Despite this requirement I have seen no attempt by Empire to prove it was prudent in making no changes to its hedging policy in response to the shale revolution and other changes in the post-2009 natural gas market.

Empire even appears to be trying to convince the Commission it did make changes when, in fact, it has today almost the identical hedging policy and practices it had in 2009. As I described in this testimony as well as in my direct testimony, this fact was even attested by Mr. Mertens in his prior testimony before the Commission.

Empire's New Hedging Purpose

Q. Is the question of Empire's continued hedging a direct issue in this case?

A. No. In testimony in this case OPC, Staff and Empire have addressed and discussed the issue of Empire's continued hedging. While OPC supports the positions of suspending hedging taken by OPC, Staff, KCPL and GMO in 2016, OPC will address the appropriateness of Empire current hedging in Empire's next rate case.

Q. In his discussion of Empire's current and future plans did Mr. Mertens change the purpose of Empire's hedging program from one of price volatility mitigation to one of taking advantage of current low prices?

A. Yes, he did. Mr. Mertens states at page 14 line 25 that "Empire believes that natural gas hedging in the current historic low market is the prudent course of action." I am not sure of his authority to do so, but that is now the "new purpose" of Empire's current hedging policy.

It is refreshing to finally see Empire express a desire for low gas prices. This has not been the case since 2009 when Empire felt it necessary to add natural gas cost premiums of at least 38.5 percent on every dollar it spent to purchase natural gas.

However, this new Empire hedging purpose would only make sense if there is a valid concern that natural gas prices are expected to increase. The conclusion cannot be reached in isolation, but only through a thorough study of all of the factors that affect natural gas prices and a thorough and continuous evaluation of all the industry experts' predictions on this issue. And yes, I would include a monitoring of NYMEX futures forward price curves as a part of this analysis, recognizing the weakness in this one tool that I addressed in this testimony.

Q. Are you aware of any electric utilities that engage in significant hedging purchases to take advantage of low natural gas prices?

A. No. The overwhelming response to the post-2009 natural gas market by electric utilities, and even gas distribution utilities that have even greater price risk , is to suspend hedging. This is the response taken by the owner of Empire District, Liberty Utilities. I encourage Empire

to put forth evidence in this case and subsequent rate cases that hedging to take advantage of low gas prices is a common practice among electric utilities.

Rebuttal of Empire Witness Robert Sager

Q. Mr. Sager states that OPC, in its direct testimonies, did not accurately portray Empire's Risk Management Plan ("RMP") because OPC does not address the many administrative issues and other risk-associated procedures not directly related to its natural gas hedging policy in the RMP. Why didn't OPC address these other issues?

A. OPC's direct testimony did not address the many other components of Empire's RMP because they are not relevant to the issues before the Commission. The only part of Empire's RMP that I addressed in direct testimony is Empire's natural gas hedging policy, practices and procedures. Out of the 39-page RMP, I purposely focus on the two pages that address Empire's electric utility hedging policies and procedures. Mr. Sager attached Empire's current RMP to his rebuttal testimony.

Empire's 2004 Commitment to Adjust Hedging Policy Based on Market Changes

Q. You described in your direct testimony that in 2004 Empire's then Vice President of Energy Supply, Mr. Brad Beecher, advised the Commission that Empire's RMP is "revised approximately annually to reflect lessons learned and changes in markets and financial instruments. " Does Mr. Sager take issue with your testimony on this point?

A. Yes. Mr. Sager takes issue with my characterization that Empire failed to live up to its commitment to the Commission to continually review and revise its hedging polices in response to changes in the natural as market. The basis of his concern is that I do not understand the breadth of Empire's RMP in 2001 and that I mischaracterized Mr. Beecher's testimony.

Q. Please continue.

A. Mr. Sager states that when in April 2004 when Mr. Beecher told the Commission that Empire's 2001 RMP would be revised approximately annually to reflect lessons learned and changes in markets and financial instruments, the RMP was essentially a work-in progress. He states Empire would be review and systematically and bolster the RMP with the lessons learned since its 2001 deployment. In 2001 Empire's RMP was 19 pages, and sixteen years later is has grown to 39 pages.

Q. Did Empire edit its RMP in the past?

A. It may have edited its non-electric utility natural gas hedging policy since 2004, but it did not, in any material manner, update or change its electric utility hedging polices from its original RMP in 2001 to its current RMP in 2017.

The issues in Empire's past rate cases were not about administrative procedures or other non-hedging matters. The primary contentious issue in Empire's rate cases in which Mr. Beecher was involved in the early 2000s was the level of natural gas prices to include in rates and Empire's natural gas hedging policies that affected these prices.

That was the substance of Mr. Beecher's commitment to the Commission – to monitor the natural gas market and make changes to Empire's hedging policies in response to changes in that market. As I show on Schedule CRH-S-1 to this testimony, regulatory commissions, staffs and intervenors were taking action to change outdated utility hedging policies in 2010 and 2011. If Mr. Beecher lived up to his commitment to the Commission, Empire would have made similar changes. It made no changes. OPC's position in this 2017 FAC case is very similar to the positions taken by many regulatory bodies and intervenors across the United States in 2010 and 2011 as described in Schedule CRH-S-1.

Q. For Mr. Sager's testimony on this issue to have any validity, what would have to be assumed about Mr. Beecher's April 2004 commitment to the Commission?

A. It would have to be assumed that Mr. Beecher was addressing everything in Empire's RMP with the exception of the electric utility's natural gas hedging procedures. That is not a reasonable assumption.

Q. Is there a lack of understanding on your part concerning Empire's hedging policies included in its RMP?

A. No. My direct testimony in this case on Empire's commitment to the Commission to change its hedging policies (as reflected in its RMP) in response to market changes was made with an accurate understanding of Empire's hedging policies and practices as outlined in the two pages of its RMP.

Q. What is the substance of your point on Empire's 2004 commitment to change its hedging policies to reflect changes in the natural gas market?

A. The substance is twofold. First, Empire committed to the Commission that it would change and adjust its hedging policies to reflect lessons learned and changes in the natural gas market. It completely failed to live up to its commitment. My second point is that because Empire failed to make prudent changes to its hedging policies and rigidly enforced outdated, inflexible and ineffective hedging policies, Empire's management incurred millions of dollars in unnecessary hedging losses that it is forcing on its ratepayers through its FAC.

The simple fact is that the natural gas market went through revolutionary changes in 2009. I have not heard anyone dispute this fact. Given revolutionary changes in the natural gas market in 2009, it is not at all reasonable to conclude that a hedging program designed for a completely different natural gas market would be appropriate to employ, in

a completely changed market. This was a widespread conclusion throughout the national regulatory environment in 2010 and 2011 as described more fully in Schedule CRH-S-1.

Q. Does Mr. Sager address those two points in his rebuttal testimony?

A. No. In his testimony he makes no effort to address these facts or support Empire's position with facts to counter OPC's imprudence assertions. While Mr. Sager goes on at great length to show that the RMP increased from 19 pages in 2004 to 36 pages in 2007, and to 39 pages in 2017, this testimony simply presents meaningless trivia. The point is Mr. Beecher committed to making changes to Empire's hedging policies due to changes in the natural gas market and Empire failed to do so. Mr. Sager cannot get around this fact no matter how hard he tries to cloud up the issue with meaningless trivia or attribute it to my lack of understanding of Empire's RMP.

Q. On what evidence do you base your conclusion that Empire failed to live up to its commitment to revise its hedging policies "approximately annually" to reflect lessons learned and changes in markets and financial instruments?

A. My conclusion is based on three factors:

1. My review of Empire's hedging policies since 2001 and a finding that Empire made no significant changes to this policy during this period.

2. Empire's rebuttal testimony failed to note any substantive change it made to its hedging policies since 2001.

3. Empire witness Mertens confirmed to the Commission in his 2016 rate case testimony that Empire failed to make any substantive changes to its hedging polices since it created these policies in 2001.

Q. Please describe Empire witness Mertens' 2016 rate case testimony?

A. At page 2 lines 5-10 of his May 13, 2016 surrebuttal testimony in Empire's last rate case, Mr. Mertens described how Empire made only "slight" changes to its hedging policies (Risk

Management Plan) from 2001 through at least May 2016. He also confirmed to the Commission that Empire's natural gas hedging policy and practices have remained consistent from 2001 to 2016. Mr. Mertens provided this testimony in rate case No. ER-2016-0023:

> Empire first implemented its Energy Risk Management Policy ("RMP") in 2001. While slight modifications have been made throughout the years largely to update organizational or nomenclature changes, the most substantive of which was prior to the SPP IM going live to reflect changes in daily processes and reflect transmission congestion rights procurement practices, our natural gas hedging policy and practices have remained consistent.

Empire's Rigid and Inflexible Hedging Policy

Q. Mr. Sager does not agree with OPC's finding that Empire's hedging policy is too rigid and inflexible. Please comment.

A. He makes the somewhat stunning statement that he believes that "one of the strengths of Empire's hedging policy is that it allows for flexibility within the strategy based on market conditions without requiring constant revisions to the policy."

Q. Why do you consider this to be a stunning statement?

A. First, Empire's hedging policy is the most rigid and inflexible hedging policy I have seen. Mr. Sager admits to this inherent rigid inflexibility by stating that the policy only allows "flexibility within the strategy". Mr. Sager defines "flexibility" as the fact that Empire can operate "within" the strict and rigid boundaries and limitations of its hedging policy. I would describe any restriction or limitation requiring one to operate "within" a set of rigid guidelines as the definition of inflexibility.

Q. Is an inflexible hedging policy by definition, imprudent?

A. Yes, it is. For example, would it be considered reasonable for highly-compensated and highly-trained professional utility executives to create a hedging policy which has the potential to result in significant utility losses that is narrow and unduly restrictive? Certainly everyone would answer no to this question and would conclude that such actions by professional utility executives would be imprudent. The only question that remains, then, is Empire's hedging program narrow and unduly restrictive? OPC claims that it is and Empire claims that it is not.

Q. Has the Staff addressed the issue of the flexibility inherent in Empire's hedging policy?

A. The Staff did not address this in testimony and as far as I can tell, the Staff did not evaluate the merits of Empire's hedging polices in its prudence review in this case. As I described in my direct testimony and earlier in this testimony, Staff did not conduct a prudence audit in this FAC case but only a high-level prudence review. The issue of flexibility of Empire's hedging program was likely not a part of Staff's scope of work in this case.

Q. What are the standards of care that are expected of a professional utility manager when operating a utility?

A. The Commission developed its policy and standards for reviewing utility prudence issues in Case Nos. EO-85-17 and ER-85-160, regarding Union Electric ("UE") Company's Callaway Nuclear Plant prudence issues ("Prudence Policy Order"). The Commission has continued to apply these same prudence standards since 1985.

In the Commission's Prudence Policy Order it determined that a standard of "reasonable care" requiring "due diligence" is appropriate for determining whether utility management's actions are prudent.

The Commission's prudence standards of reasonable care and due diligences are described in the following quotes from its Prudence Policy Order:

> In reviewing UE's management of the Callaway project, the Commission will not rely on hindsight. The Commission will assess management decisions at the time they are made and ask the question, "Given all the surrounding circumstances existing at the time, did management use due diligence to address all relevant factors and information known or available to it when it assessed the situation?
>
> In accepting a reasonable care standard, the Commission does not adopt a standard of perfection. Perfection relies on hindsight. Under a reasonableness standard relevant factors to consider are the manner and timeliness in which problems were recognized and addressed. Perfection would require a trouble-free project.
>
> Because of the grave financial consequences which could accrue to captive monopoly ratepayers if a utility's investments were to prove uneconomic, the Commission determines that a standard of reasonable care requiring due diligence is appropriate for determining whether UE's actions during the course of the project were prudent. (emphasis added)

Q. Why should the Commission find that Empire management acted imprudently by not adjusting to changes in the natural gas market by making changes to its hedging policies and procedures?

A. The changes to the natural gas market in 2009 were significant. It may have been reasonable and prudent for Empire's management to take some time to react and undertake observation and study to determine whether the change in the natural gas market was likely to be short-term. At some point after 2009, however, Empire should have determined that the changes more than short term and it would be prudent to modify or suspend its hedging program unless and until the market indicates a return to the pre-

2009 market. As described in Schedule CRH-S-1, the major push to suspend or modify utility natural gas hedging programs did not begin until 2010 and 2011.

Q. Mr. Sager states that you assert the only prudent course of action in the "current natural gas environment" is to abandon hedging. Is that correct?

A. No. Not abandon, but suspend. Empire's suspension of its natural gas hedging program in the current natural gas environment is the only prudent course of action. This is the same action taken by OPC and Staff in 2016 with KCPL and GMO. The difference with those two utilities is that they acted reasonably and prudently and agreed to suspend its natural gas hedging in this low-cost and non-volatile natural gas price market.

Q. Does Mr. Sager seem to be surprised by your recommendation to suspend Empire's hedging program?

A. Yes, he does. However, Liberty Utilities' (the utility that owns Empire) Vice President of Energy Procurement, Mr. Francisco DaFonte, made the exact same recommendation I am making in this case to the New Hampshire Commission in 2014 (see Schedule CRH-S-5)

Mr. DaFonte testified before the Missouri Public Service Commission on July 30, 2014 in Case No. GR-2014-0152. In that case he testified he was responsible for all gas and electric supply portfolio management functions including procurement, planning, forecasting, scheduling, hedging, and on-system transportation for Liberty's natural gas and electric utility companies in Missouri and other states.

Empire's hedging policy appears to be overseen by Mr. DaFonte at least since Empire was acquired by Liberty on January 1, 2017. As I testified in my rebuttal testimony, and in the section of this testimony containing my response to Empire witness Mertens, Mr. DaFonte concluded in 2013 and 2014 that Liberty Utilities (EnergyNorth Natural Gas

Corp.) should stop hedging natural gas prices. Liberty filed with the New Hampshire Public Utilities Commission ("NHPUC") stating the following facts:

> Fact 1: Volatility in the natural gas market largely disappeared;
>
> Fact 2: The NYMEX futures price curves show continued signs of price stability through 2020;
>
> Fact 3: Price of natural gas has stabilized;
>
> Fact 4: Hedging with NYMEX futures would have little benefit to consumers.

Each of these four facts was accepted by the NHPUC in their Order No. 25,691 Case No. DG-14-133 dated July 10, 2014 where the NHPUC stated:

> In this order the Commission grants Liberty's request to change its hedging program from one that protects against increased market prices of natural gas to one that protects against increases in the costs to bring that gas to Liberty's service territory.
>
> Mr. DaFonte stated that the volatility of the NYMEX prices has largely disappeared, mostly because of the new supplies of shale gas. Mr. DaFonte testified that "the NYMEX/Henry Hub futures … show continued signs of stability through 2020." Since the price of natural gas has stabilized, "hedging the NYMEX would have little benefit to consumers." Therefore, Liberty proposes to discontinue its current practice of hedging the price of natural gas. (Footnotes omitted).
>
> The Commission finds Liberty's proposed change to its hedging program to be reasonable. The Commission accepts Liberty's testimony that the NYMEX natural gas prices are relatively stable and that the recent volatility rests in the basis differential.

Q. Is the Liberty New Hampshire case a clear example of how a utility acted prudently in response to the change in the natural gas market?

A. Yes. The following quotes are from Liberty's May 19, 2014 *Petition for Approval of Changes to Financial Hedging Program and Fixed Price Option Program* in Case No. DG-14-133. These quotes show how Liberty acted prudently by being responsive and seeking changes to its hedging policy in response to the significant changes in the natural gas market:

> 3. Under the Company's current hedging policy, the Company uses various financial risk management tools and underground storage in order to provide more price stability in the cost of gas to firm sales customers and to fix the cost of gas for participants in the Company's FPO Program.
>
> The current policy was developed at a time when there was significant volatility in the NYMEX price of gas, and thus was intended to minimize price volatility with regard to supply area purchases. These supply area purchases are based on the Henry Hub pricing point for natural gas futures contracts located in the supply area in Louisiana. However, as demonstrated in Mr. DaFonte's testimony, while the Henry Hub price and correlating NYMEX price has become very stable, all of the price volatility has been occurring in purchases made in the market area, which for the Company is either Tennessee's Zone 6 city gate or Dracut, Massachusetts.
>
> 4. As a result, the Company is proposing to eliminate the current hedging program which focuses exclusively on the hedging of the NYMEX/Henry Hub futures contracts. In its place, the Company proposes to begin hedging the New England basis (e.g. the market cost to deliver gas to Tennessee Zone 6 and Dracut) via the purchase of physical fixed basis supply contracts commencing with the winter of 2014-2015. (emphasis added)

Q. Mr. Sager states that OPC witness Riley "attempts to demonstrate the rigidity and inflexibility of the policy by simply quoting the policy and suggesting that since the policy has not changed over the past 16 years it is by definition rigid and inflexible." Do you agree with Mr. Riley's conclusion?

A. Yes, and I strain to see how anyone can disagree with this conclusion. Empire's failure to make any changes in its natural gas hedging policies over the past 16 years is clearly imprudent and irresponsible. By unthinkingly applying the same old and outdated hedging practices and hedging purchases of natural gas, month after month after month, Empire demonstrated that there is no flexibility in its hedging policies that allow it to react prudently to major market changes.

Q. Can Empire reasonably argue in this case that it did, in fact, make changes to its hedging policies in response to the changes in the natural gas market?

A. No. As I noted above Empire witness Mertens told this Commission in Empire's 2016 rate case how Empire made only "slight" changes to its hedging policies (Risk Management Plan) from 2001 through at least May 2016 and he confirmed to the Commission that Empire's natural gas hedging policy and practices have remained consistent from 2001 to 2016. In addition to Mr. Mertens testimony before the Commission, the evidence supporting Mr. Mertens' testimony are embodied in the RMPs from 2001 through 2016.

Q. Despite the evidence to the contrary, does Mr. Sager strain to create an example to show that Empire's hedging policy has changed?

A. Yes. The overwhelming evidence that Empire made no changes to its hedging policy from 2001 to 2016 does not stop Mr. Sager from stating otherwise. He disagreed with the 2016 rate case testimony of Empire witness Mertens and states that it is not true that Empire's policy concerning natural gas purchases has not changed in 16 years. As support for this statement he states that in the 2001 RMP there were different requirements of "hedges to obtain" based on rates approved by the Commission and those limits varied from the hedging limits of today.

Q. How do you evaluate this assertion?

A. My first reaction is that this statement is just another attempt by Mr. Sager to create confusion about facts and convince the Commission to believe something that is just not true. My second reaction is that it is unreasonable, in all respects, for Empire to design any long-term policy based on a Commission approved rate increase in a single rate case. Such an action is way past any stretching of the concept of reasonableness. I would agree with Empire witness Mertens and his 2016 rate case testimony that there have been no changes in Empire's hedging policy since 2001.

Q. Mr. Sager states that Empire could have had a policy that allowed for 0% hedging to 100% hedging any number of years out and Mr. Riley would have still found the policy to be rigid and inflexible, so long as it did not change. Would OPC find such a policy rigid and inflexible?

A. No. OPC would find this policy enlightened, reasonable and prudent. Such a policy would allow Empire's utility managers to make meaningful decisions on when to hedge and when not to hedge. Empire's current policy states that it has to buy a minimum number of hedges in every time period regardless of the condition of the market and regardless of the price signals that the market is sending.

Empire's gas procurement personnel should be able to use all tools at their disposal to make prudent and reasonable gas procurement decisions. And if that means there is a period of time when it is not efficient and economical to hedge, they should not hedge. That is a critical component of a prudent hedging policy that is absent from Empire's imprudent hedging policy.

To continue to purchase gas hedges simply because a 16-year old stale and outdated policy that was designed for a totally different market tells you to do so is unquestionably imprudent.

Q. During your employment as a regulatory auditor and auditing manager with the Commission Staff ("Staff"), did you review Aquila's electric utility hedging program during the 2004-2007 timeframe, prior to Aquila being acquired by Great Plains Energy?

A. Yes, I did.

Q. Did you file testimony with the Commission finding Aquila Inc.'s natural gas hedging program to be imprudent primarily due to its inflexibility?

A. Yes. Aquila's hedging program in the 2004-2007 timeframe was very similar to Empire's hedging program since its creation in 2001. Like Empire, Aquila's hedge program did not allow for the use of professional judgment in the purchase of natural gas hedges. Aquila's hedging program employed the same so-called dollar-cost averaging method Empire uses to purchase natural gas hedges. This is not a "dollar-cost" averaging program at all, but a volume averaging hedging program. Empire mischaracterizes the nature of its hedge purchases as Aquila did. A dollar-cost averaging program indicated that there is a limit on dollars spent. Both Aquila and Empire place no limit on the cost of hedges purchased.

Q. What was the result of your findings of imprudence with Aquila's hedging program?

A. Similar to Empire, Aquila initially disagreed with Staff's conclusions of imprudence due to a lack of flexibility and a lack of professional judgment. However, Aquila eventually agreed to terminate its rigid and inflexible "dollar-cost averaging" hedging program and switch to a more flexible and prudent hedge model. I found Aquila's actions in working with Staff in an attempt to remedy the imprudence of its hedging program to be commendable, and the ratepayers of Missouri were well-serviced by the utility-Staff collaboration.

Q. Did Aquila switch to a more flexible hedge model based on your recommendation in testimony?

A. Yes. Aquila terminated its inflexible "dollar-cost averaging" program and initiated a hedging program with significantly more flexibility and market responsiveness. Aquila adopted a hedge model similar to the hedge model used by KCPL at that time.

Q. In his rebuttal testimony (page 13 line 7) in GMO's 2016 rate case GMO witness Ed Blunk stated "[i]implementing a hedge program is much like buying insurance and, as with buying insurance, there is a price to pay for someone else to be responsible for that risk." Do you agree with KCPL witness Blunk?

A. Yes. Mr. Blunk uses a common analogy of a utility hedging program and the purchase of insurance with the payment of insurance policy premiums being analogous to Empire's customers paying hedging losses. Mr. Blunk stated at page 11 line 8 of his rebuttal testimony "[t]he reason for hedging is to mitigate customer risk in severe upside markets." I agree with this. Mr. Blunk associates the purchase of insurance against severe events (major fire, tornado, and earthquake) with the purchase of natural gas hedges against sever price increases. Mr. Blunk is exactly correct.

Q. Is this analogy particularly relevant to Empire and its hedging policy?

A. Yes. Empire developed a significant and robust hedging policy in 2001 where in certain periods it hedged a high percentage of its natural gas fuel requirements. This program worked relatively well and provided ratepayer benefits in the form of lower net natural gas costs prior to the market change in 2009.

The very crux of this case is that when the market changes in 2009, Empire continued to charge its customers very high insurance premiums (hedging losses) in a market where risk was eliminated or significantly reduced. Empire's management was imprudent for not

recognizing this price risk elimination and for continuing on without any modification, an outdated and obsolete hedging program.

Q. Did GMO witness Blunk explain how a utility might respond to changes in the natural gas market?

A. Yes. In past testimony before the Commission, Mr. Blunk describes a necessary requirement for a prudent hedging policy is that it must have built-in flexibility to adjustment to changes in market conditions. It is counter-intuitive in every way to believe that a natural gas hedging policy does not need to be flexible to changes in the natural gas market to be prudent. If an inflexible, and therefore imprudent, hedging policy creates higher costs to ratepayers, those costs must be refunded to the ratepayers and the utility must change its hedging policy. This is the essence of OPC's position in this case. Blunk Rebuttal page 10:

> There are multiple ways GMO's hedging practices adjust to changes in market conditions and other circumstances relevant to hedging. One way we adjust to market conditions is in how much we hedge. Market conditions determine what percentage of our potential hedge volumes will actually be hedged and how they will be hedged. For example, if prices are high and are trending up, we will use call options to protect us from further upward price movement. If prices are low we will use a combination of futures and call options to lock in those low prices. If prices are flat-lined and there is no volatility in the market, we might not hedge or we might hedge only a small portion of our potential volume.
>
> Blunk Rebuttal Page 15 Line 10 - When market prices are high and threatening to go higher, GMO's strategy is to take action to protect against higher prices. When prices are low, we look for opportunities to lock in or capture some of those low prices. In a market with very little price movement, we might hedge less than 15% of our exposure. The tenor of the current pricing environment also affects how far out we might hedge. If it looks like current prices are very low, we might lock in some of those prices as far as three years out. If prices are high, we only take protective action for one year.

Q. What is the primary difference between the GMO's hedging policy as described above by Mr. Blunk, and the Empire hedging policy at issue in this case?

A. Flexibility.

Q. Have the hedging losses that were incurred by Empire as a result of its imprudent hedging policy and hedging practices already been charged to its ratepayers through the FAC?

A. Yes. That is the reason why OPC is requesting that these imprudent and unreasonable e charges be refunded to customers through the FAC refund mechanism.

Q. You have discussed the almost total lack of flexibility of Empire's hedging program. Did GMO's hedging program, as discussed by Mr. Blunk, include reasonable and prudent flexibility?

A. Yes. That is a good component of GMO's hedging program and that is the main reason why I assisted in the process of working with Aquila's management in 2007 to terminate Aquila's then inflexible hedging program and move a more flexible hedge model.

As Mr. Blunk explained at page 15 line 5 of his GMO rebuttal testimony:

> GMO's hedge strategy is market sensitive. By that I mean, the hedge program is guided by current market trends and pricing environment.

<u>FAC Eliminated Empire's Incentives to Hedge Prudently</u>

Q. Did Empire have a strong incentive prior to 2009 to keep its hedging costs as low as possible?

A. Yes. This was before the Commission granted Empire an FAC in 2008 and Empire was still faced with competitive pressures (regulatory lag) to keep costs low and earnings high. Empire had to face what every other non-monopoly company faces everyday - competitive

price pressures, and increased earnings pressure from its shareholders. Both of these pressures exerted on Empire management caused a real management incentive to operate the utility as effectively and efficiently as possible. With the granting of an FAC, the pressures on Empire's management to keep fuel and purchased power costs as low as reasonably possible were virtually eliminated.

Due to the elimination of incentives for Empire's management to keep fuel and purchased power costs as low as possible, there was no incentive for Empire's management to aggressively and prudently manage its natural gas hedging program. These management incentives that were eliminated by the FAC are causing ratepayer detriments that are now being recognized in this case.

Since 2008 Empire had no risks to its guaranteed rate recovery of substantially all of its fuel and purchased power costs. The incentive on Empire management is to focus on areas where regulatory lag (competitive price pressures) still exists and not on its natural gas hedging program.

Q. Are you convinced that if the Commission did not grant Empire an FAC that Empire would have made changes to its natural gas hedging program in response to the 2009 revolutionary change in the natural gas market?

A. Yes, and these changes would have resulted in lower fuel costs by the non-incurrence of millions of dollars in natural gas hedging losses.

Q. Does Empire face any risk of prudence disallowances from a Staff FAC prudence review?

A. No. The only two so-called ratepayer protections built into the FAC are Staff prudence reviews and the 95 percent (as opposed to 100%) guarantee of rate recovery of all fuel and purchased power expenses. The one protection, Staff prudence reviews, does not exist. The

second protection, the 5% of fuel costs that do not flow through the FAC, is too immaterial to drive management behavior.

Rebuttal of Staff Witness Dana Eaves

Q. Did the Staff auditor who performed the FAC review of the prudence of Empire's hedging losses and hedging policy file testimony in this case?

A. No**.** The Staff auditor who performed the review of Empire's hedging program and costs and presented findings and conclusions in Staff's February 28, 2017 Sixth Prudence Audit Report of The Empire District Electric Company ("Staff Report") did not file testimony in this case supporting the Staff Report.

Q. At times, and in special circumstances is it necessary for a Staff auditor to officially adopt the findings and pre-filed testimony of another auditor?

A. Yes. For example, when a Staff auditor leaves the Commission his/her testimony in a case may be either withdrawn or adopted by another Staff auditor as the departing auditor may no longer be available to support the testimony.

Q. Has Mr. Eaves adopted the work and Staff Report findings of the Staff auditor who performed the review of Empire's hedging losses and hedging policy?

A. No.

Staff's 2016 Hedging Recommendations for KCPL and GMO

Q. In his rebuttal testimony Mr. Eaves discusses your direct testimony concerning Staff's treatment of the hedging costs in GMO recent general rate case, No. ER-2016-0156, related to GMO's natural gas hedging activities. At page 2 line 21 Mr. Eaves states "[t]o be clear, Staff recommended GMO only suspend its cross-hedging practice." Is

Mr. Eaves' statement that Staff did not recommend the Commission suspend GMO's natural gas fuel hedging accurate?

A. No. Mr. Eaves' after-the-fact recollection of the Staff's position on GMO's hedging in the 2016 rate case is in direct conflict with the recommendation Staff actually made to the Commission in this rate case.

Q. What is your primary evidence that Mr. Eaves' recollection of the Staff's position in the 2016 GMO rate case is incorrect and that Staff recommended that GMO suspend all of its natural gas hedging activities?

A. As part of its direct testimony in the 2016 GMO rate case, at page 192 of its Revenue Requirement- Cost of Service Staff Report ("GMO Report"), Mr. Eaves, speaking on behalf of Staff, made the following recommendation to the Commission:

> 3. Recommendation
>
> Staff recommends the Commission order GMO to suspend all of its hedging activities (cross hedging and **natural gas fuel hedging**) associated with natural gas. (Emphasis added).

Q. In his rebuttal testimony in GMO's 2016 rate case did Mr. Eaves again make it clear that Staff was opposed to rate recovery of GMO's natural gas fuel hedging as well as purchased power cross-hedging?

A. Yes. At page 3 lines 2 through 15 of his rebuttal testimony Mr. Eaves wrote:

> Q. Which portions of GMO's hedging practices is Staff recommending the Commission suspend?
>
> A. Staff is recommending the Commission order GMO to suspend the trading of **all NYMEX natural gas futures contracts and options used to hedge natural gas prices for its: 1) natural gas fuel in electric generating plants** and 2) electricity energy

> purchases, i.e., hedging for energy or cross hedging (emphasis added).

Q. Did OPC support Staff's recommendation for GMO to suspend all of its natural gas hedging activities?

A. Yes, it did. OPC made similar recommendations to the Commission regarding GMO's natural gas fuel hedging and purchased power hedging.

Q. Why did Staff recommend to the Commission that GMO cease all of its natural gas hedging operations?

A. Based on reading Staff testimony on this issue. The Staff's position that GMO suspend all natural gas hedging was based on three primary factors.

The first factor is that Mr. Eaves testified to the fact that "natural gas prices have stabilized and are expected to remain stable" (Staff GMO Report page 191 line 11).

The second factor Staff addressed in GMO's Report at page 191werethe mechanics of the FAC itself. Staff explained the FAC case process itself acts as a hedge to mitigate volatility should some meaningful volatility return to the natural gas market. Staff concluded that "GMO's FAC protects both shareholders and rate payers from unexpected changes in fuel and purchased power costs. Staff also explained that customers are protected from unexpected changes in fuel costs because customers are billed the incremental difference over an extended period of time" built into the FAC case process.

Staff's third factor relates to GMO's purchased power hedging and explains such hedging is not necessary due to the fact that the Southwest Power Pool's ("SPP") Integrated Marketplace protects GMO from significant price risks for its power purchases from the SPP. While not directly related to this case, OPC also agrees with Staff on this point.

OPC agreed with Staff's conclusions and rationale in the GMO case and continues to agree with each of the application of these factors as they apply to Empire in this case.

Q. Did Staff's 2016 rate case recommendation to the Commission that GMO suspend all of its natural gas fuel hedging also include reasonable and appropriate safeguards?

A. Yes, it did. The safeguards recommended by Staff in its GMO Cost of Service Report at page 192 lines 4 through 8 and are fully supported by OPC. These safeguards retain language in GMO's FAC tariff sheets that allow GMO to resume its hedging activities should the market place and/or other factors change in such a fashion that natural gas fuel hedging would again be warranted. In the GMO rate case, all parties, including GMO, agreed that GMO will suspend all of its hedging activities and retain the ability to re-start its hedging program should the natural gas market experience significant changes.

Q. At page 4 of his rebuttal testimony Mr. Eaves included a Highly Confidential chart showing Empire's net hedging losses since it implemented its hedging program in 2001. Please comment.

A. First, it is not clear why Empire's annual and cumulative hedging losses since 2002 should be financial information that is excluded from public view. Much, if not all of this information is likely included in Empire's public financial statements and reports. If Empire forces its ratepayers to pay for these cumulative hedging losses, at a minimum, Empire's ratepayers ought to be able to see the results of Empire's hedging program.

Secondly, the hedging gains Empire recorded from 2002 through 2008 are expected in a rising price gas market. Empire's customers paid high natural gas prices in base utility rates during this period. It very well may have been prudent for Empire to mitigate these high and volatile prices through hedging.

Mr. Eaves' chart strongly supports OPC's position on Empire's imprudence in this FAC case. This chart clearly shows that the natural gas market significantly changed from high

price high volatility to low price low volatility in 2009. While the natural gas market went through revolutionary changes in terms of volatility and prices, Empire's hedging policies and practices never changed. This is the basis of OPC's finding of significant imprudence on the part of Empire management.

Q. Based on Empire's comments concerning hindsight bias, could the chart included in Mr. Eaves' testimony be considered hindsight evidence?

A. In my opinion, yes. It is not clear why he included this chart and he did not explain any reason for including this chart in rebuttal testimony. Therefore, since the chart reflects what he purports to be the financial results of Empire's hedging plan in the period past the time the hedging transactions at issue in this case were placed, it could be considered an improper hindsight analysis. I would expect Empire to address this Staff hindsight evidence in its surrebuttal testimony.

Q. At page 5 line 1 of his rebuttal testimony Mr. Eaves provides a response to your direct testimony where you state "starting in 2009 the natural gas market changed from a market characterized by high prices and high volatility to one that consistently reflects low prices and low volatility". Please comment on Mr. Eaves' response to your characterization of the natural gas market.

A. Mr. Eaves admits that he has not seen natural gas price forecasts that predict upward swings in natural gas prices. This is consistent with his testimony to the Commission at page 191 line 11 of the GMO Report cited above that "[n]atural gas prices have stabilized and are expected to remain stable." However, Mr. Eaves then makes the following statement at page 5 line 2 of his rebuttal testimony in this case "……in [sic] natural gas market, volatility still remains because market forces are always at play."

Mr. Eaves does not address how nine years of declining prices and market stabilization support Staff's conclusion. While I can agree that market forces are "at play" in each and

every market associated with each and every revenue, expense, gain and loss that any company experiences, the Commission should not ignore, as Empire and Staff (at times) do ignore, and that is the actual and long-term price declines and elimination of volatility in the market. Mr. Eaves' total inconsistent testimony on this critical factor in this case should not be ignored.

Q. Over what period were the hedges placed and what is the magnitude of the hedging losses at issue in this case?

A. The hedges at issue were placed by Empire between 2010 and 2015. The losses resulting from these hedge transactions are reflected in Empire's books from March 2015 through August 2016, which is the period of the FAC prudence review in this case. Empire recorded Missouri jurisdictional financial hedging losses (from purchases of NYMEX futures contracts) of $8.3 million losses, and $4.8 million Missouri jurisdictional physical hedging losses in this FAC audit period.

Q. How does this amount of hedging losses compare to GMO's 2016 rate case hedging losses where Staff proposed no recovery?

A. Staff listed this amount as less than $2 million at page 190 of its GMO Cost of Service Report in Case No. ER-2016-0156.

Q. Since you raised this issue in direct testimony, did Mr. Eaves in his rebuttal testimony explain why Staff recommended a hedging cost allowance for GMO of less than $2 million but supports Empire's hedging losses of more than $13 million in this case?

A. No explanation of this glaring inconsistent rate treatment and ratemaking position was provided.

Q. Does Staff's inconsistent ratemaking treatment actually result in different treatment of GMO customers and Empire customers?

A. Yes. Staff's inconsistent treatment of hedging losses between GMO and Empire results in detrimental treatment of Empire's customers.

Q. At page 5 of his rebuttal testimony Mr. Eaves includes a chart of what is labeled to be natural gas futures prices, but appear to be prices somehow related to past months in 2017. Please comment.

A. It is not clear why Mr. Eaves selected a Nymex futures chart to reflect past prices. If his intent was to reflect actual and not futures prices, he could have used the published natural gas prices at the Henry Hub. His chart is confusing and it is not clear what point he attempts to make.

Mr. Eaves includes a chart with Nymex futures prices for February – June 2017 in which he calculates a 22% change in price. Mr. Eaves did not provide his calculation in his testimony nor did I see any such calculation in his rebuttal testimony workpapers. However, if his intent was to show that there is material volatility in NYMEX futures gas prices; I address that point in the chart below.

The chart below shows NYMEX futures gas prices for August 2017 through April 2019 as of July 20, 2017. I calculated monthly price changes in these exchange-reported prices. This chart reflects minimum price volatility, and in the months when prices did show volatility, the prices decreased from the previous month. This chart is what Empire witness Mertens refers to as a forward price curve.

Month	Futures Price	Volatility $	Volatility %
Aug-17	**$3.10**		
Sep-17	**$3.08**	($0.01)	0%
Oct-17	**$3.11**	$0.03	1%
Nov-17	**$3.18**	$0.06	2%
Dec-17	**$3.32**	$0.14	5%
Jan-18	**$3.41**	$0.09	3%
Feb-18	**$3.39**	($0.02)	-1%
Mar-18	**$3.33**	($0.06)	-2%
Apr-18	**$2.91**	($0.42)	-13%
May-18	**$2.87**	($0.04)	-1%
Jun-18	**$2.89**	$0.02	1%
Jul-18	**$2.92**	$0.02	1%
Aug-18	**$2.92**	$0.00	0%
Sep-18	**$2.89**	($0.03)	-1%
Oct-18	**$2.92**	$0.02	1%
Nov-18	**$2.96**	$0.04	1%
Dec-18	**$3.08**	$0.13	4%
Jan-19	**$3.18**	$0.09	3%
Feb-19	**$3.14**	($0.04)	-1%
Mar-19	**$3.06**	($0.08)	-2%
Apr-19	**$2.69**	($0.37)	-12%

Henry Hub Natural Gas Futures Quotes 7/20/17

http://www.cmegroup.com/trading/energy/natu

It is quite possible that Mr. Eaves was attempting to show price volatility in actual natural gas prices in 2017. In that case, in the chart below I provide the actual Henry Hub natural gas prices for 2017. The maximum price range for this 6-month period in 2017 is 45 cents and reflects minimum price changes

Month	HH Actual Price	Volatility $	Volatility %	
Jan-17	**$3.30**	($0.29)	-8%	
Feb-17	**$2.85**	($0.45)	-14%	
Mar-17	**$2.88**	$0.03	1%	
Apr-17	**$3.10**	$0.22	8%	
May-17	**$3.15**	$0.05	2%	
Jun-17	**$2.98**	($0.17)	-5%	
Henry Hub Natural Gas Spot Price				
https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm				

Q. How does the price volatility of actual spot natural gas prices in the first six months of 2017 compare to prices in the pre-2009 natural gas market?

A. The chart below reflects the very high prices and high upward volatility in the 2008 natural gas price market for the comparable period in 2008. The range of prices for this 2008 period is $4.70 ($12.69-$7.99) compared to the range of $.45 ($3.30-$2.85) cents in the comparable period in 2017 shown below. If Mr. Eaves was attempting to make a natural gas price volatility analysis in 2017 compared to the pre-2009 natural gas market, this is the type of analysis he should have provided in his rebuttal testimony.

Month	HH Actual Price	Volatility $	Volatility %
Jan-08	**$7.99**	$0.88	12%
Feb-08	**$8.54**	$0.55	7%
Mar-08	**$9.41**	$0.87	10%
Apr-08	**$10.18**	$0.77	8%
May-08	**$11.27**	$1.09	11%
Jun-08	**$12.69**	$1.42	13%
Henry Hub Natural Gas Spot Price			
https://www.eia.gov/dnav/ng/hist/rngw			

Q. At page 5 line 9 of his rebuttal testimony Mr. Eaves states that Staff believes Empire should continue hedging as Staff purports to have concern about Empire's exposure to price volatility. Please comment.

A. Staff's position in this Empire FAC prudence case is not understandable given the completely contradictory positions Staff took in GMO and KCPL's 2016 rate cases. Staff specifically took the position that KCPL should suspend its hedging activities. At page 160 of the November 30, 2016 Revenue Requirement- Cost of Service Staff Report for KPCL in Case No. ER-2016-0285 ("KCPL Report"), Staff recommended to the Commission that it "order KCPL to suspend all of its hedging activities (cross hedging and fuel hedging)."

At page 166 of the Staff's KCPL Report, Staff testified:

> Staff recommends the Commission order KCPL to suspend all of its hedging activities (cross hedging and natural gas fuel hedging) associated with natural gas, and require KCPL to notify the Commission Staff and the Public Counsel if KCPL decides to resume its natural gas fuel hedging activities. This suspension should be consistent with the Non-Unanimous Stipulation and Agreement, Filed September 20, 2016, in Case No. ER-2016-0156.

Q. **Do you believe Mr. Eaves' testimony that Empire should continue hedging because Staff has a concern about Empire's exposure to price volatility is a red herring?**

A. Yes. This red herring argument is a continuation of Staff grasping at straws to support inconsistent positions with different Missouri electric utility hedging programs. There was no change in the natural gas market since Mr. Eaves asked the Commission to require KCPL and GMO to suspend all of their natural gas hedging operations and Mr. Eaves did not show any change in the market.

Also, for KCPL and GMO Staff, in the respective 2016 rate cases, included appropriate safeguards designed to protect ratepayers from future price increases and volatility should they occur. This was the very same option Staff could have proposed for Empire's customers in Empire's 2016 rate case but did not. These are also the exact same safeguards Staff could recommend for Empire in this FAC case, but it recommends just the opposite, a continuation of the same hedging practices.

Q. Did Staff rate case auditors find that Aquila's hedging policy in the early 2000s was imprudent because of its so-called dollar-cost-averaging and its lack of flexibility and market sensitivity?

A. Yes it did. Because of the concerns raised by Staff's rate case auditors Aquila changed its hedging policy to one similar to KCPL's current policy, which is a much more flexible and market-sensitive policy.

Q. Is Empire's hedging policy very similar to the hedging policy that Aquila abandoned around 2007 based on Staff rate case auditors' recommendations?

A. Yes. That is the irony here. Staff FAC auditors are supporting the same rigid and inflexible hedging policy that Staff rate case auditors found imprudent. There is no consistency, justification or rationale for the Staff position taken by FAC auditor Eaves in this case.

This is another example that raises concerns about the comparative auditing experience and education of FAC auditors compared to Staff's rate case auditors. This is also another example where the concerns expressed by the Commission about FAC prudence auditor experience are proving to be justified.

Q. Is it bad policy to have multiple standards for the treatment of the same activity for different companies?

A. Yes, in addition to the impact on ratepayers, it creates confusion and an uncertain regulatory environment.

<u>Lack of Price Certainty is Not a Reason to Hedge</u>

Q. Mr. Eaves provides actual natural gas prices from 1997 through April 2017 at page 6 of his rebuttal testimony. He states that the volatility in the prices from 1997 to 2017 cannot be predicted with any certainty. Please comment on this conclusion.

A. I believe Mr. Eaves meant to say that future natural gas prices cannot be predicted with "certainty" and I agree with that conclusion. I also agree that almost nothing can be predicted with absolute certainty. However, the lack of certainty is no reason not to use professional judgment and that is what Mr. Eaves appears to be stating.

When the market changed in 2009 regulatory entities across the U.S. were demanding changes to hedging programs designed for the old natural gas market. These entities did not "waive their arms" in surrender to the inevitable lack of certainty as Mr. Eaves is doing. They took proactive positions to make utility hedging programs in the new natural gas market as efficient and effective as possible for each utility. Those actions included suspension of hedging programs and significant reductions to the volume of natural gas hedged. These actions are prudency defined.

Q. Is "price certainty" a standard in this case or in any rate case?

A. No. Price certainty does not exist, but that does not prevent regulatory bodies from moving forward with reasonable, efficient and cost effective policies in an environment without price certainty.

Mr. Eaves is surely aware that no utility revenue, expense, gain or loss can be predicted with "any" certainty. Mr. Eaves must also be aware that utility managers in Missouri have been making this very same argument in rate cases for most utility costs, including property taxes, transmission expenses, revenues, customer usage, and on and on. Therefore, it make no sense for Mr. Eaves to single out a "certainty" standard for natural gas prices when that standard is not applied to any other utility revenue, expense gain or loss.

Q. As it relates to the new standard of "price certainly" Mr. Eaves attempts to create for Empire in this case, is it possible to apply such a ratemaking or regulatory standard?

No. A ratemaking or regulatory standard of "certainty" is not possible for a utility regulatory body to apply to utility revenues and costs. Logically apply Mr. Eaves

"certainty" standard to other price markets (e.g. property taxes, labor, materials, transmission costs, pension, cyber security, plant), one would believe that a utility should hedge every single revenue, expense, gain and loss associated with these revenue requirement components. This one example illustrates the impossibility of applying a "future price certainty" standard which Mr. Eaves considers to be an appropriate standard for Empire's hedging in a long-term stable natural gas price environment.

Q. At page 7 line 6 of his rebuttal testimony Mr. Eaves states that "[it] would be highly speculative and likely imprudent to believe that such historically low gas prices as seen during the prudence review period can be sustained going forward." Is this a valid point?

A. No. In fact, just the opposite is actually true. As noted by Mr. Eaves, natural gas prices are stable. Looking at his chart on page 6 of his rebuttal testimony, with the exception of a few months in 2014, natural gas prices have been stable for over eight consecutive years and neither Mr. Eaves nor I have seen any evidence of any changes or any reasonable likelihood of a return to the pre-2009 market.

Given these facts, the Commission should conclude just the opposite of what Mr. Eaves concludes in his testimony. Given these facts, the Commission should conclude that it would be "highly speculative" and imprudent to believe, without any evidence at all, that the pre-2009 high and volatile natural gas price market will return.

Q. As discussed above, at page 191 lines 11-14 of the Staff's GMO Report Staff concluded that natural gas prices have stabilized and are expected to remain stable. Is this Staff conclusion the basis of OPC's recommendation that Empire was imprudent by continuing to hedge in this "stable" post-2009 natural gas market?

A. Yes. The natural gas market returned to stability in 2009. When the natural gas market returned to a market characterized by price stability, with no indication that it would return

to its volatile state, the stated reason why Empire initiated its hedging program, to mitigate price volatility, no longer existed.

Empire did not act prudently because it continued on, without any significant change. Activities that were reasonable in one natural gas price market were not reasonable in a completely different market. Empire's management actions did not change as the market changed. This lack of response to change led to imprudent and excessive hedging losses to be incurred and passed on to customers in the FAC.

That failure on the part of Empire's management caused it to unnecessarily incur millions of dollars in natural gas hedging losses in this FAC audit period. OPC requests the Commission find that Empire's should have taken a prudent course of action given the change in the natural gas market and suspend its hedging activities.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

Comments of OPC Witness

Charles R. Hyneman

Fortnightly Magazine - February 2012

Hedging Under Scrutiny

Planning ahead in a low-cost gas market.

Julie Ryan and Julie Lieberman- Julie Ryan is a vice president and Julie Lieberman is a project manager with Concentric Energy Advisors.

1. "*The new world of gas supply, brought about by shale development, the economic downturn, and expanded gas infrastructure, has caused regulatory stakeholders to challenge utility gas supply hedging programs.*" **Comment: The authors here are citing facts and reasonable and appropriate responses to these facts.**

2. "*Hedging serves as a tool to 1) stabilize prices, 2) protect customers from market volatility, and 3) insure against unexpected price spikes."* **Comment: The authors actually cite two purposes of hedging, to stabilize a price, which means mitigating price volatility, and to insure against unexpected price spikes. In this article the authors state clearly that the natural gas price market, at least in 2011 and 2012, was low cost and non-volatile. They provided no evidence that supports or even suggests that the natural gas market will return to its pre-2009 characteristics, other than stating the obvious, that it may happen.**

3. *"Regulatory commissions and intervenors are challenging the merits of their utilities' hedging programs with increasing frequency*." **Comment: The authors list several examples where utility hedging has been questioned. To my knowledge no party in Missouri challenged electric utility natural gas fuel hedging practices as a result of the 2009 market revolution until the 2016 KCPL and GMO rate cases. The result of OPC and Staff's concern was that both KCPL and GMO put their natural has hedging "on hold" or in a "standby" mode until they determine a real need to restart the hedging programs. OPC considers the actions of both KCPL and**

GMO, in agreeing to this change, although delayed, to be prudent responses to changes in the natural gas market that began seven years earlier in 2009. The authors also correctly state that at least since 2011 state regulatory commissions and intervenors began "questioning whether the risk mitigation benefits of hedging have justified the associated costs, and whether customers are paying for insurance to manage a risk that might no longer exist."

4. "C*oncerns raised by commission staff or other stakeholders relating to the cost of utility hedging programs led to an emerging trend of greater commission and stakeholder involvement in assessing such programs' efficacy.* **Comment: Another statement of fact that supports OPC's position in this case.**

5. *Regulatory commissions are asking utilities to provide written justification of their hedging practices, applying pressure on utilities to work with stakeholders to resolve hedging differences through collaborative processes and to find common ground on the risk-reward spectrum.*" **Comment: Another statement of fact that supports OPC's position in this case.**

6. "*In some cases, risk management hedging programs have been suspended until there are visible increases in volatility and market prices.*" **Comment: This specific point made by the authors illustrates the fact that other commissions were way out in front of the Missouri Commission in terms of seeking agreements with utility companies to suspend hedging operations unless and until the natural gas market once again shows signs of concern. Some Commissions responded in 2010 and 2011 while Missouri did not respond until 2016.**

7. "*Utilities that engage stakeholders in a dialogue now about their risk-management practices can ensure hedging remains a viable tool for limiting exposure to future price volatility*. **Comment: This is exactly what KCPL and GMO did in their respective 2016 rate cases. The stakeholders, KCPL, GMO, OPC, and Staff, engaged in discussions about natural gas hedging and came up with a proposal that was acceptable to all stakeholders and which allowed future hedging to be a viable tool in the future to limit exposure to market changes.**

8. "This shift toward re-assessing hedging practices is relatively recent." **Comment: This statement by the authors indicates that stakeholders did not express concerns about hedging when the market was high-priced and volatile and only when the market changed and hedging practices did not, did stakeholders get involved.**

9. "*In 2008, a survey conducted by the National Regulatory Research Institute (NRRI) indicated that most commissions in the U.S. either supported or were neutral to hedging.1 This was reinforced in a follow-up survey the AGA conducted in 2009.2 Among more than 100 respondents, over 90 percent said their commissions allowed financial hedging of commodity price risk. However, only a very small number of commissions required utilities to engage in financial hedging*." **Comment: This is just a statement of fact. It is important, however, to note that this NRRI and AGA study did not differentiate between electric and natural gas utilities. Because of the**

issues of price risk and fuel diversity, it is much more common for natural gas utilities to hedge than it is electric utilities.

10. "P*ush-back on utility hedging typically begins with intervenors. Ultimately, however, most administrative law judges and commissions generally support hedging.*" **Comment: The analysis supporting this statement was not clear. If this statement is true, it may reflect the tendency of most commissions and ALJs, at least in the years prior to 2011, to defer to utilities in the area of fuel procurement. This was a much more volatile time period for natural gas.**

11. *"While intervenors often recommend disallowance of hedging costs, commissions generally accept that the goal of hedging is price stability and not "to beat the market." As a result, cost disallowance decisions by commissions have been rare. But, in an environment where utility customers are experiencing across-the-board rate increases, it isn't surprising that commissions would encourage utilities to evaluate changes to their hedging programs."* **Comment: The authors here make a critical statement which Empire ignores. The authors, utility consultants for Concentric Energy Advisors, say they are not surprised that commissions would encourage utilities to evaluate changes to their hedging programs. Following this conclusion logically, it is not surprising that OPC would have expected Empire to evaluate changes to its hedging policy in 2010 and 2011 or post the 2009 market change.**

12. "*Intervenors have tended to take a retrospective view when evaluating the efficacy of hedging programs. 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. This is the standard commissions have adopted when reviewing historical hedging costs."* **Comment: OPC agrees with the authors that it is not appropriate to use hindsight when evaluating the effectiveness or efficiency of hedging programs. This statement that intervenors tended to take such a retrospective view in the 2010-2011 time periods, I did not see any examples where this point was supported. It seems to be an over-generalized statement. However, OPC agrees with the statements made here and OPC was aware of the potential and took steps to avoid hindsight analysis in the evidence put forth to the Commission to raise serious doubt about Empire's prudence. It appears it was this section of this article that was adopted by Mr. Mertens when he made these very same points (without support) in this rebuttal testimony.**

13. " *Many stakeholders have focused on costs associated with hedging, but there has been less focus by all parties on avoided cost analysis. In several instances, success—or lack thereof—has been measured by comparing the hedged prices to spot market prices.*" **Comment: I agree with**

the authors that in a market with high volatility and high prices, hedging will generate costs with a goal of avoiding much larger costs. The concept is the same as you have to spend money to make money - you have to spend money to hedge to protect against large spikes in prices which could reduce future profits. However, a shift in focus on avoided costs ultimately leads to the question – what is the significance of the cost you are avoiding? For Empire the question relates to operating in a low-cost natural gas market with no evidence or suggestion of becoming once again a high-priced market. What is the cost that you are avoiding? How much are you willing to spend to avoid this cost? These are the questions that are raised in this article with the discussion on avoided costs. These are the questions that Empire management should have been asking themselves in response to the changes in the natural gas market.

14. "*The costs have included net premiums paid for call options, as well as the difference between the fixed price or option strike price and the spot market price. There is often a failure to see the cost of options as an insurance premium, as well as to consider a fixed price as a rate stabilization tool. Further, what's missing is more analysis of the potential avoided cost. Additional scenario analysis would demonstrate the risk of what could have occurred as well as estimate the potential price exposures avoided as a result of hedging*." **Comment: I agree that we should consider hedging costs to be similar to insurance costs and only incur insurance costs when there is a real and material threat. Did Empire do an analysis during the 2010-2015 time periods to determine if there was a real threat for natural gas prices to increase to a level to justify the cost of hedging? The authors call for scenario analysis. I agree. A scenario analysis would have required Empire to study and evaluate the changes in the natural gas market post-2009 and determine the risk to its ratepayers. Such a study should have been initiated in 2009 and been performed on an ongoing basis ever since. Empire today should be doing a scenario analysis to determine the potential risk for high prices and volatility to return to the natural gas market. If there is no significant risk, it should scale back hedging or not hedge at all. If there is significant risk, it should adjust its hedging policies to adapt to this risk.**

15. "*Additionally, some stakeholders raise the concept of "least cost" in hedging program critiques. Care must be exercised when applying the least-cost principle to hedging, which presents trade-offs in risk, reward, and costs, depending upon the hedging instrument*." **Comment: I agree it is not wise to focus too heavily on the "least cost" principle. It would be more appropriate to focus wholly on a "least reasonable cost" principle. This principle calls for sufficient flexibility in a utility hedging program that allows for periods of no hedging while also calling for increased hedging. This is what a prudent hedging policy would allow and this is what KCPL's prudent hedging policy allowed. When Staff found Aquila Inc.'s hedging policy to be too rigid, it took actions. Unlike Empire, Aquila was responsive to Staff's recommendation that it close its current hedging policy and switch to a hedging policy with more flexibility, such as the Kase &Co model adopted by KCPL .**

16. *Using the analogy of insurance, it is possible to buy an inexpensive policy with a low premium, but this is usually accomplished by increasing the deductible, placing a cap on the total payout, or carving out conditions under which benefits aren't paid. Additionally, different hedging strategies yield different benefits, depending on market price direction. For example, if a utility is purchasing energy in a rising-price market, a fixed price purchase might be optimal as there is no option payment incurred and the coverage starts immediately. In a range-bound market, a costless collar might be the lowest cost of insurance, and in a declining market, a cap at a relatively high strike might be the most attractive form of hedge protection.* **Comment: Here the authors are discussing different hedging mechanics in different markets. I have no disagreement with these statements.**

17. "*The Shale Gas Factor - A review of comments filed by commission staff and other stakeholders shows that shale gas development is repeatedly referred to as a "game changing" technology. Shale gas producers access prolific geological deposits of reserves for production at relatively low costs, which has led to significantly dampened price volatility and lower market prices.*" **Comment: The authors here recognize in 2012, based on a 2010 and 2011 natural gas market, that shale gas "has led to significantly dampened price volatility and lower market prices."**

18. "*While the emergence of shale gas production is generally well-known by intervenors and regulators, the broader market dynamics are less well understood. Equally important is the fact that new pipeline infrastructure has served to deliver shale gas supplies into what historically have been transportation-constrained end markets, thereby changing traditional basis-pricing relationships and further easing price volatility."* **Comment: The authors here recognized that the shale gas revolution has led to the creation of new pipelines and more transportation availability of natural gas.**

19. *"Additionally, new LNG import facilities and expansions in natural gas storage capacity in recent years have contributed to expanded supply capacity. These supply and capacity additions have occurred at the same time that demand has declined. On the demand side, increasing energy efficiency measures and declining demand resulting from weak economic conditions have dampened consumption."* **Comment: The authors make the point that in the years just prior to 2012, factors other than the shale revolution led to expanded natural gas supply capacity.**

20. *"However, history repeatedly has shown that commodity market conditions are never stagnant, and that markets often correct as supply and demand factors re-balance. The recent 24 months of price declines have lulled many stakeholders into believing that low gas prices are now the norm but market conditions will change at some point."* **Comment: The authors appear to be critical of the "many" stakeholders who believed post-2009 was the new norm. Their criticism is based only on the assumption that "market conditions will change at some point." Such a generalized statement is not supported by any facts and is hardly a basis to criticize the many**

stakeholders who likely did their homework and studied the changing market conditions and did not see any evidence of it returning to its pre-2009 conditions.

21. *"The question is when, how quickly, and to what degree? If we have learned anything from the past, it is that we cannot predict the future with certainty. In the future, changing supply-demand factors might turn market prices in the other direction."* **Comment: Again I must take issue with the authors apparently supporting hedging policies in a low-priced, low-volatile market solely on the basis that factors "might" change. The authors ask "when, how quickly, and to what degree" will the market change but they have no idea and do not attempt to provide any analysis to answer any of their own questions.**

22. "*Utilities will want to be prepared before a market shift occurs. On the supply front, there might be environmental regulation that slows shale gas production, additional compliance requirements that increase shale gas production costs, or technical factors that reduce the projected size of economical reserves. Natural gas demand might increase due to stymied nuclear plant development, rising coal plant operating costs, or closures of coal plants as a result of environmental compliance. New demand could result from economic recovery, LNG exports, or new natural gas and electric vehicle use. A combination of these factors could cause the North American gas supply-demand balance to materially shift, bringing about increases in market prices and volatili*ty." **Comment: All of these events were possible back in 2012 and are theoretically possible today, but are they likely? Where is the analysis that shows that any of these events are likely? To my knowledge that analysis does not exist and that is why the "many interveners" who have likely done such an analysis believed, in 2010 and 2011, that the post-2009 natural gas market was the new norm. They had nothing on which to reach any other conclusion. If they did, I am sure the authors would have addressed them in this article.**

23. "*As market prices have dropped, many stakeholders are encouraging utilities to adapt their hedging practices to the current market supply and pricing paradigm. Some have suggested utility hedging be reduced until such time as gas market prices show some sign of rallying. Others are taking a more proactive stance, encouraging longer-dated hedging and new hedging program design."* **Comment: The authors cite reasonable and prudent actions taken by stakeholders in 2010 and 2011 in response to the new natural gas market.**

24. *"Two commissions that recently have suspended hedging activities are the Public Utilities Commission of Nevada (December 2010), with respect to Nevada Power, and the British Columbia Utilities Commission (July 2011), in regard to FortisBC. The commissions didn't disallow previously executed hedge transactions, and they left existing hedges in place; the decisions applied to future hedging activity.*" **Comment: This is factual information provided by the authors and I agree with the actions of these regulatory commissions.**

25. "*In its Dec. 16, 2010 order (Docket No. 10-09003), the Nevada PUC approved a stipulation that included the requirement that Nevada Power not proceed with any additional financial gas hedges. However, the utility was told it should continue reviewing natural gas hedging in light of prevailing market fundamentals and conditions.*" **Comment: Another statement of fact and an example where the Nevada PUC acted reasonably and prudently.**

26. *More recently, on July 22, 2011, the British Columbia Utilities Commission rejected FortisBC's "Price Risk Management Plan." In the order, the Commission Panel wrote: "in light of the recent exploitation of shale gas, the likelihood for more stable natural gas prices is significantly greater and the risk of dramatically higher natural gas prices, excepting short periods of price disconnects, is significantly lower than it has been in many years."* **Comment: Another statement of fact and an example where a regulated commission acted reasonably and prudently."**

27. "*Further, the panel suggested that hedging was not the best way to deal with the potential for price increases, but commented that if there were a change in market conditions, they would be willing to consider proposals to mitigate price risks for customers. They concluded by saying that the performance of the utility's "Price Risk Management Plan" over the last 10 years did not convince them that continuation of the program was in the ratepayers' interest*." **Comment: This is another example of a regulatory commission applying the principles of market competition on a monopoly. With competitive firms market competition drives efficient practices. With monopolies, many times it requires actions by regulatory commissions to force a company to operate efficiently.**

28. *Measuring Prudence - Hedging programs are undergoing a greater degree of regulatory scrutiny. In some instances, hedging programs have been scrutinized and continued without modification, while in other cases; hedging programs have been targeted for additional review.*" **Comment: This is the necessary actions of a regulatory commission acting as a substitute for competition. A very necessary action to protect consumers from monopoly abuse.**

29. "*In spring 2009, the Colorado Public Utilities Commission commented on testimony filed by commission staff, which criticized gas hedging by Xcel's subsidiary, Public Service Company of Colorado. The staff had conducted a quantitative analysis to determine that during the period following Hurricane Katrina (2005-2006), the utility's hedges were close to breaking even, i.e., the premium paid for hedging nearly equaled the benefits it provided over spot market prices. But a break-even analysis of the hedging costs compared to spot market prices for the period 2005 to 2008 illustrated that the utility only regained approximately one third of every dollar spent on hedging. Ultimately, in its order, the commission supported the administrative law judge's position that the utility's hedging program should not be suspended. In his recommended decision, the judge wrote, "Preapproved elements of the [hedging] plan avoid hindsight evaluation of each program. Simply stated, [the plan] is to be evaluated based upon information*

available at the time, not in terms of whether the plan 'beat the market.' To the extent Public Service implements such a plan, as approved, the associated hedging costs should not be subject to disallowance in any subsequent gas cost prudence review proceedings." **Comment: This event took place during 2005-2006 when the natural gas market was high-priced and volatile. I completely agree with the conclusion reached by this commission that hedging results should not be measured on the basis of net gains and losses. While there is nothing inherently wrong in discussing the historical results of a hedging program in testimony, it is not appropriate to measure the success of a hedging program based on net gains and losses. In his rebuttal testimony Staff witness Eaves puts forth such a hedging evaluation which, even if it was correct, is not appropriate and is nothing more than hindsight bias. The authors explain why this is so in the Colorado PUC example above. Hedging losses by themselves are not necessarily bad. It is the facts and circumstances surrounding these losses that are the important factors in a prudence evaluation.**

30. *In another example, a commission decided to open a utility's hedging program to further review. In May 2011, in response to PacifiCorp's rate filing for Rocky Mountain Power, the Utah* "*Industrial Energy Consumers filed direct testimony asking the Utah Public Service Commission to disallow $19.7 million in revenue requirements related to what the group called "imprudent hedging practices" by the utility. Rocky Mountain Power's hedging program layered-in hedges 48 months into the future, hedging nearly 100 percent of its open commodity price risk. In the industrial group's testimony, it commented that the utility's hedging program wasn't adjusted to account for changes in market conditions and the expanding supply of natural gas through shale gas production.7 Hence, the industrial group suggested the utility was imprudent to hedge such a large percentage of its open positions and should have reduced its fixed-price hedges, to leave open one-third of its portfolio to spot market pricing***." Comment: Here the authors point to another example where utility customers, in this case industrial customers who may have a greater understanding of fuel procurement practices in a competitive market tell the utility that they are imprudent. This event took place in 2011 and these industrial energy consumers made the exact same argument that OPC is making in this case only six years later. Empire was allowed to continue for an additional six years what are considered "imprudent hedging practices."**

31. *"In July 2011, a stipulation was filed with the Utah PSC where the parties agreed to a collaborative process to review possible changes to the company's hedging practices. As part of the stipulation, it was agreed that the utility's past hedges wouldn't be disallowed, but that the utility would implement any changes that result from the collaborative process or commission order. Issues addressed in the collaborative process included: a new maximum hedge volume percentage limit or range; risk tolerance bands based on time-to-expiry value-at-risk (TEVaR) or value-at-risk (VaR) limits; position limits; a process for review of hedging transactions outside of accepted guidelines, including natural gas reserves or storage; liquidity, transparency, and other risks of different hedging tools such as financial swaps, fixed-price physical forward contracts, and options; a semi-annual confidential report on hedging status; and coordination and*

implementation issues relating to the inclusion of financial swap transactions in Rocky Mountain Power's energy balancing account.8 The stipulation was approved in a commission order on Sept. 13, 2011, and PacifiCorp and the other stakeholders were expected to complete discussions by January 2012." **Comment: The authors in this section describe a hedging impudence issue in Utah where the parties reached what appears to be a reasonable settlement, again this is in 2011. This settlement appears to be very thorough and resulted in a change to the old hedging plan. This is the action that should have been taken with Empire's hedging plan in 2011.**

32. *"In February 2011, the South Carolina Office of Regulatory Staff (ORS) requested suspension of the hedging programs of South Carolina Electric and Gas (SCE&G) and Piedmont Natural Gas. The ORS commented that the hedging costs incurred by the utilities might be appropriate for markets where there is significant price volatility, but were not appropriate for more stable natural gas market conditions. According to the ORS, SCE&G's hedging program cost customers more than $50 million since 2006, and Piedmont's program cost over $37 million since 2002. This request for suspension was later withdrawn in July 2011, and it was determined that the utilities and the ORS would address the prudence of the hedging activities in each of the companies' respective annual purchased gas adjustment (PGA) proceedings."* **Comment: The authors again describe the regulatory environment in 2011 that existed throughout the United States as one where the decision was made that "hedging as usual" will no longer be tolerated and will be challenged. This example is from the state of South Carolina.**

33. *"In SCE&G's PGA proceeding, the ORS evaluated the company's hedging program and affirmed its previous recommendation that the hedging program should be suspended. SCE&G agreed to immediately suspend all hedging until the commission directs it to recommence. The agreement anticipates that changing market conditions—e.g., environmental restrictions on shale gas production—could warrant a resumption of hedging***." Comment: This section describes a utility's appropriate response to the concerns of the South Carolina Staff about hedging practices in the new gas market. This action, that was taken in 2011 in South Carolina, was taken by KCPL and GMO in Missouri in 2016 after five years of unnecessary hedging losses passed on to Missouri ratepayers.**

34. "*Conversely, Piedmont's hedging program was approved in its PGA proceeding with the removal of its previously established minimum hedging requirement of 22.5 percent. Although Piedmont's gas purchasing and hedging activities were deemed to be prudent, there was disagreement on whether gas purchasing and hedging activities, pursuant to a commission-approved hedging program, should be subject to an after-the-fact prudence determination. The commission requested an ex-parte briefing on the issue of how to measure prudency in hedging programs."* **Comment: This section describes actions taken to remove some inflexibility in a gas distribution company's hedging program by removing minimum hedging requirements. One of the main problems with Empire's hedging program is its minimum hedging requirements. In my surrebuttal testimony I compared Empire's rigid and inflexible hedging program with that**

of Kansas City Power & Light Company's hedging program that has much more flexibility to respond to market changes.

35. *Strategic Adaptation - In some jurisdictions, regulators are modifying the hedging program horizon and limiting discretionary actions. In Delaware, Delmarva Power has a programmatic hedging program with periodic hedging at pre-determined intervals. In 2009, the utility reduced the tenor and the total volume of hedging.* "**Comment: The authors provide another example of a prudent response to the natural gas market as early as 2009**.

36. *"More recently, in response to Delmarva Power's "Gas Cost Rate" filing, a consultant for the commission staff proposed two alternative hedging strategies to enhance flexibility in the hedging framework and to provide a greater smoothing effect on gas price spikes. The consultant recommended either lengthening the "hedging interval" beyond 18 months to take advantage of lower volatility in outer months; or implementing dollar cost averaging,13 with fixed dollars allocated for hedges rather than fixed volumes, so that hedging volumes would increase in low-priced market environments and would decrease in higher-priced market environments.* "**Comment: This section illustrates the fact that Empire's dollar cost averaging policy is not really a dollar cost averaging policy at all, it is a volume-only based policy as there are no restrictions on the dollars spent on hedges. The consultant here proposes a true dollar-cost averaging method with "fixed dollars" not "fixed volumes" allocated for hedging. This volume cost averaging method was used by Aquila Inc. prior to Aquila terminating its hedging program and it was one of the reasons that Staff found Aquila's hedging program to be imprudent.**

37. *The consultant stated that dollar cost averaging results in lower gas costs when compared to a less-flexible, programmatic hedging strategy .Although no changes were made to Delmarva Power's gas hedging program, the company agreed to review and discuss the staff consultant's recommendations for modification* "**Comment: Another reaffirmation of the problem with Empire's incorrect description of its hedging program as "dollar-cost averaging" and how a true dollar-cost averaging method may be at times prudent. It is hard to ever see a time when Empire's actual "volume" averaging method (which ignores costs) can ever be prudent. The referenced consultant term "less-flexible, programmatic hedging strategy" is how he/she describes Empire method.**

38. *"In Michigan, intervenors in the Consumers Energy rate case proposed a range of changes to reduce the volume and tenor of hedging under the utility's fixed-price hedging program to address concerns that the utility was over-hedging with fixed-price purchases. In that proceeding, intervenors urged the commission to eliminate the "tiered" strategy, which provided for programmatic purchases of fixed price supply in accordance with monthly hedge targets, and suggested modifications to the company's "quartile" strategy, which it had employed in tandem with the tiered strategy, using historical pricing to determine the amount of forward market hedging. All parties proposed a reduction in annual hedging caps. The ALJ decision supported the*

company's proposed plan, but indicated that certain accelerated purchases under the tiered strategy would require justification by market conditions to be deemed prudent. At this writing, a final decision in this proceeding was pending." **Comment: The authors provide another example of significant frustration among intervenors to outdated and bloated hedging strategies. In this case the frustration occurred in Michigan.**

39. *In California, parties to the electric utilities' procurement plan filings are discussing moving from fixed caps on hedging, as determined by the consumer rate tolerance (CRT) of 1 cent per kilowatt hour, to a restructured CRT that represents a percentage of the individual utility's system average rate. By moving to a percentage of the system average rate, the percent hedged under the CRT would remain constant and wouldn't fluctuate with rate changes.*" **Comment: Authors note another attempt to respond to hedging volumes.**

40. "*Locking-In for the Long-Term - The Public Utility Commission of Oregon approved a $250 million investment in reserves by its gas utility, Northwest Natural. The utility entered an agreement with Encana Oil & Gas (USA) to develop physical gas reserves expected to supply a portion of the utility customers' requirements over a period of about 30 years, with 8 to 10 percent of Northwest Natural's average annual requirements supplied through the arrangement. The Commission approved the utility's plan in April 2011, allowing the utility to recover the costs of gas produced and delivered, plus a rate-base return on investment through its annual PGA mechanism*." **Comment: A description in Oregon about a different approach to hedging by creating physical gas reserves.**

41. *"In Colorado, the Clean Air - Clean Jobs Act of 2010 (HB 10-1365), included a legislative provision to facilitate fuel-switching from coal to natural gas, while protecting ratepayers from volatility in prices. The provision provides regulatory certainty that utilities will be allowed full cost recovery, without risk of future disallowance, for commission-approved, long-term gas contracts—of between three and 20 years in duration—entered into pursuant to the act.19 To that end, Public Service Company of Colorado and Anadarko entered a 10-year, fixed-price gas supply agreement, subject to annual price escalations, that is projected to result in savings to ratepayers of approximately $97 million, when compared to forecast gas costs without the contract."* **Comment: The authors describe an action that appeared to be taken in response to a legislative mandate. Such actions are rarely economical and efficient as social goals and policies are placed above economy and efficiency.**

42. *"Black Hills Energy of Colorado has incorporated a long-term hedging strategy into its "Gas Mitigation Plan." The plan provides for hedging between 50 and 70 percent of its gas requirements under normal conditions, with the remaining gas requirements purchased in the monthly or daily spot market. Of the hedged volumes, half are comprised of fixed-price swaps phased in over three separate terms: three years, five years, and seven years. The long-term hedges, once fully phased-in, will represent approximately half of the company's normal annual volume requirements. Another 20 percent of the gas supply requirements are hedged using call*

options in a short-term hedging strategy for the upcoming year." **Comment: The authors do not state if this is an electric or gas utility. If it is an electric utility then it appears to have a similar hedging plan as Empire.**

43. *"Commissions will continue to review their utilities' hedging plans in a critical light, and it will be necessary for utilities to work in collaboration with stakeholders to consider adaptations to hedging plans that respond to new market conditions and that protect customers in the event of rising gas and power prices."* **Comment: I also agree with these statements. The Missouri Commission should review Empire's hedging plan "in a critical light" as well as all electric utility plans in Missouri. Progress has already been made with KCPL and GMO and this progress should not be stopped with Empire.**

44. *"Window of Opportunity - Hedging objectives are an important part of the dialogue between commissions and utilities, and avoided costs need to be considered in developing a hedging program."* **Comment: I also agree with the authors statements. The Missouri Commission should review Empire's hedging plan critically as the authors suggest and give consideration to many factors, avoided costs being one of them. With Empire's hedging program as it was in 2010-2015, there were no "avoided costs" only "avoided benefits." The benefits that were missed would have been Empire's customers' enjoyment of a low cost natural gas market after they endured several years of a high cost market. While not an issue in this case, Empire's hedging program needs to be overhauled and made prudent and then be suspended (as is KCPL and GMO's hedging plan) to only be reactivated when the market changes.**

45. *"Hedging" can mean different things to different parties. Therefore, an important first step is to obtain broad consensus about the objectives of the utility's hedging program."* **Comment: Again, I agree with the authors on this point. Price certainty or price volatility or expense budgeting should not be the objectives of a hedging plan and these are the objectives of Empire's hedging plan. With the goal of protecting customers from high electric rates, the objectives of a hedging plan should be to provide insurance against high natural gas price spikes. That is why the analogy of hedging and insurance is so apt. You buy fire insurance to protect against major dollar losses from the fire. You should only buy natural gas hedges for the purpose of insuring against a major increase in the cost of fuel.**

46. "*By way of simple example, one objective could be that hedging is intended to protect customers against price spikes during certain high usage seasons, while another objective might be to protect customers against rising price trends that could occur over an extended period of time."* **Comment: As noted above, the only valid objective for an electric utility is to use natural gas hedging as a form of insurance and protection against price spikes. Prudent electric utilities have created a natural fuel hedge through generation diversity and do not over rely on one fuel source. There have been serious questions about Empire's prudence for depending too much on natural gas as a fuel source. Gas utilities are in a different position than electric utilities in that they do not have fuel diversity as a hedge. Therefore, in the appropriate**

situation, the second objective listed by the authors, to protect against rising price trends, may be appropriate for natural gas utilities.

47. *"One benefit arising from the increased focus on utility hedging is that regulators and stakeholders have grown increasingly sophisticated about commodity markets and hedging, and some might support more complex programs in the future. However, the more discretionary a program design, the more critical decisional documentation and transparent processes become."* **Comment: I also agree with this statement. I read the authors' used of the word "discretionary" to mean flexibility. Utility fuel procurement employees need much flexibility to perform their job effectively and efficiently. If this requires more documentation and transparency, these are only additional benefits of a flexible hedging policy. Programmed, systematic, rigid and inflexible are all words that very accurately describe Empire's hedging policy. That needs to change if Missouri ratepayers are to be protected.**

48. "*Further, there must be rigor and consistency in how hedging is adjusted in different market price environments. It will be important in the design and approval stage that the hedging program has clear triggers for when hedging decisions will be executed. During the implementation stage, it will be important for utilities to document information that was known to them at the time hedges were transacted to demonstrate that reasonable actions were taken, consistent with the program design.* **"Comment: The authors state that "rigor" and "consistency" MUST be used in adjusting hedging policies to different market. I could not agree with the authors more on this point. It should be obvious to everyone that hedging policies must be adjusted to different market price environments. This is just common sense. However, Empire did not adjust in any fashion to upheaval in the natural gas price market in 2009. Empire's imprudence on this one action could not be clearer.**

49. It is somewhat ironic that in today's market, as the price of hedging has declined, stakeholder support for hedging has waned. The authors were referring to the natural gas market in 2011 as the article was published in February 2012. It is not clear why the authors state the price of hedging has declined, certainly the losses incurred by utilities such as Empire did not decline but increased in this 2011 period. **Comment: I am not clear as to the point that is being made here. It is somewhat of a concern that the authors are surprised by the actions taken by Commissions and Commission Staffs and intervenors to protect utility ratepayers. The authors may be demonstrating a lack of concern for utility customers in this section. It should be no surprise to the authors that the regulatory environment across the U.S. in 2010 and 2011 was calling for change. It is particularly naïve of them to think that change was not needed.**

50. "The low-price and low market-volatility environment introduces opportunities to execute hedges at historically attractive price levels." This is not an unreasonable statement on its face. **Comment: It could very well have been an opportunity to capture low natural gas prices if there was an indication that the natural gas market change in 2009 temporary. The authors provided no evidence or indication that this was the case. To continue to hedge in a low price**

market means you believe there is significant risk of price spikes during the hedged period. There is no evidence of this risk.

51. "*If utilities were to abstain from hedging until volatility increased and market prices rose, the cost of hedging would increase to the point where hedging could be deemed by regulators to be too costly for ratepayers*." **Comment: This statement does not logical sense. The historical evidence proves just the opposite is true. Many electric utilities including Empire created a natural gas hedging program around 2001 in response to increased volatility and increased market prices. I know factually that the Missouri Commission did not determine these new electric utility hedging programs to be too costly for ratepayers and allowed all Missouri electric utilities to hedge in this pre-2009 market. In fact, the Commission approved the suspension of KCPL and GMO's hedging programs and approved the restart of these programs should the natural gas market return to high volatility and high prices. Given these facts, the concern of the authors would not apply to Missouri electric utilities.**

52. "*In jurisdictions where intervenors and perhaps regulators might be reluctant to support an expansive hedging program at current lower market prices, utilities should use a collaborative process to garner support*." **Comment: I agree. While not an issue in this prudence case, if Empire wants to change the objectives of its hedging program from one of volatility mitigation to one of taking advantage of low prices, as Mr. Mertens suggests, it should "use a collaborative process to garner support."**

53. The first objectives would be to improve stakeholders' understanding of the supply-demand market fundamentals that have contributed to current lower prices, and to explain future trends and events that could move market prices upward. **Comment: I agree with this statement.**

54. A better understanding of market drivers and how prices could potentially change will help stakeholders appreciate the utility's need to be ready with hedging strategies to protect customers from rising wholesale market prices. **Comment: I agree with this statement and this statement supports the positions Staff and OPC have taken with KCPL and GMO. While not currently hedging, KCPL and GMO "are ready" with hedging strategies to protect customers. Empire is not yet to this stage.**

55. The second objective would be to engage stakeholders in a dialogue about how the utility's current hedging program was developed, and to listen to stakeholders' concerns. Working collaboratively, it is possible for all the parties to bring a fresh perspective to the hedging program and consider how it might be adapted under varied market conditions. **Comment: I agree with this statement. There has never been a greater need than now for Empire to "listen to its stakeholders' concerns."**

56. Such efforts will yield the greatest benefit for utilities and their customers if they happen before supply-demand conditions materially change market prices, and the current window of opportunity closes. **Comment: This article was published in early 2012 and based on a 2011 natural gas market. The advice to utilities to seek intervenors involvement in the design of a hedging program was good advice then, and is good advice now, regardless of the fact that the low price window of opportunity has not changed in nine years and there is no indication that it will change in the next nine years.**

RESPONSE TO:

RFP 15-10 DOCKET NO R-32975
LOUISIANA PUBLIC SERVICE COMMISSION, EX PARTE.
EXAMINATION OF LONG-TERM NATURAL GAS
HEDGING PROPOSALS

SUBMITTED TO:

LOUSIANA PUBLIC SERVICE COMMISSION

SEPTEMBER 21, 2015

CONFIDENTIAL

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ATTACHMENTS

I. INTRODUCTION

Concentric Energy Advisors, Inc. ("Concentric") appreciates the opportunity to provide this proposal to the Louisiana Public Service Commission ("LPSC" or "the Commission") in regards to the examination of long-term natural gas hedging proposals for each LPSC-jurisdictional Electric IOU in accordance with the requirements of the LPSC's General Order date November 10, 2014.

Concentric is a management consulting and financial advisory firm that is focused on the North American energy industry. Concentric's workforce is comprised of energy industry experts who have held positions with utility companies, state and federal regulatory agencies, energy marketers, global energy companies and other management consulting firms. Concentric was founded in 2002, and many members of Concentric's team have been working together for more than 25 years.

Concentric's hedging advisory services provide valuable insight to utility leaders in trading, structuring, valuation, compliance and business operations. Concentric helps clients prepare for emerging issues, conduct due diligence, provide expert witness services, address issues related to hedging activity affecting purchased-gas adjustment classes (PGA), enhance hedging programs, analyze portfolio risk, assess enterprise risk exposures, improve risk management infrastructure, insure robust governance, and manage counterparty credit risk.

The qualifications that make Concentric uniquely different from other providers are as follows:

- **Direct Experience as Commissioners or Serving Commissions**: Unlike other firms, Concentric has developed a consulting services to address energy regulatory needs that sets us apart and will directly benefit the Commission. Concentric has intimate knowledge of how Commissions work and how electric IOUs present issues to Commissions. We understand the perspective of the Commission because members of our management are former Commissioners (Massachusetts and New York State) or have worked as staff to Commissions (New York State and Colorado). We understand how to interact with Commissions because we have assisted clients present or defend cases before Commissions in more than 500 cases in the U.S. and Canada.
- **Nationwide Understanding of Hedging Programs:** Concentric's team has consulted for many municipal and investor-owned energy utility clients across North America. We understand the culture of regulated and Co-Op utilities. Our team has a sophisticated yet practical understanding of the risk management challenges that impact the business performance and customer rates of an energy utility.
- **Direct Risk Management Experience:** Unlike many consulting firms, members of Concentric's team have significant direct work experience leading risk management operations within energy companies. Additionally, because of this expertise some of our clients have

outsourced their risk management functions to our consultants, or have asked us to lead their internal risk management operations on an interim basis. In several of these engagements, Concentric's staff also assisted these clients with the recruitment and training of full-time risk management leaders.

- **Understanding of Tenuous Relationship Between Agencies and its Stakeholders:** Concentric's consultants have relevant experience working with public agencies, municipalities, cooperatives and other public power entities; and they understand the governance considerations, the customer rate impact associated with energy supply costs, and the other risk management priorities of these organizations.
- **Balanced Knowledge of Technical and Practical Issues:** Concentric's team has successfully completed numerous risk management assignments that involved modeling our clients' energy supply portfolios and developing hedging plans appropriate for their organizations. We understand the theoretical background of risk and the practicality of its implementation.
- **Experienced Presenting, Defending and Testifying to Best Practices:** Through our client engagements and our evolving knowledge of best-practices from industry association guidelines and prudence reviews, we have accumulated significant expertise to share with PSEG and benchmark PSEG Long Island's hedging program. Our consultants understand the risk profiles of utilities throughout North America and our recommendations for "best practices" are tailored to our clients' respective energy portfolios and unique circumstances.
- **Our Services and Reports are performed with a Regulatory Perspective:** We provide consulting services that make sense from the business perspective because we understand the Electric IOUs, but are also able to communicate in a way that is accessible to outside stakeholders and Regulators. While we are not lawyers, our work product is drafted with a frame of mind of regulatory scrutiny

Please refer to Section IV, for specific examples of our firm's work.

II. SCOPE OF WORK

Concentric will assist in-house Staff counsel and outside counsel in reviewing plans submitted by Commission-jurisdictional IOUs consistent with the review of the Pilot Program established by the Commission General Order dated July 13, 2015 ("Hedging Order"). Concentric will assist in the preparation of discovery, draft a report for filing into the record of proceeding, participate in any status conferences and hearings convened as part of the certification filing, and assist in Staff's ultimate recommendations on the pilot plan and certifications submitted hereto.

There are at least four different items identified in the RFP as minimum requirements where Concentric has a competitive advantage to other firms.

We have reviewed the relevant documents associated with the Hedging Order and have some preliminary observations regarding some of the most relevant Commission orders in this General Order.

The Commission's Hedging General Order (07/13/15)

We are intimately familiar with the Hedging Order and the issues defined by the intervenors and the Staff. And have been following the Commission's proceeding since the august 21, 2013 Louisiana public Service Commission Notice of Rule Making that examined whether it is in the public interest to accept long-term (five, seven, ten and even fifteen year), fixed price hedging proposals for natural gas contracts. In our experience, the concerns expressed by the intervenors tends to follow a lagged response to market prices as highlighted in Figure 1 and summarized as follows:

- **Upside**. From 2005 through the beginning of 2009 the hedging programs were focused on avoiding price increases (the "Upside" risk). In general, hedging in a market with an upside trend favored the hedging programs because it allowed for more competitive prices, price certainty and reduced volatility;
- **Downside.** By the middle of 2009 the perspective changed with the increased importance of non-conventional sources of natural gas ("Shale" gas) and the hedging programs that had been structured to avoid upside risk became uncompetitive and subject to regulatory scrutiny. Prices that were $18.99/MMBtu in February 2003 plummeted to $1.86/MMBtu in the Spot (next-day delivery) markets. Hedging programs started incorporating a focus on avoiding uncompetitive prices, opportunity costs and less concern on upside risk; and
- **Sideways.** Since the middle of 2012 we have now entered a timeframe where prices have either softened or traded within a ranged (moved "sideways"). The upside or downside risk considerations of the earlier periods are no longer that present and we have now entered a period where a balanced approach that weighs the upside and the downside risk driving the hedging programs and leading largely to fewer hedged positions.

The positions summarized in the Hedging Order reflect some of the focus of the hedging programs and the fact that all IOUs are able to recover natural gas costs through the Purchase Gas Adjustment Clauses ("PGA").

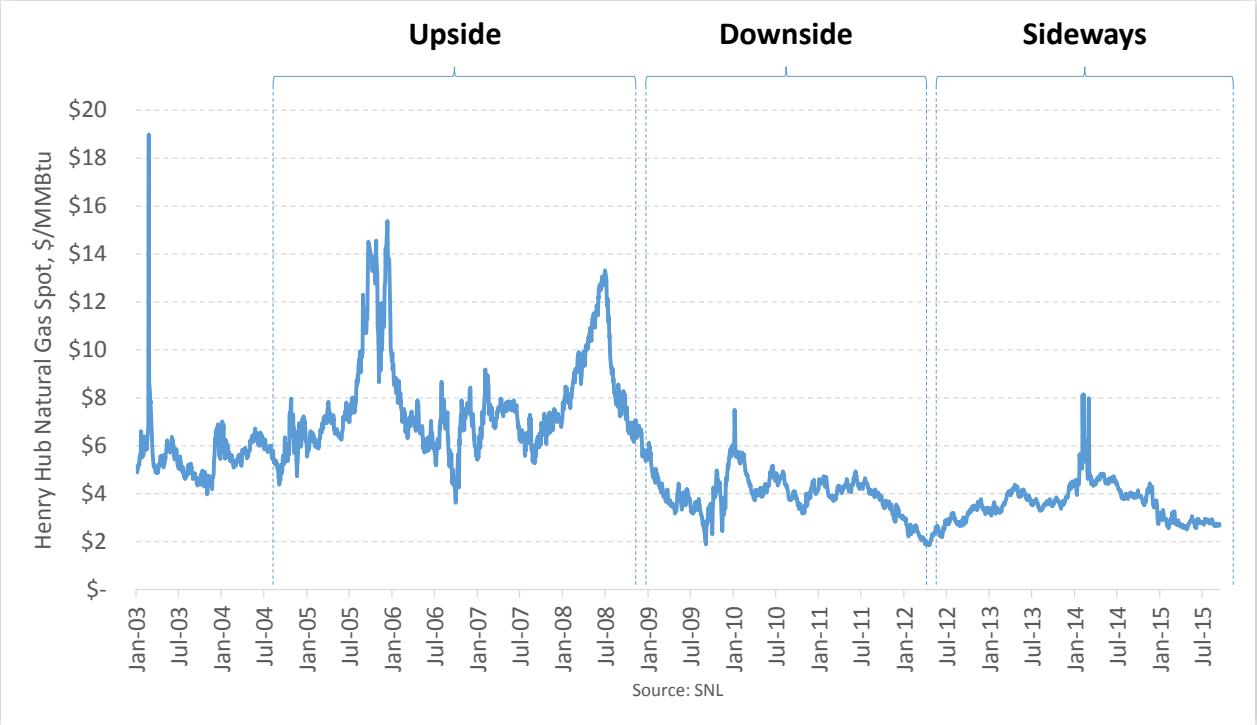


Figure 1: Hedging Program Focus Follow a Lagged Price Response

The Commission's Purchase Gas Adjustment Order

We are also very familiar with the Purchase Gas Adjustment Order and the concerns expressed by the intervenors is largely based on the fact that the PGA provides cost recovery without exposing the financial position of the electric IOUs. There are nevertheless items in the definition of the PGA that allow room for the Commission to motivate the electric IOUs to hedge in pursuit of economic prices for electricity. Several jurisdictions in the U.S. and Canada are increasingly challenging automatic PGA charges under the proviso that the IOU didn't act "in pursuit of economic prices" by ignoring opportunities to hedge the price.

The Commissions Fuel Adjustment Clause Order

We are also aware of the details surrounding the Fuel Adjustment Clause and have been following the proceedings and Orders as early as October 1, 1997[1] in the development of standards governing the treatment and allocation of fuel costs by electric utility companies. In conjunction with the Purchase Gas Adjustment Order, the Fuel Adjustment Clause clearly defines the fuel costs that are subject to be recovered (Fuel Adjustment Clause) and how they will be recovered (Purchase Gas Adjustment).

[1] Docket No. U-21497 as well as th April 23, 1975 General Order regarding the fuel and purchased power adjustment clauses.

Of relevance to the Hedging Pilot is how the elements accounted for in the Fuel Adjustment Clause include (or not) elements associated with long-term hedges. In our understanding of the Order, the costs for long-term hedges are within those expenses to include in the Fuel Adjustment Clause.

A General Understanding of Utility Hedging Practices

Concentric has been evaluating, enhancing, auditing and structuring utility hedging practices and we have developed a clear understanding and a database from public information of the different hedging programs. The team identified in this proposal has been involved in evaluating hedging programs for at least 50 different entities ranging from Investor Owned Utilities (IOUs) to Regulated Utilities to Industrials.

Our exposure to this variety of clients has allowed us to create a typology of approaches to hedging grouped by the defining "logic" illustrated in Figure . For instance, there are a number of companies that hedge based on a "time logic" that accumulates hedges as a function of time (e.g. every first of the month). This particular program is very easy to implement, but more than a hedging practice it is a procurement exercise because it lacks associating what risk is hedging trying to address. On the other hand, there are entities with hedging programs that are based on avoidance of risk ("Risk") and they will hedge if the market risk is in excess of tolerance.

Our preliminary assessment is that all the electric IOU's in the Commission's territory are a combination of "Nothing" (i.e. not hedging) or short-term hedging during the winter ("Time"). These two approaches that dominate the Commission's territory are not surprising because all utilities have a pass-through guarantee of costs as evidenced by the Purchase Gas Adjustment Order. This is clearly expressed in the Hedging Order[2].

For the electric IOUs to hedge under the current structure is a hard proposition to present because the PGA "hedges" their own profit-and-loss ("P&L") exposure. If they hedge, the cost hedge may be challenged by the Commission and intervenors. This paradigm is not unique to Louisiana and there is evidence across the country of electric IOUs being denied recovery of natural gas costs if they imprudently used the PGA as a hedge mechanism.

[2] Hedging Order, Page 7/26.

Logic	Amounts and timing are set forth in a pre-specified schedule	Budged ($) is prepared based on an initial schedule of hedge forecast of prices.	Hedges are scheduled at a pre-determined price level based on historical pattern.	Hedges are a function of risk measurement and risk avoidance	No hedging activity takes place
Common Name	Time Averaging ("TA")	Dollar Cost Average ("DCA")	Time Averaging ("Historical Percentile")	Value at Risk ("VaR")	Lagged Pricing
Pros	Easy to implement and execute	Easy to implement and execute	Easy to implement and execute	More involved to implement	Easy to implement and execute
Comments	Hedges take place regardless of market conditions or impact to business	Hedges take place as market conditions align with plan but leave exposed if not	Tend to increasingly hedge as markets drop and leave unhedged as markets rise	Hedges take place as risk exposure encroaches on tolerances. Tolerances are set in the context of objectives	Exposure to price run-ups and economic consequences. Lack of certainty of results and impact to objectives
					
	Time	**Spend**	**Target**	**Risk**	**Nothing**

Figure 2: Concentric's Typology of Structured Hedging Programs

Regulatory Rulemaking Process

Concentric is one of North America's top consulting firms in rate and regulatory services offering a complete suite of rate case support services, innovative regulatory approaches, and in-depth knowledge of regulatory issues and initiatives. Concentric has more than 20 individuals who have appeared as experts in regulatory proceedings throughout North America, supported by a team of consultants that are experienced in all aspects of developing financial, economic and technical studies and analysis for regulatory proceedings.

- **Hedging Prudence**. Expert witness testimony on behalf of NSPI before the Nova Scotia Utility and Review Board ("NSUARB") under Docket M04972). An audit conducted on behalf of the NSUARB recommended the deferral of $12.8 million due to NSPI's alleged failure to hedge Northeast Market basis during the winter 2010- 2011. On December 21, 2012, the NSUARB published its decision on the case (2012 NSUARB 227) ruling that NSPI was able to recover the full $12.8 million.
- **Revenue Requirements.** Concentric supported a large Midwestern gas distribution company's recent rate filing, which included a rate plan based on a forecasted test year. Concentric provided guidance and support in interpreting the recently-passed legislation authorizing projected test year rate plans; developed models of the client's actual and planned expenses and capital expenditures;

prepared the forecasted revenue requirement and associated filing requirements; and prepared testimony supporting the rate filing. At the conclusion of the rate case proceedings, the state regulators approved the company's requested rate plan rates.

- **Rate Design, Cost of Service Studies, Rate Consolidation**. Concentric prepared allocated and marginal cost studies designed the proposed rates and provided expert testimony for a rate case filed by a large Northeastern natural gas distribution company. Concentric also prepared studies to support consolidation of the rates and rate classes of the client's separate operating divisions. Concentric's rate consolidation proposal, revenue requirement allocation approach, and cost studies were approved as proposed and the proposed rate design was approved with minor revisions.

- **Decoupling Mechanism, Capital Cost Recovery Mechanism**. Concentric designed revenue decoupling mechanism and a targeted capital cost recovery mechanism for a rate case filed by a natural gas distribution company. The decoupling and capital recovery mechanisms that Concentric designed were approved as proposed.

- **FERC Natural Gas Pipeline Rate Proceeding**. Concentric provided written and oral expert testimony regarding cost allocation and rate design issues on behalf of a large electric utility in an interstate pipeline rate proceeding. Concentric was instrumental in developing a successful settlement that produced an annual transportation cost savings of $1.8 million to our client.

- **Additional Regulatory Consulting Services**:

  Revenue requirements
  Rate base (including fair value determination)
  Earnings attrition analysis
  Lead-lag studies
  Taxes
  Allocated cost of service studies
  Marginal cost studies and pricing
  Incentive regulation
  Rate design
  Consolidation of rates and rate classes
  Revenue and expense adjustment clauses
  Capital tracker mechanisms
  Stranded cost recovery
  Prudence reviews
  New services development
  Rate settlement negotiations
  Market-based rates
  Development and interpretation of tariffs and terms and conditions of service

III. PROJECT TEAM

Ruben Moreno, Assistant Vice President, will serve as the key staff accountable to LPSC for Concentric's performance. Mr. Moreno will draw upon Michael Kagan, Julie Lieberman and Ahmed Malik for their respective areas of expertise. The team will also receive research and analysis support as needed from Concentric's pool of consulting staff. Biographies for the core project team are provided below. Please refer to Attachment A for full resumes.

Ruben Moreno, Assistant Vice President. Mr. Moreno is a recognized expert witness in energy risk management. He has been helping large consumers or producers of energy optimize expenditures, revenues and investments for the past 18 years. He is a specialist in risk management, quantitative methods and statistical analysis. He has advised on the exposures of a US$10 billion portfolio and also has broad experience in management consulting and teaching. His experience includes a broad range of fuels (oil, natural gas, coal, wind, solar and hydro), differing generating technologies and extensive transactional experience supporting clients design and implement energy procurement practices to identify how much to purchase, when and why.

Michael P. Kagan, Senior Vice President, is a financial and economic consultant with more than 20 years of experience in the energy industry. He has provided advisory services in the areas of business development, corporate divestitures, strategy, asset valuation, risk management and rate making. Prior to joining Concentric Energy Advisors, Mr. Kagan served as the Chief Sales Officer for Constellation Energy where he was responsible for all revenues derived from the company's customer-facing businesses in retail power, natural gas, energy efficiency and on-site solar generation. In this role, Mr. Kagan oversaw the merging of front office capabilities across each business line and the introduction of bundled products. Prior to that role, he held various positions at Constellation including President of the retail power division which served customer load of 15,000 MWs, and Co-Chief Commercial Officer responsible for major accounts, retail pricing and product development. Earlier in his career, Mr. Kagan held positions including Vice President of wholesale supply and trading for AES NewEnergy where he built the firm's retail-focused power and gas supply and trading capability. Mr. Kagan is a graduate of Skidmore College and was awarded an M.A. in economics from the University of California, Santa Barbara.

Julie Lieberman, Project Manager, is a financial and economic consultant with over 25 years of experience in the energy industry. Her broad base of experience includes: financial and economic consulting in the energy sector, risk management, asset valuation and modeling, wholesale and retail energy trading and operations, energy procurement and scheduling, hedging strategies, regulatory policy and compliance, utility ratemaking, due diligence and litigation support and analysis. She has performed a variety of economic analyses, extensive regulatory research and assisted in the preparation of testimony and research reports in both regulatory and non-regulatory proceedings. Ms. Lieberman has performed focused regulatory research on Dodd Frank legislation and its implications for the energy sector, with a particular concentration on the regulated end-user segment. Ms. Lieberman is proficient in Microsoft Office applications, Crystal

Ball, and SPSS and has used option modeling, Monte Carlo simulations, and VAR analysis in a variety of risk applications. Prior to joining Concentric, Ms. Lieberman served in the financial and risk related fields in the unregulated energy trading and marketing sector. She holds a Masters in Finance from Boston College, a B.S. in Accounting from Indiana University, is a licensed CPA (Texas), and is a FINRA licensed securities professional (Series 7, 63, and 79).

Ahmed Malik, Assistant Consultant, joined Concentric in 2014. He has experience in energy and infrastructure economic consulting. He is academically trained in Accounting and Finance, with direct experience in risk analysis. Mr. Malik has provided consulting services to The World Bank and International Finance Corporation related to financial and regulatory aspects of energy infrastructure development. Since joining Concentric in 2014, he has provided research and analytics support pertaining to tax litigation and asset evaluation.

IV. RELEVANT QUALIFICATIONS

Concentric's risk management advisory services provide valuable insight to utility leaders in trading, structuring, valuation, compliance and business operations. Concentric helps clients prepare for emerging issues, conduct due diligence, enhance hedging programs, analyze portfolio risk, assess enterprise risk exposures, improve risk management infrastructure, insure robust governance, and manage counterparty credit risk.

Below are relevant examples of the work from staff assigned to this opportunity.

- **Sample Hedging Consulting Qualifications**

Company Name	Description of Work
Nova Scotia Power Incorporated (NSPI)	Concentric developed a hedging strategy in the context of the requirement to review the strategy every two years and to ensure that the strategy is in alignment with the short, medium and long term gas procurement strategies and needs. The scope of work focused on the natural gas financial elements of the strategy and its integration with physical natural gas procurement and wind resources. Additionally, Concentric provided regulatory support to Nova Scotia Power for its most recent rate proceeding before the Nova Scotia Utility and Review Board, which entailed filing expert testimony on numerous issues including the prudence and pricing of natural gas purchases to serve Atlantic Canadian markets and risk management issues including financial hedging related to natural gas procurement.

Company Name	Description of Work
Guam Power Authority	Concentric staff provided expert witness testimony on behalf of the Guam Power Authority ("GPA") before the Guam Public Utilities Commission (Docket 10–03). Evaluated Guam Power Authority's energy risk management program in light of unfavorable financial hedge settlements of $64 million. The Commission adopted the recommendations, approved the suggested Policy and Procedures and recommended for Mr. Moreno to serve as a shadow risk manager to GPA's hedging practices. Concentric is currently providing risk management support services to the Guam Power Authority. The services include: 1) Recommend a hedge position based on the risk exposure and tolerance to risk; 2) Engage GPA's senior management and the Public Utility Commission to explain the performance of the program; and 3) Serve as an arms-length risk management resource for GPA. Part of the assignment included two on-site training sessions on how to structure a market risk management function.
GazMétro	Concentric assisted GazMétro in responding to the request from the Régie de l'énergie to review the existing natural gas hedging program, propose enhancements and compare it against industry best practices. The work expanded into the hands-on development of an alternative plan and the expert witness testimony of that plan before the regulator and interveners.
Confidential Client	Concentric is currently serving as expert witness for a confidential Joint Action Agency (" JAA ") in its litigation against a customer alleging improper hedging activities. The JAA ha s natural gas hedging activities that span financial, physical and rate -based reserves. This is a case that is being tried in a Federal Court and involves expert witness reports, depositions and testimony before a Federal judge. The work is being performed through a large Atlanta-based law firm that retained Concentric to support its case.
Metropolitan Transportation Authority of New York and the New York Power Authority (NYPA)	Concentric is assisting the Metropolitan Transportation Authority of New York ("MTA") in understanding and managing all of energy-related expenses and investments affecting the MTA, primarily as it relates to negotiating with the New York Power Authority in the cost to serve the load from the MTA and other in-city customers. Concentric is providing periodic price forecasts for electricity and fuels to support the budget process and advisory services associated with market dynamics and market timing of decisions associated with NYPA's cost-of-service and procurement of fuel. Concentric is managing the energy cost exposure for the MTA associated with NYPA and identifying fuel-related strategies to achieve significant (greater than 40 percent) savings to budget.

Company Name	Description of Work
	Since the MTA is co-owner of two generating assets in New York City, Concentric is assisting the MTA interact with NYPA to ensure that the assets are operated properly and that in developing and implementing a hedging strategy to ensure that the estimated (yearly) cost of service does not fluctuate beyond unreasonable levels. Concentric is auditing NYPA's estimates of energy adjustment clauses and recommended changes. Concentric will assist in negotiations with LIPA to resolve long-standing dispute on charges associated with a right-of-way.
New Hampshire Electric Cooperative ("NHEC")	Concentric developed and implemented an Enterprise Risk Management ("ERM") Program. The scope of work included educating selected NHEC personnel in the best practices of ERM, and making actionable recommendations for the development and implementation of an ERM Program customized to NHEC's unique needs.
Confidential Client	Concentric is currently preparing a Policies and Procedures to govern trading activities of natural gas for a confidential Atlantic Canada client. The Client plays a market-maker role and trades around transportation contracts and long-term supply from Sable Island. We are assisting in creating Policies and Procedures to govern trading activities after Sable Island is no longer producing.
City of Weatherford, Texas Utility Department	Concentric is currently providing risk management support services to the City of Weatherford, Texas. The services include: 1) Recommend a hedge position based on the risk exposure and tolerance to risk; 2) Engage City of Weatherford's ("City's") Senior Management and City Council to explain the performance of the program; and 3) Serve as an arms-length risk management resource for the City.
The Energy Authority	Ruben Moreno, serving as the Project Manager for this assignment, assisted The Energy Authority (a large aggregation of public power utilities) structure the risk management function for TEA and as a product offering to its customers/owners. The work involved understanding the needs or power procurement/disbursement and fuel procurement for each individual customer who in turn were also owners of The Energy Authority.
Colorado Springs Utilities	Ruben Moreno assisted the Colorado Springs Utilities in an evaluation the alignment and compliance of its ERM Function with specific corporate governance requirements. The assignment included interaction with senior management and concluded in a series of actionable recommendations of enhancements to the ERM program, and an assessment of the compliance of the current program to the governance guidelines.

Company Name	Description of Work
CenterPoint Energy	Concentric was retained by CenterPoint Energy to review their historical hedging practices from the perspectives of fundamental market analysis and its decisional framework. Concentric's analysis addressed questions relating to the company's use of certain hedging instruments and the timing of the hedge execution. Concentric also reviewed the internal analysis developed and the decisional documentation employed.
Bryan Texas Utilities	Concentric is currently providing risk management support services to Bryan Texas Utilities. The services include: 1) Forecast Cash Flow needs for the next six months and the potential for these needs to grow beyond normal expectations if market conditions are not favorable (i.e. cash flow at risk, C@R); 2) Engage BTU's Senior Management and the Public Utility Commission to explain the performance of the program; and 3) Serve as an arms-length risk management resource for BTU.
Mitsui & Co. Power Development and Management Americas	Concentric assisted Mitsui evaluate a long-term natural gas capacity contract from several sourcing points in Southern Texas and its interconnection to Mexico. The work included hands-on research on the pricing dynamics, available intermediaries, liquidity constraint and pipeline issues that would ultimately assist Mitsui in accepting or rejecting proposed changes to the exiting long-term contract.
Great Lakes Utilities	Concentric assisted Great Lakes Utilities (GLU) develops a financial risk management Policy to support engaging credit rating agencies and manage the financial exposure of internal projects. To develop the Policy, Concentric reviewed GLU's existing capabilities and financial risks; assessed GLU's Risk tolerance and created the Policy and Procedure to support the management of the financial risk.

Sample Regulatory Proceeding Qualifications

Our ratemaking services range from high level rate case assistance (e.g., case management, regulatory strategy, witness training) to addressing specific technical rate case requirements (e.g., revenue requirements, cash working capital, cost of service studies, marginal cost studies and pricing, rate design, tariff design, cost of capital, attrition of earnings, and rate base (including the fair value of rate base assets). Our consultants have experience in alternative ratemaking proceedings, including: incentive ratemaking approaches, revenue decoupling, capital spending recovery mechanisms, and inflation adjustment mechanisms; the alternative ratemaking approaches that our team develops are designed to fit with each client's business conditions. Our team also provides support for a broad range of policy, regulatory, and legislative initiatives on behalf of our clients.

Representative engagements include:

CONCENTRIC CLIENT	YEAR(S)	JURISDICTION(S)	SUBJECT	COMPANY TYPE
AMEREN CORP.	2007, 2008, 2010, 2012	Missouri Public Service Commission	Cash working capital	Natural gas and electric distribution
ATLANTIC POWER CORPORATION (ATLANTIC PATH 15, LLC)	2007, 2010, 2011	Federal Energy Regulatory Commission	Return on Equity	Electric transmission
ATMOS ENERGY CORP.	2013, 2014, 2015	Colorado Public Utilities Commission	Return on Equity	Natural gas distribution
CENTERPOINT ENERGY (ASSOCIATION OF ELECTRIC COMPANIES OF TEXAS)	2013	Texas State Legislature	Consolidated Tax Adjustment Clause Legislation	Electric distribution
ENBRIDGE GAS DISTRIBUTION	2014	Ontario Energy Board	Incentive Regulation Plan and Industry Productivity Study	Natural gas distribution
GAZ MÉTRO LIMITED PARTNERSHIP	2012	Régie de l'énergie du Québec	Return on Equity/Business Risk/ Capital Structure	Gas Distribution
HYDRO-QUÉBEC DISTRIBUTION AND HYDRO- QUÉBEC TRANSÉNERGIE	2013	Régie de l'énergie du Québec	Return on Equity/Business Risk	Electric distribution
KINDER MORGAN (TRANS MOUNTAIN PIPELINE LLC)	2012, 2013	National Energy Board of Canada	Toll Design	Oil pipeline
LIBERTY UTILITIES (NEW ENGLAND GAS CO)	2007, 2008, 2010	Massachusetts Department of Public Utilities	Test Year Billing Determinants; Other Revenues; Marginal Cost of Service Study; Rate Design and Proposed Tariffs	Natural gas distribution

CONCENTRIC CLIENT	YEAR(S)	JURISDICTION(S)	SUBJECT	COMPANY TYPE
MONTANA-DAKOTA UTILITIES CO.	2007, 2010, 2012, 2013, 2014, 2015	Montana Public Service Commission, North Dakota Public Service Commission, South Dakota Public Service Commission	Rate of Return	Natural gas and electric distribution
NATIONAL GRID	2010	Massachusetts Department of Public Utilities	Marginal Cost of Study; Rate Design, Support for Rate Consolidation	Natural gas distribution
TEXAS-NEW MEXICO POWER COMPANY	2008	Public Utility Commission of Texas	Revenue Requirement	Electric distribution
TRANSCANADA PIPELINES LTD	2011, 2012	National Energy Board of Canada	Business Services and Tolls Application	Natural gas pipeline
UNS ELECTRIC	2012, 2015	Arizona Corporation Commission	Return on Equity	Electric distribution
UPPER MIDWEST DISTRIBUTOR GROUP	2010	Federal Energy Regulatory Commission	Section 5 pipeline rate case intervention	Electric distribution
VIKING GAS TRANSMISSION CO.	2014	Federal Energy Regulatory Commission	Rate of Return	Natural gas pipeline
XCEL ENERGY (SOUTHWESTERN PUBLIC SERVICE COMPANY)	2014	Public Utility Commission of Texas	Return on Equity	Electric distribution

V. REFERENCES

Below are three references that can speak highly of services that we have provided in the past (or as still providing) and are very similar to those being proposed to LA PSC. We encourage you to reach out to these references and ask them detailed questions regarding our work ethic, quality of work and attention to detail. If for any reason these references are not available, please let us know and we will provide additional choices.

Client Reference	Description of Work
David Keller Senior Deputy Budget Director Metropolitan Transportation Authority 347 Madison Avenue New York, NY 10017-3780 212-878-7428 dkeller@mtahq.org	Comprehensive Energy Consulting Services for all the Agencies within the MTA. This also includes how we represent the MTA before the New York Power Authority in an effort to support cost containment strategies and prudence in the execution.
Confidential Client Edward P. Bonapfel Alston & Bird LLP 404 - 881 - 7166 ed.bonapfel@alston.com	Concentric is working with the law firm of Alston & Bird LLP to support a litigation regarding hedging prudence for a confidential client.
Angela Trenholm Gas/Oil Marketing Fuel, Energy and Risk Management Nova Scotia Power Inc. P.O. Box 848 Halifax, NS B3J 2V5 902-474-7852 Angela.Trenholm@nspower.ca	Concentric has been assisting Nova Scotia Power evaluate, enhance and execute a hedging program in the context of a very active Regulator. Concentric has also supported Nova Scotia Power with expert witness testimony associated with the hedging program.

VI. CONFLICT OF INTEREST

Concentric does not anticipate a conflict of interest with undertaking this work.

VII. BUDGET AND TERMS

Concentric understands that the Commission is requesting hourly billing rates for consultants and is not seeking an estimated total budget for the work to be performed. We have provided our hourly rates in Attachment B. In addition, Concentric plans to perform this work under the terms outlined in Attachment C.

Once the final scope of work is established, we are also open to propose specific deliverables under a fixed-price basis to ensure that the Commission has more control over the expenses associated with our services. When working on regulatory rulemaking process we may define a set of reports to be on a fixed price basis and then testimony or information requests on a time and material basis.

VIII. CONCLUSION

We sincerely appreciate the opportunity to provide this proposal and look forward to discussing its content at your convenience.

Ruben Moreno
Assistant Vice President
1130 Connecticut Ave., NW, Suite 850
Washington, DC 20036
(202) 587-4775
rmoreno@CEAdvisors.com

Ruben Moreno
Assistant Vice President

Ruben Moreno has been helping large consumers or producers of energy optimize expenditures, revenues and investments for the past 20 years. He is a specialist in risk management, quantitative methods and statistical analysis. He has advised on the exposures of a US$10 billion portfolio and also has broad experience in management consulting and teaching. His experience includes a broad range of fuels (oil, natural gas, coal, wind, solar and hydro), differing generating technologies and extensive transactional experience supporting clients design and implement energy procurement practices to identify how much to purchase, when and why. He is a recognized expert in hedging and risk management

REPRESENTATIVE PROJECT EXPERIENCE

Expert Witness

- Wrote testimony, drafted information request, drafted responses to information requests and served as risk management expert witness on behalf of Nova Scotia Power Incorporated (NSPI) before the Nova Scotia Utility and Review Board (NSURB) on the Fuel Adjustment Mechanism of October 2012. The testimony was supportive of the prudence of NSPI's risk management program; and
- Wrote testimony, drafted information request, responded to information requests, conducted technical sessions with Regulator's staff and served as risk management expert witness on behalf of Gaz Metro Inc before The Regie de l'energie in Canada. The testimony (2013-2014) was critical of Gaz Metro's historical hedging program and proposed adjustments to reflect best practices;
- Wrote testimony and presented recommended risk management strategy on behalf of Guam Power Authority (GPA) before the Guam Public Utilities Commission (2011) after GPA reportedly paid in excess of $100 million more than market settlement.

Market Risk Management

- Designed, valued, supervised and implemented market transactions for more than 40 GW of generation/load and the associated fuels;
- Created a risk-based analytical framework to evaluate the value of a power plant and negotiated the value on behalf of the customer. Final result avoided 40% increase in the cost of operating the plant;
- Audited the risk management function of Powerex (wholesale energy trader in Canada) on behalf of its (regulated) owner BC Hydro. Involved the evaluation of VaR calculation and portfolio aggregation;
- Asset Valuation and Risk Management Strategy to enhance/protect the value of a power-generating asset in bankruptcy from the perspective of the holder of a long-term energy contract;
- Risk Profiling of Operational Risk Exposures for Industrials and Power Producers in Mexico, Canada, Europe and the U.S.; and
- Designed and implemented risk management and value-extraction derivative structures to meet corporate objectives within a manageable (i.e. acceptable) risk profile.

Compliance to Accounting Standards

- Designed, implemented and audited compliance to standards for regulated and unregulated energy companies;

- Conceptualized, systematized and implemented ad-hoc comprehensive risk management metrics for government clients in pursuit of compliance to constituent's expectations;
- Commercial assistance to customers to interpret and implement the newly adopted Federal Accounting Standard to determine Fair Value of derivative products (FAS-157);
- Commercial assistance to support hedge efficiency standards under the Federal Accounting Standards for the registry of derivative products (FAS-133(7)); and
- Audited entire risk management and compliance functions for regulated utilities.

Operational Risk Management

- Designed, implemented and audited policies, procedures and programs to avert non-compliance to standards or business goals;
- Created essential risk reporting position report to inform client on the risk exposure and its management;
- Trained 20+ project managers on risk management principals and how to apply them to project management and budget protection;
- Risk Management Strategy (structuring and implementation) to protect the Cost of Service expectation (i.e. Budget) for Energy for a $623m portfolio;
- Lead expert and project manager in risk quantification, measurement and integration or a risk management function and compliance function on behalf of consulting companies (R.W. Beck, SAIC and Pace Global) and regulated utilities (e.g. NYPA, LIPA, Santee Cooper, CDWR);
- Responsible for risk management practice that supports a $10 billion portfolio of different projects;
- Created and managed a business practice that has allowed my staff to achieve above average salary growth rates YOY;
- Supervised eight analytical staff and help them translate quantitative work into products that are sellable and valuable to the client; and
- Created, managed and presented weekly publication distributed to large industrials and power producer on Operational Risks affecting the Energy industry.

Enterprise Risk Management

- Designed, implemented and audited enterprise risk management functions and insurance structures;
- Designed and implemented the enterprise risk management for a large generation and transmission company in the Colorado Area. The assignment included creating a framework for understanding and measuring the risk, identifying a plan forward on how to implemented and the design of a set of executive-level reporting structure;
- Evaluated the aggregate risk exposure for a large transmission, distribution and generation company in South California and identified all aspects that may generate a legal implication; and
- Evaluated the insurance adequacy associated with operational and market exposure. The analysis evaluated a tiered approach to the acquisition of insurance and a comparison with cost of money to determine self-insurance levels.

Transactional Experience

- Designed and implemented market-specific transactions;
- Assisted a purchaser of debt from distressed assets with an option for converting to equity (debtquity). The analysis identified generic market areas and identified opportunities to purchased distressed debt assets;
- Advised customer on $75M pre-payment of natural gas and heating oil contracts and participation to softer energy prices on behalf of customer;

- Assisted energy producers and buyers to structure, formulate, bid, qualify and negotiate energy structures to satisfy a business requirement within a risk management context; and
- Evaluation and enhancement of the risk management function of a major utility in the Northeast from the point of view of the takers of 25% of the total output.

Environmental Security

- Subject Matter Expert supporting the U.S. Southern Command ("USSOUTHCOM") Science, Technology and Experimentation Directorate ("J7") to capitulate and transition services for implementation. The end result is a database with relevant documents, a final report describing how the DoD can positively affect environmental security;
- Project Manager to Create the Energy Assurance Plan for the Virginia Department of Mines, Minerals and Energy. This includes conducting an inventory and providing a vulnerability and risk assessment of energy infrastructure and distribution systems; revising the energy assurance plan; and conducting exercises that will educate public and private officials and test their knowledge of the revised energy assurance plan; and
- Subject Matter Expert on Risk and Vulnerability Assessment for Massachusetts, New York, Oregon, Missouri, Salt Lake City and Columbia MO.

Renewal Resources

- Designed and implemented the procurement of 38 million gallons of ultra-low sulfur diesel in the New York area. The process incorporated a staged approach to low-sulfur compliance and the mandate for a dedicated fleet transporting the fuel;
- Evaluated the pricing and procurement of white-tags in the context of environmental compliance;
- Designed and currently implementing a consulting approach to services associated with managing a CO2 account. The approach incorporates a quantitative rigor similar to traditional financial metrics;
- Assisted a large Spanish company looking to purchase between 500 and 1,000 MWs of renewable energy in the U.S. over the next five years; and
- Recently developed an approach to estimate the extrinsic value of a compressed-air energy storage facility either as a stand-alone unit or as it integrates with other resources.

County, State and Federal Government/Military

- Subject matter expert in how the confluence of energy, food, water, health and climate change affect security.
- Project Manager to Create the Energy Assurance Plan for the Virginia Department of Mines, Minerals and Energy. This includes conducting an inventory and providing a vulnerability and risk assessment of energy infrastructure and distribution systems; revising the energy assurance plan; and conducting exercises that will educate public and private officials and test their knowledge of the revised energy assurance plan.
- Subject Matter Expert on Risk and Vulnerability Assessment for Massachusetts, New York, Oregon, Missouri, Salt Lake City and Columbia MO.

Statistics and Load Growth

- Expert-level statistic practitioner with the ability to translate the impact of energy load growth and energy-specific risks to the demographics.
- Assisted multiple clients to statistically characterize their growth in energy use, design strategies to supply that growth typically in a long-term scenario (30-year strategic energy plans).
- Technical expert in productivity measurement and cross-industry comparisons.

- Assisted the City of Quincy Florida to understand the behavioral impact in the deployment of smart grid technology and how to best implement in the context of very specific demographic constraints.

Finance and Budget Analysis

- Technical expert in finance at the operational, academic and strategic level.
- Asset Valuation and Risk Management Strategy to enhance/protect the value of a power-generating asset in bankruptcy from the perspective of the holder of a long-term energy contract.
- Commercial assistance to support hedge efficiency standards under the Federal.
- Overall financial and creditworthiness analysis of firms to determine financial capability to undertake design-build infrastructure projects.

REPRESENTATIVE CLIENTS

End-Users

- Verso Paper (Pulp and Paper)
- Kellogg
- GE
- Pactiv
- Celanese

Cooperatives, Munis and Joint Action Agencies

- AMP Ohio
- Colorado Springs Utilities
- EnergySouth
- Great Lakes Utilities
- Garland Power and Light
- Iowa Stored Energy Park (ISEPA)
- North Carolina Municipal Power Agency
- New Hampshire Electric Cooperative
- City of Owensboro
- City of Weatherford
- City of Brian Texas
- TriState

Self-Regulated Utilities

- BC Hydro
- Gaz Metro
- Guam Power Authority
- New York Power Authority
- Long Island Power Authority
- Santee Cooper
- San Diego Gas and Electric
- Southstar Energy

Governmental Authorities

- Salt Lake City Energy Office
- Metropolitan Transportation Authority (New York)
- Massachusetts Operational Service Division
- Massachusetts Department of Environmental Services
- Virginia Department of Mines and Minerals
- New York State Energy Research and Development Authority
- New York Office of General Services
- Port Authority of New York and New Jersey

Independent Power Producers or Developers

- Brockton Power
- Caithness Energy
- Diamond Generating Corporation
- Granite Ridge
- Haddington Ventures
- Irving Oil
- Jefferies
- Nova Scotia Power Incorporated
- Tenaska
- Tudor Hedge Fund

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2012 – Present)
Assistant Vice President

R.W. Beck (an SAIC Company) (2007 – 2011)
Senior Director, Risk Management

Science Applications International Corporation (2006 – 2007)
Director, Risk Management

Pace Global Energy Risk Management, LLC (1998 – 2005)
Executive Director, Risk Management

Center for Strategic Studies, ITESM (1991 – 1995, 1997 – 1998)
Consultant/Researcher

Department of Economics, ITESM (1992 – 1998)
Professor

Equifax de Mexico, S.I.C.S.A (1996 – 1997)
Financial Manager

EDUCATION

Leadership Acceleration Program, University of Notre Dame, July 2004
MS, Economics, University of Texas, 1995
MBA, Finance, ITESM (Mexico), 1992
BA, ITESM (Mexico), 1990
Technician – Accounting, ITM (Mexico), 1986

OTHER

Languages: English, Spanish (native speaker) and conversational German (mittelstuffe)
Security: Top Secret security clearance granted in December 2011.

Michael P. Kagan
Senior Vice President

Mr. Kagan is a retail energy market executive with more than 20 years of experience in the industry. He is an energy industry leader, serving most recently as the Senior Vice President & Chief Sales Officer for Constellation Energy, one of the largest and most successful natural gas, electricity and energy-services retail firms in North America. Prior to the acquisition of Constellation by Exelon in 2012, Mr. Kagan was President, Retail Power at Constellation NewEnergy. Mr. Kagan leads strategy engagements for energy clients seeking to accelerate growth, market share and profitability in rapidly evolving retail and wholesale energy markets.

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (September 2013 – Present)
Senior Vice President

Constellation Energy, an Exelon Company (2010 – 2013)
Senior Vice President & Chief Sales Officer

- Leader of sales organization for largest U.S. commercial and industrial retail energy supplier. Responsible for $8.5B in annual revenues from power, gas, energy efficiency, load response and on-site solar projects.
- Led the March 2012 Exelon-Constellation sales force merger initiative.
- Executed corporate reorganization, forming a unified sales team of 300 people capable of providing customers with multiple products through a single point of contact. New structure resulted in expanded market reach, greater sales effectiveness and higher customer satisfaction levels.
- Integrated existing energy efficiency business into overall retail platform and supplemented with two regional ESCO acquisitions, resulting in significantly expanding project pipeline and talent pool.
- Responsible for solar business which has installed 100+MWs of generation under various contract structures.
- Voting member of retail governance committees including: Commitments, Risk, Compliance and IT Steering.

Constellation NewEnergy (2003 – 2010)
President, Retail Power (2008 – 2010)

- Responsible for retail power division P&L representing 15,000 MW peak load and $200M EBIT.
- Served customers through four business lines with designated go-to-market strategies and profitability goals.
- Created an inside sales team tasked with renewals which allowed field sales to increase new business activity.
- Implemented numerous operating initiatives focused on profitable growth including a comprehensive customer satisfaction evaluation process, bill accuracy metrics and a balanced-selling incentive compensation structure.

- Oversaw all aspects of a sales training program including curriculum design and implementation.
- Eliminated or restructured unprofitable customer agreements and products, increasing EBIT per unit by 20%.

Co-Chief Commercial Officer (2006 – 2008)

- Jointly responsible for P&L of retail power division with day-to-day leadership of structuring, product development and the major accounts segment which served the firm's 400 largest accounts.
- Core member of restructuring team tasked with architecture and transition from a purely regional organization to a vertically segmented national business with centralized functional operations.
- Acquired a customer book of business to supplement organic sales efforts.
- Grew major account gross margin by $35M (30%) through creation of a dedicated public sector team.

Vice President, New England and Ontario Regions (2003 – 2006)

- Managed $1B in revenues with team of 65 individuals in finance, operations, regulatory, sales and supply.
- Grew New England business EBIT at a 60% CAGR, increasing retail load served from 600 MWs to 4,000MWs.
- Achieved highest market share of any of the company's seven regional businesses, through a variety of strategies including affinity relationships and innovative structuring.
- First regional business to offer load response and a combined power and efficiency product.
- In 2005, took on responsibility for Constellation's retail power business in Ontario.

AES NewEnergy, acquired by Constellation in 2002 (1999-2003)
Vice President, Supply & Trading

- Co-managed 35-person electricity and gas wholesale trading group. Responsibilities included trading, supply origination, scheduling, market development and large-customer sales.
- Created and managed supply capabilities for the retail business and several AES power plants across various power pools including: NYISO, NEPOOL, CAISO, ERCOT and PJM.
- Member of divestiture team that managed sale of NewEnergy to Constellation for $260M in Sept. 2002.

New Energy Ventures, acquired by AES Corp in 1999 (1998-1999)
Director, Pricing & Structuring

- Lead architect of company's electricity pricing methodology, production processes and product design.
- Worked with field sales and regulatory teams to open markets in several states including PA, NY, OH and MA.

PG&E Energy Services (1997-1998)
Manager, Risk Assessment

- Assessed and managed the electric commodity risk positions of the retail business.
- Designed and implemented system to aggregate individual customer positions and report company value-at-risk.

Barakat & Chamberlin, Inc., acquired by PG&E Energy Services in 1997 (1994-1997)
Senior Associate/Analyst/Intern

- Provided financial advisory and business strategy consulting to energy sector clients. Representative projects:
    - Served as financial advisor and provided purchase price valuation of $1.4B in generation assets.
    - Developed new standby electric rate design methodology and supporting expert testimony.
    - Developed business plan, budget and market assessment for retail energy services start up.
    - Established option-based methodology used in utility client integrated resources planning.

Environmental Defense Fund (1992)
Analyst

- Published report projecting the impact of electric vehicle introduction on generation costs and air quality in CA.

Fujitsu America (1989-1991)
Sales Representative

- Managed territory, initiated equipment alliance with seller of complementary system and created affinity program.

EDUCATION

M.A. Economics, University of California, 1994

Completed Ph.D. course work requirements in industrial organization and natural resource economics; and core class requirements in optimization, econometrics, and microeconomics. As a researcher, performed a quantitative assessment of the impact of political risk on petroleum exploration in developing countries. Taught undergraduate courses in environmental science and economics.

B.A., Economic and Business, Skidmore College, 1988

Special Student in Economics – Undergraduate Junior Year Program, Massachusetts Institute of Technology, 1987

BOARD POSITIONS AND PROFESSIONAL AFFILIATIONS

TowsonGlobal Business Incubator, Towson, MD. Advisory Board Member, 2011 and Chairman, Present.
Higher Achievement Baltimore, Baltimore, MD. Board Member, 2011 - Present.
Greater Boston Chamber of Commerce, Boston, MA. Board Member, 2008 - 2010.
USAEE: SF Bay Area Chapter, Past Chapter President; Past New England Chapter Secretary, 1997-2004
Global Association of Risk Professionals, San Francisco Chapter, Past Steering Committee Member, 1997

COURSES, PUBLICATIONS & MEDIA

George Washington University School of Business, Washington, DC.
Adjunct Professor, "Clean Tech and Energy Markets". Fall 2011. Designed and taught MBA-level course.

"Risk Management Tools for Power Portfolio Development." Workshop Instructor. Sponsored by Electric Utility
Consultants, Inc., and Barakat & Chamberlin, Inc., Denver, Colorado: March 18, 1996.

Winning Retail Strategies: Beyond Innovative Rate Design. Contributing writer. Palo Alto, California: Electric Power Research Institute, EPRI TR-1055226, July 1995.

Commodity Contracting & Capacity Expansion Decisions in Unregulated Industries. Commissioned by Barakat & Chamberlin, Inc: September 1994.

Air Quality Impacts of Electric Vehicle Introduction into the SCAQMD, Oakland, California, Environmental Defense Fund: September 1992.

Corporate Governance: Agency Theory, Trust Theory, and The Modern Social Contract, *American Business Law Association, Proceedings of Northeast Regional Conference.* With Professor Steve Salbu. University of Texas at Austin: Spring 1988.

Interviews with numerous industry and business publications on energy-related topics including: *Megawatt Daily, Restructuring Today, The Boston Globe* and *Boston Business Journal.* Television appearances addressing energy industry on Rhode Island ABC affiliate's *Morning News* and New England Cable's *This Week in Business*.

Julie Lieberman
Project Manager

Ms. Lieberman is a financial and economic consultant with over 25 years of experience in the energy industry. Her broad base of experience includes: financial and economic consulting in the energy sector, utility ratemaking, regulatory policy and compliance, due diligence and litigation support and analysis, risk management, asset valuation and modeling, wholesale and retail energy trading and operations, energy procurement and scheduling, and utility hedging strategies. She has performed a variety of economic analyses, extensive regulatory research and assisted in the preparation of testimony and research reports in both regulatory and non-regulatory proceedings. Ms. Lieberman has performed focused regulatory research on issues pertaining to cost of capital, consolidated tax savings adjustments, risk-mitigating rate mechanisms, and Dodd Frank legislation and its implications for the end-use energy sector. Ms. Lieberman is proficient in Microsoft Office applications, Crystal Ball, and SPSS. Prior to joining Concentric, Ms. Lieberman served in the financial and risk related fields in the unregulated energy trading and marketing sector. She holds a Masters in Finance from Boston College, a B.S. in Accounting from Indiana University, is a licensed CPA (Texas), and is a FINRA licensed securities professional (Series 7, 63, and 79).

REPRESENTATIVE PROJECT EXPERIENCE

Ratemaking and Utility Regulation

Ms. Lieberman has assisted in the development of expert testimonies and analyses in a number of utility regulatory proceedings before state and provincial regulatory commissions, and the FERC in the areas of: cost of capital, regulatory assets and deferral accounts, utility asset dispositions, consolidated tax savings, alternative regulation, prudence and regulatory policy. Ms. Lieberman has conducted in depth studies on disparities between rates of return in the U.S. and Canada for Canadian regulators and their constituents; and has assisted in developing a recommended framework for establishing rates of return in Canada. Ms. Lieberman has performed extensive analyses of specific business risks as they relate to cost of capital, including risk mitigation measures embedded in utility rates; and has conducted in-depth research and analyses of jurisdictional regulatory environments and applicable precedents as they relate to cost of service and utility rate making.

Representative engagements have included:

- Assisted in the development of testimony to address stakeholders' request for rate relief for recovery of perceived overearnings by the utility. Our testimony focused pm fundamental regulatory principles such as: the prohibition against retroactive ratemaking, the requirement to set rates prospectively, single issue ratemaking and the implied incentives in cost of service ratemaking. (2014)
- Assisted the Alberta Utilities in developing testimony on regulatory policy and financial matters relating to the Alberta Utilities Commission's Asset Disposition Proceeding. (2013-2014)
- Performed a detailed inclining block rate study which included a detailed estimation of the conservation impact of inclining block rates versus existing seasonal rates for SPS New Mexico. (2012)
- Provided in-depth research and drafted testimony on FERC policy towards rate of return for new transmission investment for the owners of a newly-constructed regulated transmission line. (2011, 2007)
- Performed research and analyses and assisted in development of testimony on jurisdictional treatment of consolidated tax savings in Texas for CenterPoint Houston. (2010)

- Assisted Climate Change Central of Alberta with extensive research regarding pertinent Alberta legislation and DSM funding mechanisms in other jurisdictions that may support rate-base funding for DSM and renewable programs in the Province, and documented findings in a Report. (2010)
- Provided written comments and analyses on behalf of Enbridge and participated in an expert panel before the OEB in the Board's consultative process to determine whether its cost of capital formula was generating reasonable returns in the context of the prevalent economic downturn. (2009)
- Assisted in the development of written testimony and analyses for Oncor regarding the return of and on capital, consolidated tax savings adjustments, merger effects, and changing business environments. (2008)
- Assisted with the preparation of comments on behalf of a consortium of Massachusetts electric and gas utilities in response to MA DPU inquiry on a generic decoupling measure. (2008)
- Performed regulatory policy research for Southwestern Public Service Co. on the precedent for consolidated tax savings adjustments in the U.S. and its implications on regulatory principles for determining fairness and utility cost of service. (2007)
- Assisted in the development of an automatic adjustment formula for Green Mountain Power's return on equity to be used in its Alternative Regulation Rate Plan. (2006)
- Performed extensive research and assisted in the development of testimony related to the prudence of OG&E's acquisition of the McClain generating facility and developed an accompanying white paper on competitive bidding practices in the U.S. (2005)

Risk Management

Ms. Lieberman has performed extensive research on emerging regulatory policy and legislation impacting the energy sector, specifically Dodd-Frank and the emergence of carbon markets in the U.S. In her regulatory and ratemaking assignments, she has advised clients on the mechanics of risk-mitigating rate mechanisms pertaining to decoupling and cost recovery. Ms. Lieberman has been engaged to assess the adequacy of system processes and controls from a risk perspective and has conducted a variety of analyses that include an assessment and quantification of risk. Ms. Lieberman served in the risk management and commodity procurement areas in the unregulated natural gas energy trading and marketing sector. In addition, while with Ernst & Young in Houston, Ms. Lieberman specialized in the audit of wholesale energy trading entities, marking trading books to market, and performing detailed internal control assessments for a number of large energy exploration, production, trading, and marketing concerns.

Representative engagements have included:

- Assisted in an evaluation of a utility hedging program relative to best practices for a Canadian distribution utility and assisted in developing recommendations for enhancements to the program. (2013)
- Assisted in an assessment of enterprise risk for a New England electric cooperative. (2013)
- Assisted a confidential utility client in supporting a regulatory challenge to their hedging activity by commission staff (DOC, Minnesota). The staff asked the Company to explain how they approached hedging with particular focus on the role of implied volatility in making hedging determinations. (2011)
- Assessed the likely dispatch and overall spark spread opportunity of a proposed generation facility in Connecticut; developed a solicitation for a power off-take agreement for a 10-15 year term and performed a quantitative evaluation of bid responses. (2008)
- Developed a model and rigorous analyses to assess the value of the optional take provisions of certain power purchase agreements and their associated swap contract hedges in support of expert testimony on the issues of damages in connection with a failed transaction for the sale of a portfolio of power contracts. (2005)

- Assisted in the modeling and valuation of a portfolio of power purchase agreements held by National Grid, using independent Monte Carlo simulation models and forecast assumptions for a range of variables and scenarios. (2004)
- Assisted in the development of a model to estimate gas market price effects and damages attributable to the trading activity of a market participant suspected of gas market manipulation in the Western energy markets in the period from 2000-2001. (2004)

Litigation Support

Supported development of expert testimony in various energy related arbitrations. Issues addressed include, standards of conduct, and energy economics. Services provided also included, economic modeling, collaborating with counsel, business and technical staff to develop litigation strategies, preparing and reviewing discovery and briefing materials, and assisting in the preparation of written testimony.

- Performed research and analyses around the valuation impact of "Round Trip Trades" on a trading entity's IPO price in connection with a shareholder initiated litigation. Research involved extensive fact discovery in the proceeding, prevalence of wash trading in the industry, and exploration of prevailing valuation methodologies used by investment banks connected with the IPO. (2005)
- Performed extensive fact discovery, research and analyses in support of Shearman & Sterling/Merrill Lynch in a litigation against Allegheny Energy Supply, which led to the development of expert testimony on behalf of Merrill Lynch, relating to liability and damages for due diligence disclosures. (2004-2005)

Management and Operations Consulting

Ms. Lieberman possesses direct financial and operational experience in the natural gas and energy trading industries enabling the delivery of significant value to clients. Ms. Lieberman has conducted detailed internal control reviews for a variety of clients primarily in the energy production, marketing, distribution and mining sectors, focusing on understanding business processes and value drivers to help clients obtain objectives.

Representative engagements have included:

- Performed an assessment of a large gas LDC's gas operating system to identify where control deficiencies were present and provided recommendations to address deficiencies. (2010-2011)
- Directed a review of the accounting, risk, and reporting processes associated with a gas distribution utility's unregulated natural gas transactions; identified weaknesses and proposed solutions. (2008)

Transaction Related Financial Advisory Services

Ms. Lieberman has assisted several clients across North America with analytically based strategic planning, due diligence and financial advisory services.

Representative engagements have included:

- Performed regulatory due diligence for the potential acquisition of a Louisiana electric utility focusing primarily on the treatment of regulatory assets and rate riders for financial modeling purposes. (2014)
- Performed regulatory due diligence in helping our client understand the regulatory environment of its large North American transmission target and the regulatory challenges it faced. (2014)
- Assisted in the development of a valuation of desalination facilities in California for corporate accounting purposes. (2008)
- Validated valuation models for a portfolio of power purchase agreements against fuel supply and transportation contracts and steam sales agreements to assist in due diligence in an acquisition of generating projects. (2007 – 2008)

- Assisted in auction for the sale of the Palisades nuclear power plant and also the Masspower gas plant. (2005-2006)

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2004 – Present)
Project Manager
Senior Consultant

Green Pasture Software, Inc. (2001 – 2004)
Controller

AllEnergy Marketing Co., LLC (1997 – 2001)
Energy Analyst

Global Petroleum Corp. (1992 – 1997)
Director of Transportation Operations

Ernst & Young (1989 – 1992)
Audit Manager

Pennzoil Company (1984 – 1989)
Internal Auditor

EDUCATION AND CERTIFICATIONS

M.S., Finance, Boston College, with Honors, 2003
B.S., Accounting, Indiana University, 1984

Licensed Securities Professional: NASD Series 7, 63, and 79 Licenses
Certified Public Accountant, Houston, TX, 1986

DESIGNATIONS AND PROFESSIONAL AFFILIATIONS

Treasurer, New England Women in Energy and Environment

PUBLICATIONS/PRESENTATIONS

- "Study of Residential Inclining Block Rates – New Mexico Retail Service Area," (with Ron Amen) Report prepared for: Southwestern Public Service Company, November 30, 2012
- "Hedging Under Scrutiny, Planning ahead in a low-cost gas market." (with Julie Ryan), Public Utilities Fortnightly, February 2012
- "Rates of Return for New Transmission Build in the US and Canada." Presentation to the Canadian Electricity Associations Transmission Workshop, February 2009.
- "A Comparative Analysis of Return on Equity of Natural Gas Utilities" (with James Coyne and Dan Dane), prepared for the Ontario Energy Board, June, 2007.

AVAILABLE UPON REQUEST

Extensive client and project listings, and specific references.

Bickey Rimal
Senior Consultant

Mr. Rimal joined Concentric after completing his Masters in International Public Affairs with a focus on Energy Policy from the University of Wisconsin in Madison. Mr. Rimal has contributed to projects involving cost of service, rate design, expert testimony preparation, energy market assessments, nuclear strategy, and utility performance benchmarking. His work often involves financial modeling, statistical analysis, and regulatory research. Prior to enrolling in the graduate program, Mr. Rimal worked at ICF International, a global energy and environmental consulting firm, for three years. At ICF, Mr. Rimal was extensively involved in projects dealing with policy design and implementation, economic impact analysis, regulatory evaluation, and environmental risk assessment.

REPRESENTATIVE PROJECT EXPERIENCE

While at Concentric, Mr. Rimal assisted in updating Concentric's excel-based macro driven Class Cost-of-Service Allocation model for a major utility. He assisted in the creation of revenue requirement model to comply with a new performance based formula ratemaking process. He conducted benchmarking study to compare a combination utility's performance with its peers and prepared draft testimony responding to concerns raised by a state public service commission staff. He also analyzed load and locational marginal price data for a major utility to assist in the exploration of alternate rate structures.

While at ICF, Mr. Rimal was part of a team that assisted the EPA's Clean Air Market Division (CAMD) in analyzing the effect of environmental policies on power generation sector. As a part of this effort, he was significantly involved in executing as well as maintaining and updating the Technology Retrofit and Updating Model (TRUM). The TRUM model simulates the action of the electric utilities industry under a multi-pollutant emissions trading program. He also assisted in the creation of an excel model that assessed the impacts of GHG mitigation policies on the competitiveness of the US manufacturing industries. He provided support to the Hours of Service regulation by analyzing different crash related data to identify main causes of fatigue among drivers by utilizing logistic regression models.

PROFESSIONAL

Concentric Energy Advisors, Inc. (2011 – present)
Senior Consultant
Consultant
Assistant Consultant
Associate

ICF International (2006 - 2009)
Associate
Analyst
Research Assistant

EDUCATION

M.A., International Public Affairs, University of Wisconsin-Madison, 2011
B.A., Chemistry, Colgate University, 2006

AVAILABLE UPON REQUEST

Extensive client and project listings, and specific references.

CONCENTRIC ENERGY ADVISORS, INC.
HOURLY RATE SCHEDULE

CONFIDENTIAL

TITLE	HOURLY RATE
CHAIRMAN AND CHIEF EXECUTIVE OFFICER	$750
SENIOR VICE PRESIDENT	$550
VICE PRESIDENT	$500
ASSISTANT VICE PRESIDENT	$400
SENIOR PROJECT MANAGER	$365
PROJECT MANAGER	$340
SENIOR CONSULTANT	$315
CONSULTANT	$290
ASSISTANT CONSULTANT	$265
ANALYST	$225
ASSOCIATE	$150
PROJECT ASSISTANT	$65

CONCENTRIC ENERGY ADVISORS, INC.
STANDARD TERMS AND CONDITIONS

1. *Scope* – Concentric Energy Advisors, Inc. ("Concentric") will perform the services set forth in the Letter or Proposal of which these Terms and Conditions (Terms) are a part. The provisions of these Terms shall control in the case of conflict with any provisions of the Letter or Proposal.

2. *Fees and Expenses* – Unless otherwise stated, fees for services by Concentric shall be based upon the rates, at the time the work is performed, of the personnel actually involved in the assignment. Report production and printing, reproduction, and telephone charges will be billed to you at Concentric's standard charges for such materials for services. Expenses of consultants while on assignment or any other charge incurred or expenditure made on your behalf will be charged at our cost.

3. *Payment* – Concentric will submit monthly invoices reflecting actual work performed and expenses incurred. Payment shall be due in U.S. funds 30 days after the date of an invoice. Amounts past due more than 30 days shall bear interest at an annual rate of 12% from the due date until payment is received.

4. *Sales Tax* – You are responsible for paying any local, state, or federal sales, use, or ad valorem tax that might be assessed on our services.

5. *Independent Contractor* – It is understood and agreed that Concentric shall for all purposes be an independent contractor, shall not hold itself out as representing or acting in any manner for you, and shall have no authority to bind you to any contract or in any other manner.

6. *Termination* – These terms shall be subject to the right of either party to terminate at any time upon not less than ten (10) days prior written notice to the other party. Upon termination, you shall pay the full amount due for services rendered and costs and expenses incurred and not paid for up to that time, and the costs of returning consultant personnel to home base and other reasonable costs and expenses incurred in effecting termination and returning documents.

7. *Responsibility Statement* – Concentric agrees that the services provided for herein will be performed in accordance with recognized professional consulting standards for similar services and that adequate personnel will be assigned for that purpose. If, during the performance of these services or within six months following completion of the assignment, such services shall prove to be faulty or defective by reason of a failure to meet such standards, Concentric agrees that upon prompt written notification from you prior to the expiration of the six month period following the completion of the assignment containing any such fault or defect, such faulty portion of the services shall be redone at no cost to you up to a maximum amount equivalent to the cost of the services rendered under this assignment. The foregoing shall constitute Concentric's sole liability with respect to the accuracy or completeness of the work and the activities involved in its preparation. In no event shall Concentric, its agents, employees, or others providing materials or performing services in connection with work on this assignment be liable for any direct, consequential or special loss or damage, whether attributable to breach of contract, tort, including

negligence, or otherwise; and except as herein provided, you release, indemnify, and hold Concentric, its agents, employees, or others providing materials or performing services in connection with work on this assignment harmless from any and all liability including costs of defense, settlement and reasonable attorney's fees.

8. *Work Product* – Any report or other document prepared pursuant to these Terms shall be for your use only. Concentric's prior written consent is required for the use of (or reference to) its report or any other document prepared pursuant to these Terms in connection with a public offering of securities or in connection with any other financing. Concentric hereby agrees, however, to the Client's reference to the work product in connection with any proxy relating to a combination between two parties. It is understood and agreed that Concentric's use of its proprietary computer software, methodology, procedures, or other proprietary information in connection with an assignment shall not give you any rights with respect to such proprietary computer software, methodology, procedures or other proprietary information. Concentric may retain and further use the technical content of its work hereunder.

9. *Excused Performance* – Concentric shall not be deemed in default of any provision hereof or be liable for any delay, failure in performance, or interruption of service resulting directly or indirectly from acts of God, civil or military authority, civil disturbance, war, strikes or other labor disputes, fires, other catastrophes, or other forces beyond its reasonable control, whether or not such event may be deemed foreseeable.

10. *Related Litigation* – In the event that Concentric employees (current or former), subcontractors or agents are compelled to provide testimony, produce documents, or otherwise incur costs or expend time in any legal proceeding related to Concentric's work for you, you agree to reimburse Concentric at its regular billing rate per hour for its time expended, and for any expenses incurred (at Concentric's direct cost).

11. *Notices* – All notices given under or pursuant to the Terms shall be sent by Certified or Registered Mail, Return Receipt Requested, and shall be deemed to have been delivered when physically delivered if to Concentric Energy Advisors, Inc., 293 Boston Post Road West, Suite 500, Marlborough, MA 01752, Attention Mr. John J. Reed, Chairman and Chief Executive Officer, and if to you at the address shown on the Letter or Proposal of which these Terms are a part or such other address as you may designate by written notice to us.

12. *Complete Agreement* – It is understood and agreed that these Terms and the Letter or Proposal of which they are a part embody the complete understanding of the parties and that any and all provisions, negotiations and representations not included herein are hereby abrogated and that these terms cannot be changed, modified or varied except by written instrument signed by both parties. In the event you issue a purchase order or memorandum or other instrument covering the services herein provided, it is hereby specifically agreed and understood that such purchase order, memorandum, or instrument is for your internal purposes only, and any and all terms and conditions contained therein, whether printed or written, shall be of no force or effect unless agreed to in writing by Concentric. No waiver by either parties of a breach hereof or default hereunder shall be deemed a waiver by such party of a subsequent breach or default of like or similar nature.

13. *Governing Law* – This Agreement (consisting of the Letter or Proposal and these terms) shall be construed and otherwise governed pursuant to the laws of the Commonwealth of Massachusetts. The attached Proposal, of which these General terms and Conditions (terms) form a part, constitutes an agreement of

the parties hereto, and supersedes any previous agreement or understanding. It may not be modified except in writing, and only if executed by both parties.

AGREED AND ACCEPTED:

_____
CLIENT SIGNATURE

TITLE: _____

COMPANY: _____

DATE: _____

Exhibit No.:
Issue: *Gas Prices*
Witness: *Charles R. Hyneman*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Rebuttal Testimony*
Case No: *ER-2005-0436*
Date Testimony Prepared: *November 18, 2005*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

REBUTTAL TESTIMONY

OF

CHARLES R. HYNEMAN

AQUILA, INC. d/b/a AQUILA NETWORKS-MPS AND AQUILA NETWORKS – L&P

CASE NO. ER-2005-0436

Jefferson City, Missouri
November 2005

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

NP

Schedule CRH-S-3
1/15

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Tariff Filing of Aquila, Inc., to Implement a General Rate Increase for Retail Electric Service Provided to Customers in Its MPS and L&P Missouri Service Areas.	))))	Case No. ER-2005-0436 Tariff No. YE-2005-1045

AFFIDAVIT OF CHARLES R. HYNEMAN

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Charles R. Hyneman, being of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of 11 pages to be presented in the above case; that the answers in the following Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Charles R. Hyneman

Subscribed and sworn to before me this 17th day of November 2005.

Notary

TONI M. CHARLTON
Notary Public - State of Missouri
My Commission Expires December 28, 2008
Cole County
Commission #04474301

REBUTTAL TESTIMONY

OF

CHARLES R. HYNEMAN

AQUILA, INC. d/b/a AQUILA NETWORKS-MPS

and AQUILA NETWORKS-L&P

CASE NO. ER-2005-0436

Q. Please state your name and business address.

A. Charles R. Hyneman, Fletcher Daniels Office Building, 615 East 13th Street, Room G8, Kansas City, Missouri, 64106.

Q. By whom are you employed and in what capacity?

A. I am a Regulatory Auditor with the Missouri Public Service Commission (Commission).

Q. Are you the same Charles R. Hyneman who filed direct testimony in this case?

A. Yes, I am.

EXECUTIVE SUMMARY

Q. Please summarize your rebuttal testimony.

A. In this testimony I will show that NYMEX gas futures is not a good predictor of the actual natural gas costs that Aquila will incur. I will also show that Aquila's analysis in its direct filing where it purports to show that NYMEX futures prices is a good predictor of gas prices is faulty and does not make sense.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of this rebuttal testimony is to address some of the statements made in the direct testimony of Aquila witness Jerry G. Boehm on the issue of natural gas prices.

Q. At page 8 of his direct testimony, Mr. Boehm lists all of the witnesses whose testimony on natural gas prices he reviewed in Case Nos. ER-2004-0034 and HR-2004-0034, Aquila's most recent rate case ("2004 rate case") for its electric and steam operations in Missouri. Did this list include Aquila's witness on natural gas prices in this case, Mr. John Browning?

A. No. Mr. Boehm said that he read the testimony of a number of witnesses, but failed to mention Aquila's own witness on this issue in the 2004 rate case.

Q. At page 9, line 1 of his direct testimony Mr. Boehm states that the natural gas prices he refers to in his testimony are the prices at the Henry Hub. Does Aquila purchase any of its natural gas for its Missouri operations at the Henry Hub in Louisiana?

A. No. Aquila does not purchase any natural gas from the Henry Hub. Aquila purchases most of its natural gas for its Missouri generation plants in the midcontinent region of the United States.

Q. Also on page 9, Mr. Boehm states that the NYMEX price does not include basis or transportation costs which must be added to the commodity to determine the actual cost at the plant. Is it true that both basis and transportation costs have to be "added" to determine the delivered natural gas price?

A. It is true with respect to variable transportation costs, but not with respect to the basis differences – the difference in price of natural gas at the Henry Hub (which NYMEX prices is based on) and the price at the actual location where Aquila purchases its

natural gas. The cost of natural gas at the midcontinent source has historically been lower than the cost of natural gas at the Henry Hub. Therefore, this basis difference should be subtracted from Henry Hub prices, (not added, as suggested by Mr. Boehm) to determine the actual cost of natural gas at Aquila's plant.

Q. Have you calculated a recent basis difference between the Henry Hub and the prices available in the midcontinent region?

A. Yes. The basis difference has averaged $.48/Mcf over the 6 months ended July 2005. This average does not include the significant increase in location basis caused by the recent hurricane activity in the Gulf region. The Staff understands that Aquila included a $.40/Mcf basis reduction in its production cost model calculations to recognize that the midcontinent region is a cheaper source of natural gas than the Henry Hub.

Q. At page 9, lines 7 through 17, Mr. Boehm summarizes the positions on natural gas prices of all the parties' witnesses in the 2004 rate case except for Aquila's witness, Mr. Browning. Please describe Aquila's position on natural gas prices as proposed by Mr. Browning in the 2004 rate case.

A. In the 2004 rate case, Aquila proposed a level of $5.14/Mcf based on the average of predictions of six analytical studies by experts in the natural gas industry. Also included in this average were actual natural gas market prices in the months of January and February of 2003. Mr. Browning's direct testimony was filed in July 2003, and the predictions were for calendar 2003 natural gas prices to include in rates in 2004.

The process used by Mr. Browning to develop Aquila's $5.14/Mcf proposal is described at pages 9 through 12 of his direct testimony in Case No. ER-2004-0034. This

process is also referenced at pages 23 and 24 of the direct testimony of Mr. Keith Stamm, Aquila's Chief Operating Officer, in that case.

The six analysts' studies used in Mr. Browning's $5.14/Mcf proposal are shown in the table below:

Forecast Firm	2003	2004
Cambridge Energy Research Associates	$5.80 mmBtu	$5.35 mmBtu
Stephen Smith Energy & Assoc	$5.10 mmBtu	n/a
Jefferies & Co.	$5.00 mmBtu	$4.50 mmBtu
A.G. Edwards	$5.25 mmBtu	$4.25 mmBtu
Fitch Ratings	$4.50 mmBtu	$ 3.50 mmBtu
Lehman Brothers	$5.00 mmBtu	$4.50 mmBtu

Q. At page 10 of his direct testimony Mr. Boehm states that in the 2004 rate case Aquila proposed "burner-tip prices that are derived from a natural gas price curved based upon an average of NYMEX futures prices. Aquila again proposes this method." Is this correct?

A. No. As previously stated, Aquila's witness on the issue of natural gas prices in the 2004 rate case was John Browning. The purpose of Mr. Browning's direct testimony, which he describes at page 2, was to "present information to support Aquila's position in this case regarding the cost of natural gas and coal used for generation in Aquila's power plants."

Mr. Browning calculated the average of 6 industry analysts' gas price estimates that were made in March 2003. To this average he included the actual NYMEX settlements (used as a surrogate for actual market prices, not NYMEX futures) for January and February 2003. This resulted in a proposed gas price of $5.14/Mcf. No NYMEX futures prices were included in Aquila's proposal.

Q. What was Aquila's position with respect to using NYMEX futures as a basis for predicting natural gas prices?

A. Aquila very clearly stated that NYMEX futures prices should not be used as a basis for setting rates. The following quotes by Mr. Browning concerning the use of NYMEX futures as a basis for setting rates were taken from his rebuttal testimony in the 2004 rate case:

> As I mentioned in my direct testimony, the use of NYMEX futures is questionable in both the near term as well as the long term for predicting future spot prices. The near term futures can be highly volatile and react to short-term events irrationally. On the other hand, futures for years such as 2005 and 2006 are illiquid and lightly traded making them potentially meaningless as far as predicting future physical prices. [rebuttal page 10]
>
> Kwang Y. Choe, a Regulatory Economist with the Commission, filed testimony in Case No. ER-2001-672 that concurs with my opinion. Mr. Choe describes in great detail why the correlation between NYMEX futures and future spot prices is very weak and not suitable for ratemaking. [rebuttal page 11]
>
> I completely agree that the most realistic and most up-to-date price information should be used for ratemaking. That would exclude the use of historical costs from 2001 or 2002 and the usage of NYMEX futures. [rebuttal page 13]

Q. At page 10 line 14 of his direct testimony, Mr. Boehm states that Aquila "has averaged the NYMEX futures market price for the 2006 calendar year that has occurred in the last three months of 2004. These prices are known and represent actual market transactions for natural gas in that time period." Does the Staff believe that Aquila's method of using NYMEX gas futures is appropriate for ratemaking purposes?

A. No. The NYMEX futures market is simply a market created to transfer price risk. It was not designed and does not serve to function as a predictor of future natural gas prices. There is no relationship, whatsoever, between NYMEX futures natural gas prices and

the price of natural gas Aquila will pay in the future for its natural gas purchases. See the rebuttal testimony of Staff witness Dr. Kwang Choe for a discussion of the Staff's position on using NYMEX futures to determine natural gas prices for ratemaking purposes.

Q. Other than not being designed to predict future natural gas prices, does the Staff have any other concerns about using NYMEX futures prices to set rate in Missouri?

A. Yes. NYMEX futures prices are subject to manipulation. In the past few years, over 30 energy companies, including Aquila, have been charged with attempting to manipulate natural gas pricing markets including NYMEX. As reported in its internet website, the Commodities Futures Trading Commission has charged over $300 million in fines to these energy and utility companies.

Q. Why is the NYMEX futures market a poor predictor of natural gas prices?

A. There are several reasons. The NYMEX futures market is a commodity trading market, much like the stock market. It is subject to pricing signals that cause the market to react irrationally at times. In much the same way that the stock market moves up or down reacting to world events, the NYMEX futures market also reacts.

Some of the events that cause the NYMEX futures market to react in unpredictable ways are weather-related events such as the anticipation of a hurricane, expectations that there will be a severe winter and reaction to world events such as terrorist attacks

Q. Have there been unusual events that caused the NYMEX futures market to react irrationally?

A. Yes. On November 24, 2004, the Energy Information Administration (EIA), a branch of the Department of Energy, issued its Weekly Gas Storage Report. This report showed a much greater withdrawal of gas than was expected and the price of natural gas

futures contracts on the NYMEX increased over $1/Mcf on that day. It was found that a company had submitted faulty storage report numbers to the EIA through a clerical error. When the EIA issued its subsequent report which corrected that error, NYMEX futures prices fell in response.

The natural gas market place reacts to many occurrences and events which make the NYMEX futures market a bad indicator of actual prices. As pointed out earlier in my rebuttal testimony, this is not just the Staff's opinion, but also the opinion of Aquila in its 2004 rate case. This same statement was made by Aquila witness John Browning on page 7 of his direct testimony in Case No. ER-2004-0034. Mr. Browning also stated at page 7 of his direct testimony that "the NYMEX responds irrationally to short-term events such as storage reports, hurricanes and short-term weather patterns. The near months are actually the most volatile with the out months being more stable but less meaningful because of a lack of trading volume."

Q. At page 10 of his direct testimony Mr. Boehm states that Aquila's NYMEX futures method of predicting natural gas prices is a very accurate method in determining that actual prices Aquila will face in the market. Please comment on this assertion.

A. To support this argument, Mr. Boehm states that Aquila's proposed natural gas price in its direct filing in the 2004 rate case (filed in July 2003) was $5.64/Mcf and the day that the 2004 rate case settled (March 5, 2004), the 12-month NYMEX strip price for natural gas was $5.64/Mcf. The facts supporting this argument are wrong and, assuming there were correct, Mr. Boehm's argument does not make any sense.

Q. How are the facts in Mr. Boehm's argument incorrect?

A. As described earlier, Aquila's proposed natural gas price in the 2004 case was $5.14/Mcf, and this number was based solely on analysts' predictions of 2003 natural gas and natural gas market prices at the Henry Hub in January and February 2003. As discussed above, Aquila did not use NYMEX futures as a basis for its position in the 2004 rate case, and, as shown in the above quotations of Mr. Browning, Aquila explicitly dismissed NYMEX futures as an appropriate method to predict natural gas prices.

In addition to the $5.14/Mcf amount, Aquila proposed a $.50/Mcf increase to its proposed natural gas prices as part of a gas cost recovery mechanism. This natural gas cost recovery mechanism is discussed in the 2004 rate case direct testimony of Aquila's Chief Operating Officer, Mr. Keith G. Stamm, beginning at page 21. This $5.14/Mcf and the $.50/Mcf gas cost recovery mechanism equals the $5.64/Mcf price referred to by Mr. Boehm at page 10 of his direct testimony in this case. So, the $5.64/Mcf was not based on any NYMEX futures prices as asserted by Mr. Boehm.

Q. Assuming for a moment that the $5.64/Mcf was based on a NYMEX futures calculation, why does Mr. Boehm's argument about the accuracy of using NYMEX futures to predict future natural gas prices not make sense?

A. Mr. Boehm states that the NYMEX futures method is accurate in determining the future prices Aquila will face in the market, yet he did not compare a NYMEX futures calculation with any actual market prices paid by Aquila. He compared predicted prices with predicted prices, he did not compare predicted prices with actual prices. This argument just does not make sense.

Q. When you compare NYMEX futures prices with the actual prices Aquila paid for natural gas, is NYMEX a good predictor?

A. No. Schedule 1 attached to this testimony shows a comparison of NYMEX futures contracts with Aquila's actual cost of natural gas. For example, on the first line of Schedule 1 it shows that in January of 2002 you could buy a NYMEX futures contract for natural gas to be delivered at the Henry Hub in January 2003 (January 2003 contract) for $3.23/Mcf on the first day that contract became available to buy. Aquila's actual cost of gas in January 2003 was $** ___ **/Mcf, for a difference of $** ___ **/Mcf.

Continuing with the second month, in February 2002 you could have bought the February 2003 futures contract for $2.93/Mcf. Aquila's actual cost of natural gas in February 2003 was $** ___ **/Mcf, for a difference of $** ___ **/Mcf. Finally, moving forward to the end of the Schedule, in August 2004 you could have purchased the NYMEX August 2005 contract for $6.11/Mcf. Aquila's actual cost of gas in August 2005 was $** ___ **/Mcf.

Q. Were there any months where the NYMEX futures contract prices were higher than Aquila's actual cost?

A. Yes. As shown in Schedule 1, this occurred in the October and November 2003 NYMEX futures contracts.

Q. What are the actual Aquila natural gas prices?

A. These are based on actual natural gas purchases made by Aquila in any given month to supply fuel to Aquila's plants. These actual purchases represent the actual costs to Aquila relating to natural gas used to fuel its generators. The prices used on Schedule 1 are the average of the actual prices incurred at all the natural gas-fired generating facilities for any given month.

Q. Ignoring for a moment Aquila's actual cost of natural gas, is the NYMEX a good predictor of natural gas prices at its own market – the Henry Hub?

A. No. Schedule 2 attached to this testimony shows that NYMEX is an extremely bad predictor of natural gas prices even over a period as short as one year. An analysis of the cost of a NYMEX futures contract on its first trading day compared to what that contract's actual settlement price was (an indication of the market price of gas at the Henry Hub on that date) also shows that NYMEX futures contracts are not a good predictor of natural gas prices.

The first line of Schedule 2 shows that on January 2002 you could have bought a January 2003 contract for $3.23. If NYMEX was a good predictor of natural gas prices, you would expect this contract to settle somewhere around the $3.23/Mcf range at its expiration date in one year. However, this contract closed at $4.99/Mcf – nowhere near the "predicted" price. Looking at the example in March, in March 2002 you could have purchased a March 2003 contract for $3.17/Mcf. One year later this contract was priced at $9.13/Mcf for an increase of 188 percent.

Q. Did Aquila provide any valid analysis to support its assertion that NYMEX is a good predictor of future natural gas prices?

A. No. Aquila did no such analysis to support its assertion. The analysis it did do was faulty, in that it did not use a NYMEX price, but a price based on analysts' predictions. The argument was illogical in that it did not compare a NYMEX price to any actual price, but strangely enough, it compared a NYMEX futures price to another NYMEX futures price.

Q. In discussing NYMEX futures, at page 10 line 15 of his direct testimony, Mr. Boehm states "these prices are known and represent actual market transactions for

natural gas in that time period." Are these known and measurable events as that term has been historically used in the ratemaking process?

A. No.

Q. What is "known and measurable" as that term is used in the rate setting process?

A. As it applies to a cost, the known and measurable standard of ratemaking means that the cost is almost certain to occur and the cost can be measured with a high degree of accuracy. Using a NYMEX futures prices as a basis for setting rates clearly does not meet the known and measurable standard.

Q. Why are NYMEX futures prices not known and measurable?

A. The NYMEX futures prices are neither known nor measurable in that they are not actual natural gas purchases made by Aquila. In fact, they bear no relationship to actual gas prices incurred by Aquila. These prices are not measurable to any extent as they fluctuate, sometimes wildly, on a daily basis. In addition, the prices of NYMEX futures contracts are associated with a market region that differs significantly from the one (midcontinent region) where Aquila buys its natural gas.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

SCHEDULE 1

HAS BEEN DEEMED

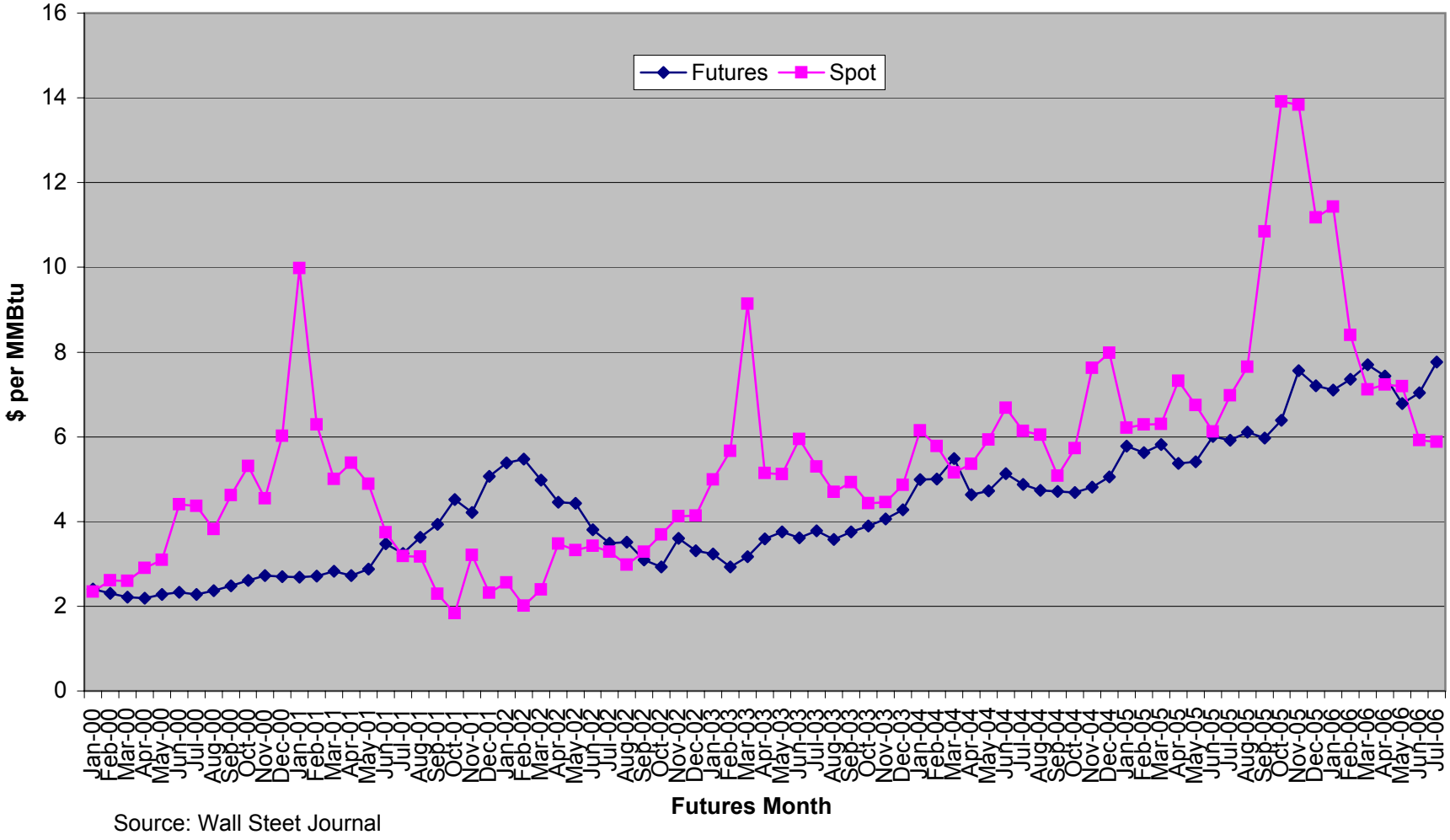
HIGHLY CONFIDENTIAL

IN IT'S ENTIRETY.

On first trading day of	Futures Contract	Settled at 1st Trading Day	Expired at	Difference	Difference %
Jan-02	Jan-03	$3.23	$4.99	$1.76	54%
Feb-02	Feb-03	$2.93	$5.66	$2.73	93%
Mar-02	Mar-03	$3.17	$9.13	$5.96	188%
Apr-02	Apr-03	$3.59	$5.15	$1.56	43%
May-02	May-03	$3.75	$5.12	$1.37	37%
Jun-02	Jun-03	$3.61	$5.95	$2.33	65%
Jul-02	Jul-03	$3.78	$5.29	$1.52	40%
Aug-02	Aug-03	$3.58	$4.69	$1.11	31%
Sep-02	Sep-03	$3.76	$4.93	$1.17	31%
Oct-02	Oct-03	$3.89	$4.43	$0.54	14%
Nov-02	Nov-03	$4.06	$4.46	$0.40	10%
Dec-02	Dec-03	$4.28	$4.86	$0.58	14%
Jan-03	Jan-04	$4.99	$6.15	$1.16	23%
Feb-03	Feb-04	$5.00	$5.78	$0.78	16%
Mar-03	Mar-04	$5.49	$5.15	($0.34)	-6%
Apr-03	Apr-04	$4.63	$5.37	$0.73	16%
May-03	May-04	$4.73	$5.94	$1.21	26%
Jun-03	Jun-04	$5.13	$6.68	$1.55	30%
Jul-03	Jul-04	$4.87	$6.14	$1.27	26%
Aug-03	Aug-04	$4.74	$6.05	$1.31	28%
Sep-03	Sep-04	$4.72	$5.08	$0.37	8%
Oct-03	Oct-04	$4.68	$5.72	$1.05	22%
Nov-03	Nov-04	$4.81	$7.63	$2.81	58%
Dec-03	Dec-04	$5.06	$7.98	$2.92	58%
Jan-04	Jan-05	$5.79	$6.21	$0.43	7%
Feb-04	Feb-05	$5.63	$6.29	$0.66	12%
Mar-04	Mar-05	$5.81	$6.30	$0.49	8%
Apr-04	Apr-05	$5.37	$7.32	$1.96	36%
May-04	May-05	$5.41	$6.75	$1.34	25%
Jun-04	Jun-05	$6.01	$6.12	$0.11	2%
Jul-04	Jul-05	$5.92	$6.98	$1.05	18%
Aug-04	Aug-05	$6.11	$7.65	$1.54	25%

Empire District Electric Company
Case No. ER-2006-0315

Futures vs. Spot
(Schedule2)



Source: Wall Steet Journal

Schedule 2

Schedule CRH-S-4

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DG 14-___

Liberty Utilities (EnergyNorth Natural Gas) Corp.

DIRECT TESTIMONY

OF

FRANCISCO C. DAFONTE

May 19, 2014

Q. Mr. DaFonte, please state your name, business address and position with Liberty Utilities (EnergyNorth Natural Gas) Corp. ("EnergyNorth" or "the Company")

A. My name is Francisco C. DaFonte. My business address is 15 Buttrick Road, Londonderry, New Hampshire 03053. My title is Senior Director, Energy Procurement.

Q. Mr. DaFonte, please summarize your educational background, and your business and professional experience.

A. I attended the University of Massachusetts at Amherst where I majored in Mathematics with a concentration in Computer Science. In the summer of 1985 I was hired by Commonwealth Gas Company (now NSTAR Gas Company), where I was employed primarily as a supervisor in gas dispatch and gas supply planning for nine years. In 1994, I joined Bay State Gas Company (now Columbia Gas of Massachusetts) where I held various positions including Director of Gas Control and Director of Energy Supply Services. At the end of October 2011, I was hired as the Director of Energy Procurement by Liberty Energy Utilities (New Hampshire) Corp. and promoted to Sr. Director in July 2013. In this capacity, I provide gas procurement services to EnergyNorth.

Q. Mr. DaFonte, are you a member of any professional organizations?

A. Yes. I am a member of the Northeast Energy & Commerce Association, the American Gas Association, the National Energy Services Association and the New England Canada Business Council.

Q. Mr. DaFonte, have you previously testified in regulatory proceedings?

A. Yes, I have testified in a number of proceedings before the New Hampshire Public Utilities Commission, the Massachusetts Department of Public Utilities, the Maine Public Utilities Commission, the Indiana Utility Regulatory Commission, the Georgia Public Service Commission, the Missouri Public Service Commission and the Federal Energy Regulatory Commission.

Q. Mr. DaFonte, what is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to present the Company's proposal to modify its existing commodity hedging program to better stabilize the cost of natural gas supplies acquired to serve its customers. Further, my testimony will discuss the continuation and modification of the Company's Fixed Price Option (FPO) program. The Company is seeking approval by the Commission to implement the modified hedging plan this summer for effect in the peak winter period of 2014-2015.

My testimony provides an overview of the current commodity hedging program, the historical performance of the program, recent market trends along with gas commodity hedging and describes in detail the specific program EnergyNorth is seeking to implement on behalf of its customers.

Q. Mr. DaFonte, can you provide a general overview of the Company's current hedging program?

A. Yes. The Company's current program, which was approved by Commission Order 25,094, uses various financial risk management tools and underground storage in order to provide more price stability in the cost of gas to firm sales customers and to fix the cost of gas for participants in the Company's FPO Program. It is not intended to achieve reductions in customers' overall gas costs.

The Company may use derivatives (swaps, call and put options) and/or physical supplies to hedge the price for a portion of its gas supply portfolio for the period from November through April of each year[1]. The Company may use a combination of financial hedges, storage withdrawals and fixed price contracts to hedge a monthly target hedge percentage. The purchase and sale of derivatives may be either physical or financial.

The peak period hedge target volume is determined using the specific monthly hedge percentages listed below as a portion of the Company's total firm sales forecast for each month listed. The total volume hedged includes financial, fixed price contracts and storage volumes and is based on a percentage of the most recent firm sales forecast, as of March 1st of each year, prior to the start of the execution of the strategy for a given period. Hedge volumes may be revised based on the most recent firm sales forecast as of

[1] The Company terminated its hedging for the months of October and May per the Commission's order in DG 13-251.

October 1st. If the hedge volume changes by more than 5%, based on the new forecast, then the remaining execution volumes are adjusted proportionately for the remainder of the term of the strategy starting in November. The total financial hedge volume will be calculated as the firm sales volumes multiplied by the volume target below minus forecasted storage withdrawals minus fixed priced physical contracts.

The following monthly hedge percentages are used to set the total hedge volume target[2]:

November	25%
December	33%
January	33%
February	33%
March	33%
April	25%

Q. Mr. DaFonte, has the hedging program worked as intended?

A. Yes. Since its inception, and through subsequent revisions, the program has insulated customers from significant price volatility during periods when natural gas prices fluctuated considerably, as was its intention. However, the cost to provide this stability has been significant; over the last 10 years, the various New York Mercantile Exchange ("NYMEX") hedging programs employed by EnergyNorth have resulted in total net losses of over $65,000,000. As shown in the table below, the majority of the losses came during periods of extreme volatility when it is more expensive to purchase "insurance" in the form of hedges in the market. However, 2008/2009 as the NYMEX volatility began to decrease along with futures prices, the costs to hedge also decreased and thus the losses

were less significant. In fact, there were modest gains this past winter with the slight run up in the NYMEX.

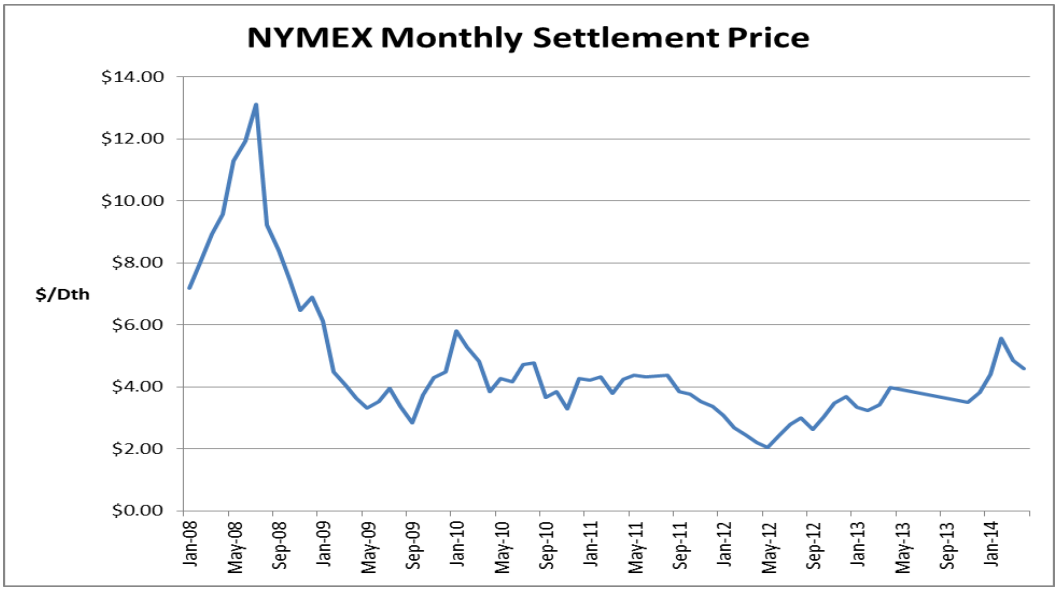
EnergyNorth Natural Gas
10-Year Actual Hedging (Gain)/Loss History
For the Ten Years Ending Winter 2013/2014

Year	Docket	(Gain)/Loss
2013/2014	DG 13-251	$ (1,184,841)
2012/2013	DG 12-265	$ 2,031,210
2011/2012	DG 11-192	$ 6,802,122
2010/2011	DG 10-230	$ 8,380,371
2009/2010	DG 09-162	$ 14,539,907
2008/2009	DG 08-106	$ 21,454,126
2007/2008	DG 07-093	$ 7,634,496
2006/2007	DG 06-121	$ 14,580,576
2005/2006	DG 05-141	$ (6,715,079)
2004/2005	DG 04-152	$ (1,924,464)
	Ten-year Net	$ 65,598,424.00

[2] The volume targets were reduced by 50% per the per the Commission's order in DG 13-251.

Q. Mr. DaFonte, Could you illustrate what has happened to natural gas futures prices since 2008?

A. As shown in the graph below, the NYMEX reached a peak price of approximately $13.00 per Dth in 2008. Since that time, the NYMEX futures prices have dropped precipitously. In fact, Since January 2009, the average settlement price for the NYMEX has been approximately $3.85 per Dth.



With the clear lack of price volatility, hedging of the NYMEX would have little benefit to consumers. As further evidence of the continued projected stability in the NYMEX natural gas futures market, as of May 6, 2014 the first future month that was trading over $5.00 on the NYMEX was January 2020.

Q. Mr. DaFonte, to what do you attribute this decline in NYMEX natural gas prices and price volatility?

A. The single most influential factor in the reduction and stability of natural gas prices has been the emergence of shale gas in both the supply area and the market area. The proliferation of shale gas has led directly to numerous pipeline projects being constructed to deliver these volumes into the market and has also forced some pipelines to reverse flow on their systems and move gas back into the Gulf Coast, which had traditionally been the source of natural gas flow into major markets in the Northeast.

Q. Mr. DaFonte, does the current hedging program help to minimize price spikes in the New England Market area?

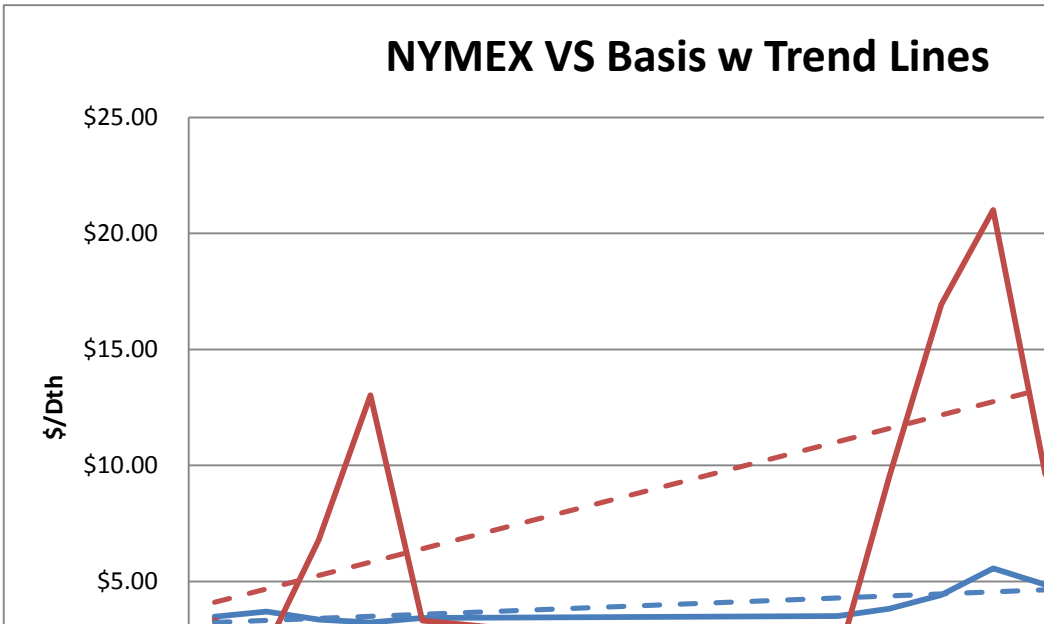
A. No. The current hedging program is intended to minimize price volatility with regard to supply area purchases. In fact, all Over-the-Counter (OTC) swaps and options entered into by the Company for its hedging program are based on the Henry Hub pricing point for natural gas futures contracts located in the supply area in Louisiana. The Henry Hub price and correlating NYMEX price is seen as setting the "basis" price for the North American natural gas market. As such, any purchases made in the market area, such as New England, must reflect the cost to deliver the gas to the ultimate purchase location, known as the "basis differential" from the Henry Hub or NYMEX. This basis differential is also impacted greatly by any pipeline restrictions or limitations in getting gas to a specific market area relative to the demand in that market area. This is the case in the capacity constrained New England market and is the primary reason why natural gas

prices spiked up to and remained at all-time highs in the New England market this past winter. Simply put, there is much more demand than pipeline capacity available to serve the New England market during the peak winter periods and the current hedging of supply area purchases does nothing to address this market area volatility.

To summarize, while the current hedging program focuses on minimizing futures price volatility, it cannot hedge against price spikes attributable to a run up in the basis differential. As a result, the current hedging program does not provide value to the Company's customers.

Q. Mr. DaFonte, how has the volatility in the NYMEX compared to the volatility in the market area basis?

A. As shown in the chart below comparing the NYMEX to the basis differential over the past 2 years, the basis has been much more volatile and the trend lines indicate a pattern of escalation never before seen in the New England market.



For the winter of 2013-2014, the basis differential in the New England market escalated precipitously from $1.57 in November to an all-time high of $16.94 in January only to be surpassed by a new all-time high of $21.00 in February. At the same time the NYMEX price escalated from $3.50 in November to a peak of $5.56 in February. The increase in the basis of roughly $19.50 from November to February dwarfed the corresponding increase in the NYMEX for the same period of $2.00. This approximately nine-fold increase relative to the NYMEX had a much more significant impact on customer rates than the NYMEX escalation. Moreover, while the Henry Hub spot price peaked at around the $8.00 level, the New England spot prices were peaking over $90.00 per Dth. These severe basis differential price spikes are clear indicators that a capacity shortfall exists in the New England market.

Q. Mr. DaFonte, given that the hedging of futures prices does not in and of itself minimize price spikes attributable to basis differential increases, would you recommend any modifications to the current hedging program?

A. Yes. Overall, it is my opinion that the hedging program as currently constituted does not provide customers with meaningful benefits. Currently, customers are paying for the option premiums (insurance against escalating prices) used to hedge future firm purchases at the NYMEX/Henry Hub index price and since there has been very little volatility, the options typically expire "out of the money" and customers do not see any offsetting benefit to the premiums they are paying. In addition, any hedges entered into using OTC swaps, which do not have a specifically identified premium, have been settling above the market causing a net payout at settlement to the swap counterparty. In effect, customers are paying for a hedging program that was developed to manage natural gas price volatility at a time when natural gas supplies were tight and gas prices fluctuated considerably. More recently, the market dynamics have changed with the increase of Shale gas production and the volatility in the NYMEX/ Henry Hub futures has been muted and shows continued signs of stability through 2020.

The Company proposes to eliminate the current hedging program which focuses exclusively on the hedging of the NYMEX/Henry Hub futures contracts. In its place, the Company would propose to begin hedging the New England basis via the very straightforward purchase of physical fixed basis supply contracts commencing with the winter of 204-2015.

Q. Mr. DaFonte, please explain how the Company propose to physically hedge the basis differential?

A. The Company currently issues a Request for Proposal (RFP) prior to each winter period for the purpose of determining a low cost bidder for its supply purchase requirements. Historically, the bidders have provided the Company with index based pricing for all purchases, whether in the Gulf Coast, the Canadian border or in the market area. It would be the Company's intention to conduct an RFP specifically for market area supplies that would require the bidder to submit a fixed price basis to the NYMEX for all baseload market area supplies required by the Company to satisfy its firm customer needs throughout the winter period.

The RFP would be issued early in the summer period and would provide the Company with sufficient time to analyze all proposals and select one or more suppliers for the baseload service.

Q. Mr. DaFonte, what percentage of overall normal winter requirements would be hedged under the Company's proposal?

A. Under normal weather conditions, the Company purchases approximately 1.5 Bcf of baseload market area supply which would be hedged under the Company's proposal. This makes up approximately 14% of all normal winter supply requirements. When combined with the Company's underground storage which is also physically hedged through ratable storage injections through the summer and its LNG and propane storage, the total hedged

volumes would be projected to be approximately 4.2 Bcf or 40% of normal winter period requirements. Further, during the coldest and typically more volatile months of December, January and February, the total hedged basis and storage volumes would equate to approximately 57% of all normal winter purchase requirements during those 3 months.

Q. Mr. DaFonte, would this modified hedging program address all of the volatile market area purchases required by the Company during a typical winter period?

A. No. Nearly 50% of the Company's pipeline capacity portfolio is comprised of New England market area capacity with a primary purchase point at Dracut, MA. As discussed earlier, because the Company must make spot or citygate purchases at the end of the Tennessee system, it is susceptible to price spikes brought about by the lack of available capacity and supply in the region. While the Company's hedging proposal is designed to hedge basis prior to the winter period, it is only feasible to hedge the known baseload purchase requirements. The Company will still be required to make daily market area purchases to satisfy changing customer demand due to weather fluctuations. If the Company could predict the actual market area purchases it would require in a given month and day, it could physically hedge additional basis. Unfortunately, since the Company's spot purchases are a function of the weather, it would be impossible to predict the actual purchases required. That is, without the ability to determine the day and volume of a purchase, the Company could be over hedged or under hedged on any given day, which would be considered speculative hedging and would result in significant risk to the

Company and its customers. As a result, the Company is not proposing any hedging program for spot purchases.

Q. Mr. DaFonte, do you see the Company's modified hedging proposal as a long-term solution to price volatility in the New England market?

A. No. Since the volatility in the basis differentials in New England is a direct result of the lack of pipeline infrastructure available to access the abundant shale supplies in the Marcellus and Utica shale plays, the most logical way to address the market area volatility is to develop more pipeline infrastructure that accesses these shale supplies. Fortunately, there are two new proposed pipeline projects that would tap into the shale production and bring more natural gas supplies into the New England market. These new projects will help to mitigate much of the volatility in the New England basis differential. Unfortunately, these projects aren't slated to go into service until 2018 or later. However, the Company's proposed hedging program is very flexible and can be modified to account for the timing of these projects as it only contemplates hedging volumes for one year increments each summer period.

Q. Mr. DaFonte, is the Company proposing to terminate its FPO program?

A. No. The FPO program will continue. However, the Company is proposing to only make the program available to residential customers as they do not have the ability to choose a third party supplier since there is no retail competition available to these customers. All Commercial & Industrial customers do have the ability to choose a third party supplier so they can sign up with a competitive supplier if they would like a fixed price offering or

some other creative supply service that meets their business needs.

Q. Mr. DaFonte, how do you propose to establish an FPO rate under the Company's proposed hedging program?

A. The FPO price has historically been based on the filed peak period Cost of Gas rate plus a premium to recover program costs and to account for the volatility of the unhedged supply used to serve the FPO customers. The Company proposes to continue to calculate the FPO rate in this same fashion by first establishing the COG rate for the peak winter period and then adding a premium to the rate for anyone wishing to sign up for the FPO program.

Q. Mr. DaFonte, would the Company use the same premium to establish the final FPO rate as it has done most recently?

A. No. The Company is proposing an FPO premium that is higher than it has been historically in order to appropriate reflect the increased volatility in the market area supply prices. Although the Company's proposed hedging program will help to minimize the market area basis, as explained earlier, it cannot hedge the daily spot gas purchases required to meet the demand of its customers due to temperature swings. As was evident this past winter, the daily spot prices can be extremely volatile and that volatility needs to be considered in any premium that is established. The Company will propose an appropriate premium when it files its FPO rate with its peak period COG filing.

Q. Does this conclude your direct prefiled testimony in this proceeding?

A. Yes, it does.

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DG 14-133

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.

D/B/A LIBERTY UTILITIES

Petition to Change Hedging and Fixed Price Option Programs

Order *Nisi* Granting Petition

O R D E R N O. 25,691

July 10, 2014

In this order the Commission grants Liberty's request to change its hedging program from one that protects against increased market prices of natural gas to one that protects against increases in the costs to bring that gas to Liberty's service territory. The Commission also grants Liberty's request to eliminate commercial and industrial customers from its fixed price option program. This order is being issued on a *nisi* basis to ensure that all interested parties receive notice of the Commission's order and have the opportunity to request a hearing prior to its effective date.

I. BACKGROUND

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities (Liberty) is a public utility that provides natural gas to approximately 90,000 customers in 30 communities across the state. Liberty filed a petition to change its hedging program and its fixed price option (FPO) program. Liberty supported its petition with the direct testimony of Francisco C. DaFonte, Liberty's Senior Director of Energy Procurement.

The Office of the Consumer Advocate (OCA) filed a letter of participation on behalf of residential ratepayers consistent with RSA 363:28.

The petition and subsequent docket filings, other than information for which confidential treatment is requested of or granted by the Commission, are posted to the Commission's website at http://www.puc.nh.gov/Regulatory/Docketbk/2014/14-133.html.

II. POSITIONS OF THE PARTIES AND STAFF

A. Liberty

1. Proposed Changes to Liberty's Hedging Program

Liberty's hedging program consists of up front investments that are intended to offset future risks. The risks Liberty seeks to minimize through its current hedging program are increases in the price of natural gas during the winter period. DaFonte testimony at 3. Liberty's current program hedges the price determined by the Henry Hub pricing point for natural gas located in the "supply area" in Louisiana, which correlates with the New York Mercantile Exchange (NYMEX) price. *Id.* at 7. Liberty hedges the Henry Hub or NYMEX price through a mix of financial risk management tools approved in *EnergyNorth Natural Gas Inc.*, Order No. 25,094 (Apr. 29, 2010). DaFonte testimony at 3.

Mr. DaFonte stated that the volatility of the NYMEX prices has largely disappeared, mostly because of the new supplies of shale gas. *Id.* at 7. Mr. DaFonte testified that "the NYMEX/Henry Hub futures … show continued signs of stability through 2020." *Id.* at 10. Since the price of natural gas has stabilized, "hedging the NYMEX would have little benefit to consumers." *Id.* at 6. Therefore, Liberty proposes to discontinue its current practice of hedging the price of natural gas. *Id.* at 10.

In its place, Liberty proposes hedging the "basis differential." The NYMEX price is known as the "basis." The added cost to deliver that gas into New England is the basis

differential. *Id.* at 7. Mr. DaFonte testified that the price spikes seen during the most recent winters were driven primarily by increases in the basis differential. *Id.* at 9.

Liberty proposes to hedge the basis differential by purchasing "physical fixed basis supply contracts." *Id.* at 10. Liberty seeks Commission approval to issue requests for proposals and enter into contracts that will set a fixed price for the basis differential. *Id.* These contracts will cover all of the base load supplies that Liberty buys from the New England market area. *Id.* The contracts will insulate Liberty from spikes in the basis differential for these supplies. Mr. DaFonte testified that Liberty will not hedge the basis differential for Liberty's spot purchases made to cover peak demand on the coldest days. Such purchases are unpredictable and any hedges would be unduly speculative. *Id.* at 12-13.

2. Proposed Changes to Liberty's Fixed Price Option Program

Liberty's FPO program allows customers to fix their cost of gas for the winter season through contracts signed at the beginning of the season. Liberty sets the FPO price by adding a small premium to the cost-of-gas rate. DaFonte testimony at 14. Liberty hedges most of the gas required to serve FPO customers, so Liberty remains exposed to some risk for the un-hedged quantity of the FPO program. Therefore, Liberty proposes to reduce that risk by eliminating commercial and industrial (C&I) customers from the FPO program. Liberty stated that C&I customers can buy natural gas from competitive suppliers and can obtain a fixed price in that market. *Id.* at 13-14.

Liberty stated that it will retain the FPO program for residential customers and will operate the program as it has in the past, although it may propose a slightly higher FPO premium in its next winter season cost-of-gas filing. *Id.* at 14.

B. OCA

The OCA filed a response to the petition and to Staff's recommendation stating that the OCA supports the changes requested in Liberty's petition. The OCA agreed that mitigating the basis differential was "reasonable," and stated that eliminating C&I customers from the FPO program was appropriate because they have "other options to mitigate price volatility." June 30, 2014, letter of Rorie E.P. Hollenberg, Assistant Consumer Advocate.

C. Staff Recommendation

Staff filed a memorandum that recommended approval of the revised hedging and FPO programs. Staff stated that the proposed hedging program is "consistent with changing market conditions, particularly changes related to pricing risk and volatility." Staff also found the proposed revisions to the FPO program to be "reasonable." June 23, 2014, Staff Recommendation of Al-Azad Iqbal, Analyst, Gas & Water Division.

III. COMMISSION ANALYSIS

The Commission finds Liberty's proposed change to its hedging program to be reasonable. The Commission accepts Liberty's testimony that the NYMEX natural gas prices are relatively stable and that the recent volatility rests in the basis differential. Liberty's proposal to obtain fixed-price contracts for the basis differential for certain base load supplies is a simple and reasonable way to manage that risk.

The Commission also finds that eliminating C&I customers from Liberty's FPO program is reasonable since C&I customers have other options to reduce their exposure to price volatility. Liberty should not bear the modest risk posed by the un-hedged portion of its gas supplies for C&I customers who participate in the FPO program.

We will issue this order on a *nisi* basis to ensure that all interest parties receive notice of our determination and have the opportunity to request a hearing.

Based upon the foregoing, it is hereby

ORDERED, that Liberty's proposal to discontinue its hedging of NYMEX prices and to begin hedging the basis differential as described in the filing is APPROVED; and it is

FURTHER ORDERED, that Liberty's request to eliminate commercial and industrial customers from the fixed price option program is APPROVED; and it is

FURTHER ORDERED, that the Petitioner shall cause a summary of this Order *Nisi* to be published once in a statewide newspaper of general circulation or of circulation in those portions of the state where operations are conducted, such publication to be no later than July18, 2014 and to be documented by affidavit filed with this office on or before August 5, 2014; and it is

FURTHER ORDERED, that all persons interested in responding to this Order *Nisi* be notified that they may submit their comments or file a written request for a hearing which states the reason and basis for a hearing no later than July 25, 2014 for the Commission's consideration; and it is

FURTHER ORDERED, that any party interested in responding to such comments or request for hearing shall do so no later than August 1, 2014; and it is

FURTHER ORDERED, that this Order *Nisi* shall be effective August 8, 2014, unless the Petitioner fails to satisfy the publication obligation set forth above or the Commission provides otherwise in a supplemental order issued prior to the effective date.

By order of the Public Utilities Commission of New Hampshire this tenth day of July, 2014.

Amy L. Ignatius	Robert R. Scott	Martin P. Honigberg
Chairman	Commissioner	Commissioner

Attested by:

Debra A. Howland
Executive Director

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

DG 14-___

PETITION FOR APPROVAL OF CHANGES TO FINANCIAL HEDGING PROGRAM AND FIXED PRICE OPTION PROGRAM

NOW COMES Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty" or the "Company") and hereby petitions the New Hampshire Public Utilities Commission ("Commission") for approval to adopt a revised hedging program and to change its current Fixed Price Option Program so that it is only available to residential customers. In support of its Petition, Liberty states as follows:

1. Liberty is a public utility primarily engaged in the retail delivery of natural gas to approximately 90,000 customers in 30 municipalities across New Hampshire.

2. As described in the Pre-filed Direct Testimony of Francisco D. DaFonte which is being filed contemporaneously with this Petition, the Company currently operates a hedging program that was approved by the Commission in Order 25,094. The Company is requesting to modify its existing hedging program to better stabilize the cost of natural gas supplies acquired to serve its customers. The Company also seeks to modify its Fixed Price Option (FPO) program so that it is only available to residential customers, in lieu of the current program which is available to all customers, whether residential or commercial. The Company is seeking approval by the Commission of these changes for effect in the peak winter period of 2014-2015 and through the issuance of an Order Nisi.

3. Under the Company's current hedging policy, the Company uses various financial risk management tools and underground storage in order to provide more price stability in the cost of gas to firm sales customers and to fix the cost of gas for participants in the Company's FPO Program. The current policy was developed at a time when there was significant volatility in the NYMEX price of gas, and thus was intended to minimize price volatility with regard to supply area purchases. These supply area purchases are based on the Henry Hub pricing point for natural gas futures contracts located in the supply area in Louisiana. However, as demonstrated in Mr. DaFonte's testimony, while the Henry Hub price and correlating NYMEX price has become very stable, all of the price volatility has been occurring in purchases made in the market area, which for the Company is either Tennessee's Zone 6 city gate or Dracut, Massachusetts.

4. As a result, the Company is proposing to eliminate the current hedging program which focuses exclusively on the hedging of the NYMEX/Henry Hub futures contracts. In its place, the Company proposes to begin hedging the New England basis (e.g. the market cost to deliver gas to Tennessee Zone 6 and Dracut) via the purchase of physical fixed basis supply contracts commencing with the winter of 2014-2015.

5. In addition, the Company proposes to change its FPO which is part of its hedging policy, such that it is only available to residential customers. The purpose of the FPO is to provide customers with price stability during the winter months, when gas prices are more volatile. The Company achieves this by establishing an FPO rate that is based on the peak period Cost of Gas rate plus a premium to recover program costs and to account for the volatility of the unhedged supply used to serve FPO customers. The Company is proposing to only make the program available to residential customers as they do not have the ability to

choose a third party supplier since there is no retail competition available to these customers. Retail competition is available to commercial and industrial customers, and as a result, they have the ability to pursue other supply options if they would like a fixed price offering or some other creative supply service that meets their business needs. While the Company would calculate the FPO rate in this same fashion, it does anticipate proposing a higher FPO premium this winter to appropriately reflect the increased volatility in the market area supply prices. That proposal will be made in the Company's winter cost of gas filing.

6. The Commission has previously adopted changes to the Company's hedging policy when it has found that the need for the policy no longer exists. *See EnergyNorth Natural Gas, Inc.*, Order No. 25,094 at 6 ("As to the elimination of hedges on the Company's storage, we find that change reasonable. Because gas in storage is at a fixed price, further hedging those supplies does little to influence rate volatility. Hedging is intended to reduce volatility; decreasing costs by eliminating a practice that has done little to reduce volatility is a sound change."). In this case, it is appropriate to eliminate the current policy to hedge the Henry Hub/NYMEX price, as that policy is no longer beneficial to the Company's customers, and to allow the Company to adopt a hedging policy that addresses the current price volatility.

7. For these reasons, and those stated in the Prefiled Direct Testimony of Mr. DaFonte, the Company requests that the Commission approve the proposed changes to the hedging and FPO Program.

WHEREFORE, Liberty Utilities respectfully requests that the Commission:

A. Issue an Order Nisi authorizing the Company to: (a) adopt a revised hedging policy as described in the prefiled direct testimony of Francisco C. DaFonte, and (b) offer the Fixed Price Option Program only to its residential customers; and

B. Such other relief as is just and equitable.

Respectfully submitted,

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP. D/B/A LIBERTY UTILITIES

By its Attorney,

Date: May 19, 2014 By: _____

Sarah B. Knowlton
Assistant General Counsel
15 Buttrick Road
Londonderry, NH 03053
Telephone (603) 216-3631
sarah.knowlton@libertyutilites.com

Certificate of Service

I hereby certify that on May 19, 2014, a copy of this Petition has been forwarded to Susan Chamberlin, Esq., Consumer Advocate.

_____
Sarah B. Knowlton

Empire District Electric Company / A Liberty Utilities Company

Case No. EO-2017-0065
MO FAC Prudence Review

OPC Data Request – 1006

Data Request Received: 07/10/2017 Date of Response: 07/25/2017

All responses to DR 1006 are being provided subject to and without waiving the objections served on 7/12/2017.

The proceeding question subparts relate to rebuttal testimony filed by Mr. Blake Mertens in this case file:

a. Reference Blake Mertens' rebuttal testimony at page 4 line 9 please describe Mr. Mertens' understanding of the prudence standard.

Response:

I believe this is a legal issue and that prudence is a determination to be made by the Commission. As stated in my Rebuttal Testimony, Empire agrees with the Staff of the Commission that the appropriate prudence standard to be applied in this case is set forth in the 1997 opinion of the Missouri Court of Appeals in an Associated Natural Gas case (954 S.W.2d 520). This Western District opinion fully defines and discusses the standards to be applied in this FAC prudence review. As a non-attorney, my understanding of the prudence standard applied to regulated utilities in Missouri is that a company's actions and decisions are looked at in terms of whether or not they were reasonable at the time, under all the circumstances, considering that the company had to solve the problem or address the situation prospectively, rather than in reliance on hindsight.

b. Reference Blake Mertens' rebuttal testimony at page 4 line 9 please describe Mr. Mertens' experience with the prudence standard.

Response:

Please note Mr. Mertens' educational and professional background, Page 1 Line 6 of his Rebuttal Testimony. Mr. Mertens has experience with the prudence standard throughout his career at Empire, specifically on the five fuel prudence reviews prior to this case, prudency reviews of several generation projects completed by Empire,

as well as the various general rate cases with which Mr. Mertens has been involved, and the Iatan 2 proceedings.

c. Reference Blake Mertens' rebuttal testimony at page 4 line 10. Please list and describe every reason why Mr. Mertens believe Mr. Hyneman's definition of the prudence standard is "incomplete."

Response:

As stated in Mr. Mertens' rebuttal testimony, neither Mr. Hyneman nor Mr. Riley have provided "any evidence of the natural gas forward curves at the times the hedges were executed." Rather they have referenced settled prices which would not be known at the time hedges were placed. In addition, no forecasts have been provided which predicted the settled futures prices or spot prices for the audit period. This demonstrates a limited and misguided view and misapplication of the prudence standard by using "perfect information." See Mr. Mertens' rebuttal testimony, page 4, lines 13-17.

d. Reference Blake Mertens' rebuttal testimony at page 4 line 10. Please list and describe every reason why Mr. Mertens believe Mr. Hyneman's definition of the prudence standard is "possibly misleading."

Response:

See Mr. Mertens' rebuttal testimony, page 4, lines 13-17.

e. Reference Blake Mertens' rebuttal testimony at page 4 line 10. Please list and describe in as great a detail as possible the specific reasons why Mr. Mertens disagrees with Mr. Hyneman's "statements regarding the applicability" of the prudence standard to this case.

Response:

See Mr. Mertens' rebuttal testimony, pages 4-5, lines 22-2, as well as the response to subpart (c) of DR 1006.

f. Reference Blake Mertens' rebuttal testimony at page 4 line 22. Please list and describe in as great a detail as possible the specific reasons why Mr. Mertens believes "Empire has demonstrated" that its hedging actions were reasonable.

Response:

As stated in Mr. Doll's testimony, Empire's RMP has been "strategic yet steady," and, looking at the lifespan of the entire program, the program has shown "value." See Page 10, line 20.

Empire has used the most current information available at the time its natural gas hedges were executed.

All of Empire's direct and rebuttal testimonies, as well as DR responses, may be referenced to show why Empire's hedging actions were reasonable. See also answer in subpart (g) of DR 1006.

g. Reference Blake Mertens' rebuttal testimony at page 5 line 9. Please list and describe in as great a detail as possible the specific reasons why Mr. Mertens believes "Empire has demonstrated" that its "FAC costs" were just and reasonable.

Response:

Mr. Mertens has provided testimony stating his opinions on the prudency of Empire's fuel costs. "Empire's fuel costs, including natural gas hedging costs, have been through five fuel prudence reviews prior to this case and no imprudence has ever been found." See page 4 line 1. In addition, as indicated in Mr. Mertens', Mr. Doll's, and Mr. Sager's testimonies, as well as numerous DR responses, Empire's RMP covers a wide array of risk considerations and provides a balanced and comprehensive approach to managing natural gas procurement to supply electric generators. To consider only price with no thought to credit exposure, volumetric concerns, or other risks would not be just or reasonable. All of Empire's direct and rebuttal testimonies, as well as DR responses, may be referenced to show why Empire's hedging actions were reasonable.

h. Reference Blake Mertens' rebuttal testimony at page 5 line 19. Please list and describe in as great a detail as possible the specific reasons why "it appears" to Mr. Mertens that OPC is alleging imprudence solely on the grounds of that hedging losses have been incurred during one of the lowest natural gas spot markets we have seen in the past 15 years.

Response:

This is Mr. Mertens' and Empire's reading of OPC's pleadings and testimony in this case.

i. Reference Blake Mertens' rebuttal testimony at page 6 line 16. For 2010-2015, please provide any and all evidence and documentation in the possession of Empire which shows that Empire relied on "natural gas forward curves" in deciding whether or not it was prudent to continue to purchase Nymex futures contracts and engage in natural gas forward purchases.

Response:

The "natural gas forward curves" are included in the Monthly Gas Position Reports which have been provided to OPC. See response to DR 1327.

j. Reference Blake Mertens' rebuttal testimony at page 6 line 16. For 2010-2015, please provide any and all evidence and documentation in the possession of Empire which shows each and every analysis, estimate, prediction, report, consultation, forward price curve, or other similar documentation that Empire relied upon in deciding whether or not it was prudent to continue to purchase Nymex futures contracts and engage in natural gas forward purchases.

Response:

The analysis is included in the Monthly Gas Position Reports which have been provided to OPC. See response to DR 1327.

k. Reference Blake Mertens' rebuttal testimony at page 6 lines 20-23. Please list and describe in as great a detail as possible each and every instance where Mr. Hyneman "misrepresented Empire's hedging position."

Response:

As stated in Mr. Mertens' rebuttal testimony on page 6 line 23, please see Mr. Sager's and Mr. Doll's rebuttal testimonies for a listing of these misrepresentations. See also responses to subparts (a) and (b) of DR 1007.

l. Reference Blake Mertens' rebuttal testimony at page 6 lines 20-23. Please list and describe in as great a detail as possible each and every instance where Mr. Hyneman "misrepresented Empire's policy intent.

Response:

As stated in Mr. Mertens' rebuttal testimony on page 6 line 23, please see Mr. Sager's and Mr. Doll's rebuttal testimonies. See also responses to subparts (a) and (b) of DR 1007.

m. Reference Blake Mertens' rebuttal testimony at page 6 lines 20-23. Please list and describe in as great a detail as possible each and every instance where Mr. Hyneman "cited publications conclusions, etc. which serve to conflate the issue at hand".

Response:

See Mr. Doll's Rebuttal Testimony, page 9 line 15.

n. Reference Blake Mertens' rebuttal testimony at page 6 lines 20-23. Please list and describe in as great a detail as possible each and every instance where Mr. Riley "misrepresented Empire's hedging position.

Response:

See Mr. Doll's Rebuttal Testimony, page 3, line 9. See also responses to parts (a) and (b) of DR 1007.

o. Reference Blake Mertens' rebuttal testimony at page 6 lines 20-23. Please list and describe in as great a detail as possible each and every instance where Mr. Riley "misrepresented Empire's policy intent.

Response:

Mr. Riley bases the merit of the Empire's RMP on "minimization of costs for the customers" as the only metric. He goes on to state that there is no mention of "to protect from natural gas price spikes." However, the RMP states it is to protect "from volatility in the marketplace." Price spikes are volatility in the marketplace. Also, Mr. Riley describes Empire's RMP as "Volume need, not price risk."

See also Mr. Doll's rebuttal testimony page 10, line 1; responses to subparts (a) and (b) of DR 1007; and Mr. Doll's Direct Testimony Schedule 1, page 5-8, for Mr. Mertens' discussion regarding Empire's RMP intent as discussed in ER-2016-0023.

p. Reference Blake Mertens' rebuttal testimony at page 6 lines 20-23. Please list and describe in as great a detail as possible each and every instance where Mr. Riley "cited publications conclusions, etc. which serve to conflate the issue at hand".

Response:

Mr. Riley cited EIA's low cost natural gas forecasts; however, in Mr. Doll's rebuttal testimony, Mr. Doll shows that's not accurate. See Table AD-1. Also see Mertens' rebuttal testimony page 13 line 12.

q. Reference Blake Mertens' rebuttal testimony at page 7 line 4. Please list and describe in as great a detail as possible each and every source or document which caused Mr. Mertens to conclude, believe or understand that Nymex futures forward price curves are "natural gas forecasts".

Response:

See Mr. Mertens' rebuttal testimony, page 8, line 11. Mr. Mertens stated NYMEX futures are a reasonable method of forecasting, not that the curves are forecasts.

r. Reference Blake Mertens' rebuttal testimony at page 7 line 16. Please list and describe in as great a detail as possible each and every statement made by OPC witnesses in testimony in this case which reflects an engagement in a "retrospective view" of Empire hedging practices.

Response:

See Mr. Mertens' rebuttal testimony page 7, line 16; see also page 7 lines 18-20.

s. Reference Blake Mertens' rebuttal testimony at page 7 line 16. Please list and describe in as great a detail as possible each and every statement made by OPC witnesses in testimony in this case which reflects that they engaged in the bias of "perfect hindsight" as it relates to Empire hedging practices.

Response:

The fact that neither testimony ever mentions forward curves, but yet both mention EIA monthly and annual average, shows that there is little emphasis on forecasts, and, instead, a focus on actual prices used to calculate hedging losses. See page 7 lines 18-20.

The prices used by OPC are not available until after futures expire, and certainly are not available prior to or at the time of the transaction.

t. Reference Blake Mertens' rebuttal testimony at page 7 line26 through page 8 line 1. Mr. Mertens describes what he believes would be an impartial method to evaluate the reasonableness of Empire's hedges and that is the use of Nymex futures natural gas prices or "forward curves." Assuming that OPC relied only on forward curves in its prudence analysis, what type of forward curves would have to exist in 2010-2015 for Mr. Mertens to agree that Empire's hedging practices were unreasonable.

Response:

It is not possible to determine prudence by looking only at a forward curve, with no consideration to areas of concern such as credit risk, credit exposure, and volumetric risk. In addition, one snapshot of a single forward curve does not provide enough information to make any type of judgment of whether a particular transaction should be placed, let alone determine if an entire policy or set of procedures was reasonable.

u. Does Mr. Mertens believe that the term "reasonable" has the same meaning as the term "prudent" when it applies to a utility practice or action? If not, please describe how he believes the terms have different meanings.

Response:

My understanding of the prudence standard, as applied to regulated utilities in Missouri, is that a company's actions and decisions are looked at in terms of whether or not they were reasonable at the time, under all the circumstances, considering that the company had to solve the problem or address the situation prospectively, rather than in reliance on hindsight. In other words, I believe the Commission looks at the reasonableness of actions when making a prudence determination.

v. Reference the attached pdf from the Premier Energy Group LLC reflecting Nymex futures prices for the remainder of 2017 and for 2018 and 2019. Given these current Nymex forward prices through 2019, does Empire believe it is reasonable and/or prudent to continue to purchase Nymex futures contracts? Is yes, please explain.

Response:

Yes. There are many factors which must be considered when placing a hedge and each individual transaction examined as stated in response to subpart (t) of DR 1006; however, the current NYMEX forward curves show prices lower in later years than in the current year. This is called backwardation and offers great opportunities to place futures contracts for a price below the price current futures can be purchased. Based on this limited set of information, Empire does not identify anything which would render the purchase of a NYMEX futures contract unreasonable or imprudent.

w. Does Mr. Mertens believe that the natural gas price market must be experiencing significant volatility for Empire to justify significant Nymex futures contract purchases? If not, why not? If yes, please list and describe each and every reason why Mr. Mertens believes the Nymex forward price curves for 2018 and 2019 on the attached pdf document show a volatile natural gas price market.

Response:

No. In addition to volatility, futures contracts can help protect against a rise in price that is steady, not just spikes or fluctuations. Volatility is always present, due to the fact prices change daily, hourly, and by the minute. Volatility cannot be measured by reviewing average or settled monthly prices. The magnitude of volatility may change as prices stay in a relatively tight band or expand to wider daily/hourly swings.

With natural gas prices at some of the lowest prices in 15 years, these contracts protect from top side risk in the future which may be driven by factors described in the response to DR 1006 subpart (f).

x. Reference the attached pdf from the Premier Energy Group LLC reflecting Nymex futures prices for the remainder of 2017 and for 2018 and 2019. If this was the same natural gas forward price curve that was in effect during 2010-2015, would Mr. Mertens agree that OPC

was correct in asserting the imprudence of Empire's hedging practices? If not, please list each and every reason why not.

Response:

No. See all testimony and DR responses. Specifically, the response to subpart (w) of DR 1006.

y. Reference Blake Mertens' rebuttal testimony at page 12 lines 11 through page 13 line 8. Did Empire apply the method of evaluating "avoided cost" when it engaged in its hedging practices in 2010-2015? If yes, please provide a copy of each and every document in Empire's possession that indicates Empire employed the use of "avoided cost" in its decisions on continuing its hedging practices.

Response:

Empire has not performed a formal evaluation of avoided costs, and Mr. Mertens did not testify that Empire performed avoided cost analytics to analyze the hedging portfolio. Instead, Mr. Mertens testified that it was sourced in Mr. Hyneman's testimony as an alternative source of analysis to help avoid hindsight bias. See page 12 line 15 of Mr. Mertens' rebuttal testimony.

z. Did Mr. Mertens first learn of the "avoided cost" method when he read the Public Utilities Fortnightly article he references at page 12 line 15? If not, when did he first learn about the "avoided cost" method of evaluating hedging policy prudence?

Response:

The concepts of avoided cost analysis and scenario analysis are fairly common approaches and are not new to Mr. Mertens.

aa. Does Mr. Mertens believe that the natural gas price market in 2010 to 2015 reflected significant price volatility? If yes, please describe and define quantitatively what Empire understands to be "significant" volatility in the natural gas price market.

Response:

No. Mr. Mertens does not believe there was significant price volatility in 2010-2015 as compared to the period of 2001-2009. However, volatility did exist during the period of 2010-2015. The order of magnitude was less than previous periods, but movements in daily and hourly prices still occurred. It appears that OPC is failing to recognize the issues with the "hindsight bias" that it uses to analyze Empire's RMP. The potential for increases in the magnitude of volatility still exists. As prices rise, which Empire believes will occur at some point as stated in response to subpart (h) of DR 1007, the magnitude of volatility will likely increase with it.

bb. Reference Blake Mertens' rebuttal testimony at page 14 line25. Please provide a copy of each and every document in Empire's possession which requires, recommends or even supports the continuation of natural gas hedging in a period of a) low natural gas prices and b) non-volatile natural gas prices.

Response:

See Mertens' Rebuttal Testimony page 13 line 20. See also all of Empire's direct and rebuttal testimonies as well as DR responses in this proceeding.

cc. Reference the following two statements in Empire's 2015 SEC Form 10-K 1. "The majority of our physical natural gas supply requirements will be met by short-term forward contracts and spot market purchases. Forward natural gas commodity prices and volumes are hedged several years into the future in accordance with our Risk Management Policy in an attempt to lessen the volatility in our fuel expenditures and gain predictability." 2. "We are exposed to changes in market prices for natural gas we must purchase to run our combustion turbine generators. Our natural gas procurement program is designed to manage our costs to avoid volatile natural gas prices. We enter into physical forward and financial derivative contracts with counterparties relating to our future natural gas requirements that lock in prices (with respect to predetermined percentages of our expected future natural gas needs) in an attempt to lessen the volatility in our fuel expenditures and improve predictability." Both statements assert that Empire hedges to lessen volatility. Please explain how these statements to the SEC explaining the purpose of Empire's hedging practices is consistent with Mr. Mertens statements that Empire is prudent to hedge in a historic low price natural gas market.

Response:

There is no inconsistency. These statements to the SEC demonstrate that one purpose of Empire's hedging program, and more specifically these particular instruments, is to lessen volatility. Other concerns and risks as mentioned throughout all testimony and DR responses are also addressed by the RMP and Empire's hedging program. It should also be noted that low market prices and volatility can and do exist together.

Exhibit No.:
Issue: *Natural Gas Prices*
Witness: *Charles R. Hyneman*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Rebuttal Testimony*
Case No.: *ER-2007-0004*
Date Testimony Prepared: *February 20, 2007*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

REBUTTAL TESTIMONY

OF

CHARLES R. HYNEMAN

AQUILA, INC., d/b/a AQUILA NETWORKS-MPS - Electric
and AQUILA NETWORKS-L&P – Electric

CASE NO. ER-2007-0004

Jefferson City, Missouri
February 2007

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

NP

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the matter of Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks-L&P, for authority to file tariffs increasing electric rates for the service provided to customers in the Aquila Networks-MPS and Aquila Networks-L&P service area.	)))))	Case No. ER-2007-0004

AFFIDAVIT OF CHARLES R. HYNEMAN

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Charles R. Hyneman, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, consisting of 18 pages to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Charles R. Hyneman

Subscribed and sworn to before me this 6th day of February 2007.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

ASHLEY M. HARRISON
My Commission Expires
August 31, 2010
Cole County
Commission #06898978

Notary Public

TABLE OF CONTENTS OF

REBUTTAL TESTIMONY OF

CHARLES R. HYNEMAN

AQUILA, INC., d/b/a AQUILA NETWORKS-MPS - Electric

and AQUILA NETWORKS-L&P - Electric

CASE NO. ER-2007-0004

REBUTTAL TESTIMONY OF

CHARLES R. HYNEMAN

AQUILA, INC., d/b/a AQUILA NETWORKS-MPS - Electric

and AQUILA NETWORKS-L&P - Electric

CASE NO. ER-2007-0004

Q. Please state your name and business address.

A. Charles R. Hyneman, 615 East 13th Street, Kansas City, MO 64106.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Public Service Commission (Commission) as a Utility Regulatory Auditor.

Q. Are you the same Charles R. Hyneman who filed direct testimony in this case?

A. Yes, I am.

EXECUTIVE SUMMARY

Q. Please summarize your rebuttal testimony.

A. The purpose of this rebuttal testimony is to address some of the statements made in the direct testimony of Aquila witness H. Davis Rooney on the issue of natural gas prices that Aquila has included in its fuel expense calculation in this case. In my rebuttal testimony I will explain why Aquila's use of New York Mercantile Exchange (Nymex) natural gas futures prices is a poor substitute for the actual natural gas prices that it incurred and why the use of Nymex futures natural gas prices is inappropriate for ratemaking purposes.

Q. What is the Nymex and what are Nymex futures?

A. The Nymex is the commodity exchange based in New York City where the natural gas futures and options and other energy futures are traded. The natural gas futures contract is a standardized contract for the purchase or sale of natural gas for future delivery. The standard contract for natural gas at Henry Hub is 10,000 MMBtu. Henry Hub is a pipeline interchange in Louisiana and it is the standard delivery point for the Nymex natural gas futures contract. Normally, the natural gas purchased or sold at Henry Hub through a Nymex futures contract is financial in nature and the transaction is unrelated to an electric utility's actual purchase of natural gas to fuel its generation plants. The Nymex futures contracts are used by utility companies to hedge against wide swings in natural gas prices.

Q. At page 7, of his direct testimony, Mr. Rooney states that the proper method for annualizing the test year fuel and purchased power expense is to normalize and annualize the price paid for fuel. Do you agree with this statement?

A. Yes. Unfortunately, while Mr. Rooney says that the proper way to annualize test year fuel expense is to normalize and annualize the price paid for fuel, his method for normalizing fuel expense is not at all consistent with this statement.

Q. Please explain.

A. The level of natural gas prices proposed by Mr. Rooney has nothing at all to do with the price Aquila paid for natural gas. Instead of using Aquila's actual cost of purchasing natural gas from its natural gas suppliers in the Midcontinent region of the U.S., Mr. Rooney uses, as a substitute for Aquila's actual costs, a 30 day average of the 2007 Nymex futures strip prices. There is no relationship between Nymex natural gas futures prices and the actual cash Aquila paid to purchase natural gas. This is a primary reason why the Staff believes Aquila's "market driven" methodology is not appropriate for setting rates in this case.

Q. What period did Mr. Rooney use to calculate an average Nymex futures price for 2007?

A. Mr. Rooney explains in his direct testimony that he used a three month average of the 2007 Nymex Strip for the period January through March 2006. The average of these prices as reflected on the Nymex column of Schedule HDR-4 of Mr. Rooney's direct testimony is $9.60.

Q. Has Aquila updated its Nymex futures-based natural gas price?

A. Yes. Aquila's update is based on an average of 2007 strip prices from October through December 2006. This average price, as shown below, is $7.98/MMBtu.

Q. What is a Nymex futures strip price?

A. A strip is simply an average of consecutive months' prices for a given time period. For example, a Nymex 12-month strip price quoted on a certain day would be based on the previous session's average closing price for twelve consecutive months of Nymex futures contracts.

Q. Does the Staff believe that using natural gas prices determined in a commodity futures market is a reasonable basis for setting electric utility rates in Missouri?

A. No.

Q. Please explain.

A. The Nymex futures market is simply a market created to transfer price risk. It was not designed to function as a predictor of future natural gas prices, nor does it serve that function.

While there may be rare exceptions, utility rates should be based on the utility's actual costs. This is especially so when recent, verifiable and measurable cost data is readily

available. In the rate setting process, costs are annualized to reflect updated costs and normalized to reflect an average of actual costs over a period of time. Utility rates in Missouri should not be set based on the results of a financial futures market whose purpose and function is totally unrelated to determining an appropriate natural gas price for Aquila's Missouri electric utilities.

Setting rates based on the results of a natural gas futures market violates basic commonly accepted ratemaking principles. Without strong and convincing evidence that this method is superior to the traditional method of setting rates, based on relevant actual historical costs, it should be rejected outright by this Commission.

Please refer to the rebuttal testimony of Staff witness Dr. Kwang Y. Choe for an additional discussion of the Staff's position on using Nymex futures to determine natural gas prices for ratemaking purposes.

Q. At page 10, line 13, of his direct testimony Mr. Rooney states that the natural gas prices he refers to in his testimony are the prices at the Henry Hub. Does Aquila purchase any of its natural gas for its Missouri operations at the Henry Hub in Louisiana?

A. No. Aquila does not purchase any natural gas from the Henry Hub, and this is one of the main reasons why the use of Nymex natural gas futures is a poor substitute for using actual historical natural gas prices as a basis for setting rates.

Aquila purchases its natural gas for its Missouri generation plants in the Midcontinent region of the United States. The Midcontinent region includes portions of Texas, Oklahoma and Kansas. The price of natural gas sourced from the Midcontinent region is significantly different from the price of natural gas at the Henry Hub.

Q. Is the price of natural gas at the Henry Hub higher or lower than the price of natural gas in the Midcontinent region?

A. The price of natural gas in the Midcontinent region is lower, sometimes significantly lower, than the price of natural gas at the Henry Hub. This difference in price is referred to as basis, or location basis. Because of the price difference, Aquila must make an adjustment to its average Nymex futures natural gas price to get the Nymex-based Henry Hub price on the same basis as the price of natural gas in the Midcontinent region.

Q. How does Aquila account for this difference?

A. Since the price of natural gas at the Henry Hub is higher than the Midcontinent region, Mr. Rooney adds a negative basis dollar amount to his average Nymex natural gas futures price to arrive at a commodity price to Aquila. In response to Data Request No. 110, Mr. Rooney explained how the basis dollar amount applied to the Nymex futures price is determined:

> The basis used in Aquila's fuel models is obtained from our gas buyers. They provide an estimated basis using their knowledge of current and historical markets, including review of published information, such as in Gas Daily, and quotes from market brokers.

The data below shows Aquila's updated Nymex futures prices, which are an average of the prices over the period October through December 2006. The average natural gas futures price over this period is $7.98, less an average basis of ($.78) for a net commodity price of $7.20 to Aquila. The monthly basis adjustments, which are also estimated costs not based on any actual event, range from $.34 /MMBtu to $1.27/MMBtu.

MONTH	Average Monthly Nymex 2007 Futures Strip Prices	Estimated Location Basis	Basis Adjusted Futures Price
Jan-07	**$8.00**	($0.34)	**$7.66**
Feb-07	**$8.02**	($0.48)	**$7.54**
Mar-07	**$7.93**	($0.66)	**$7.27**
Apr-07	**$7.58**	($0.77)	**$6.81**
May-07	**$7.58**	($0.77)	**$6.81**
Jun-07	**$7.67**	($0.77)	**$6.90**
Jul-07	**$7.76**	($0.77)	**$6.99**
Aug-07	**$7.83**	($0.77)	**$7.06**
Sep-07	**$7.89**	($0.77)	**$7.12**
Oct-07	**$7.98**	($0.77)	**$7.21**
Nov-07	**$8.52**	($1.27)	**$7.25**
Dec-07	**$9.03**	($1.27)	**$7.76**
2007 Average	**$7.98**	($0.78)	$7.20

Q. Have there been wide swings in the basis amounts between the Henry Hub, where the Nymex natural gas futures are priced, and the Midcontinent region, where Aquila buys its natural gas?

A. Yes. The following data was provided by Aquila in response to Data Request No. 110. It shows the wide range in basis from month to month. In October 2005 the basis difference increased to $3.72/MMBtu as a result of the damage caused by Hurricanes Katrina and Rita.

Month/Yr	Southern Star Basis
Jan-05	($0.45)
Feb-05	($0.56)
Mar-05	($0.60)
Apr-05	($0.72)
May-05	($0.21)
Jun-05	($0.24)
Jul-05	($0.54)
Aug-05	($1.05)
Sep-05	($2.35)
Oct-05	($3.72)
Nov-05	($3.24)
Dec-05	($2.34)
Jan-06	($2.79)
Feb-06	($1.53)
Mar-06	($0.84)
Apr-06	($1.41)
May-06	($1.47)
Jun-06	($0.91)
Jul-06	($0.63)
Aug-06	($0.87)

Q. Included in Aquila's updated Nymex futures gas price, is there an example where the 90-day average prices used by Aquila were significantly different from the actual settlement price?

A. Yes. Included in Aquila's updated natural gas price is an $8.00/MMBtu 90-day average price for the January 2007 futures contract. This January 2007 futures contract expired on December 27, 2006, at an actual price at the Henry Hub of $5.84/MMBtu. This represents an additional $2.17/MMBtu that Aquila would charge Missouri ratepayers over the actual cost of natural gas simply because of the use of the Nymex futures market. This also represents a 27 percent error between Aquila's estimate of the January 2007 natural gas price and the actual natural gas price charged at the Henry Hub.

Q. Using Aquila's Nymex futures natural gas price methodology in its direct filing, what did Aquila estimate the price of natural gas to be in January 2007?

A. As shown on Schedule HDR-4, Cost of Gas, Aquila's futures market methodology predicted the price of natural gas in January 2007 to be $10.93/MMBtu at the Henry Hub. As described above, the actual natural gas price at the Henry Hub was $5.84/MMBtu. In its direct filing, Aquila overestimated the price of natural gas by $5.09/MMBtu, which is a prediction error of 47 percent.

Q. Was Aquila's estimate of natural gas prices in February 2007 more accurate?

A. Not much. In its direct filing, Aquila estimated the price of natural gas at the Henry Hub in February 2007 to be $10.93/MMBtu, the same as its January 2007 natural gas price prediction. The Nymex February 2007 futures contract expired on January 29, 2007 at $6.92/MMBtu. Aquila overestimated the price of natural gas by $4.01/MMBtu in its direct filing. In its updated filing, Aquila estimated the price of natural gas in February 2007 to be $8.02/MMBtu, resulting in an overstatement of $2.91/MMBtu.

Q. Have you done a separate analysis to determine if the Nymex futures market is a good predictor of the actual settled natural gas prices at the Henry Hub?

A. Yes. Schedule 1 attached to this testimony shows that Nymex is an extremely bad predictor of natural gas prices even over a period as short as one year. An analysis of the price of a Nymex futures contract on its first trading day compared to what that contract's actual settlement price was (an indication of the market price of gas at the Henry Hub on that date) also shows that Nymex futures contracts are not a good predictor of natural gas prices.

The first line of Schedule 1 shows that on January 2002 one could have bought a January 2003 contract for $3.23/MMBtu. If Nymex was a good predictor of natural gas prices, one would expect this contract to settle somewhere around $3.23/MMBtu at its expiration date in one year. However, this contract closed at $4.99/MMBtu – nowhere near

the "predicted" price. Looking at the example in March 2002 one could have purchased a March 2003 contract for $3.17/MMBtu. One year later this contract was priced at $9.13/MMBtu for an increase of 188 percent.

Q. Have you also done a review of more recent months or Nymex futures natural gas prices compared to the contract's actual closing price?

A. Yes. I reviewed the futures contract expiration day prices for certain months in 2006 and compared this price with the contract's price at various different dates prior to closing. My findings below support a conclusion that Nymex does not accurately predict future natural gas prices:

> The futures contract for the March 2006 delivery closed on February 24, 2006, at $7.11/MMBtu. The price of this contract just three weeks earlier was $8.61/MMBtu.
>
> The April 2006 contract closed on March 29, 2006 at $7.23/MMBtu. On January 31, 2006, the price of this contract was $9.44/MMBtu.
>
> The June 2006 contract closed at $5.93/MMBtu on May 26, 2006. On April 19, 2006, the price of this contract was $8.41/MMBtu.
>
> The October 2006 contract closed on September 27, 2006 at $4.20/MMBtu. On August 25, 2006, the price of this contract was $7.34/MMBtu.
>
> The November 2006 contract closed on October 27, 2006 at $7.15. On August 25, 2006, the price of this contact was $9.35. This contract dropped to $5.66 on October 13, 2006, before increasing to its closing price.

Q. In describing Nymex natural gas futures prices on page 11 of his direct testimony, Mr. Rooney states that "these prices are known and represent average prices for actual market transaction for natural gas." Does the Staff agree with Aquila that a Nymex natural gas futures price is a result of a market transaction for natural gas?

A. No. Mr. Rooney's statement can be misleading. Most of the transactions in the Nymex futures market are not for the acquisition of natural gas. They are simply financial transactions made by either companies that want to hedge their exposure to natural gas price swings, or market speculators who seek to make a financial profit by speculating on the swings in the price of natural gas. According to information that the Nymex includes in its website, Nymex.com, less than 1% of the commodities traded are actually bought or sold through the Exchange.

Q. Do prices in the Nymex futures natural gas market represent actual known and measurable costs of the type that are used in utility rate setting?

A. No. Aquila's use of Nymex natural gas futures prices as a substitute for actual historical natural gas costs fails the known and measurable standard of utility ratemaking.

Q. What is "known and measurable" as that term is used in the rate setting process?

A. As it applies to an expense of providing utility service, the known and measurable standard of ratemaking means that the event that causes the incurrence of a cost is certain to occur and the incurred cost can be measured with a high degree of accuracy. Using a Nymex futures price for natural gas as a basis for setting rates fails both parts of the known and measurable standard.

Q. Please elaborate on why Nymex futures prices cannot meet the known and measurable ratemaking standard.

A. Nymex futures prices are neither known nor measurable because they don't result from actual natural gas purchases made by Aquila. It is a known event that Aquila will purchase natural gas from the Midcontinent region of the U.S. to supply fuel to its electric

generators. It is also a known event that Aquila will not purchase any natural gas from the Henry Hub, the region where the Nymex natural gas prices are determined. Therefore, the event that causes a cost to be incurred - the actual purchase of natural gas from Aquila's natural gas suppliers - will not occur under Aquila's proposed methodology.

Nymex futures natural gas prices are not measurable to any extent as they fluctuate, sometimes wildly, on a daily basis. This was demonstrated above in the examples of how badly Aquila's methodology predicted natural gas prices in January and February 2007.

In addition, the prices of Nymex futures contracts are associated with the Henry Hub market region, which differs significantly from the market region (Midcontinent region) where Aquila buys its natural gas. Aquila has to estimate basis adjustments to apply to the Nymex futures price to arrive at an estimate of what Aquila's actual natural gas costs will be.

Q. Please explain the reasons why the Nymex futures market is such a poor predictor of natural gas prices?

A. There are several reasons. First, the Nymex futures market is a commodity trading market, much like the stock market. It is subject to pricing signals that cause the market to react irrationally at times. Some of the events that cause the Nymex futures market to react in unpredictable ways are weather-related events, such as the anticipation of a hurricane, expectations that there will be a severe winter and reaction to world events such as terrorist attacks

In much the same way that the stock markets move up or down in reaction to world events, the Nymex futures market reacts similarly. While the market may eventually correct itself, the irrational market behavior, as reflected in market prices, becomes embedded in daily historical prices of the kind that Aquila uses to develop its natural gas price inputs to its

fuel model. The occurrence of even one or two events that causes significant swings in natural gas futures prices, although temporarily reflected in the market, will potentially have a significant effect on a natural gas price derived from the futures market during this period.

Q. Have there been unusual events that caused the NYMEX futures market to react irrationally?

A. Yes. On November 24, 2004, the Energy Information Administration (EIA), a branch of the Department of Energy, issued its Weekly Gas Storage Report. This report showed a much greater withdrawal of natural gas than was expected and the price of the near month natural gas futures contract on the Nymex increased $1.18/MMBtu on that day. It was found that a company had submitted faulty storage report numbers to the EIA through a clerical error. When the EIA issued its subsequent report which corrected that error, Nymex futures prices fell in response.

Q. Does Aquila recognize this irrational behavior of the Nymex futures market?

A. It did at one time. At page 7, of Aquila witness John Browning's direct testimony in Case No. ER-2004-0034 he stated:

> The NYMEX responds irrationally to short-term events such as storage reports, hurricanes and short-term weather patterns. The near months are actually the most volatile with the out months being more stable but less meaningful because of a lack of trading volume.

Certainly, the major price swings between Aquila's predicted January and February 2007 Nymex future prices and the resulting actual price demonstrate what Mr. Browning was concerned about when he presented his testimony on natural gas pricing in Case No. ER-2004-0034.

Q. What are additional reasons why the Nymex should not be relied upon as a predictor of natural gas prices for ratemaking purposes?

A. In addition to irrational behavior, natural gas futures prices are subject to manipulation. In the past few years, over 30 energy companies, including Aquila, have been charged with attempting to manipulate natural gas pricing markets including Nymex. As reported in its internet website, the Commodities Futures Trading Commission has charged over $300 million in fines to these energy and utility companies. Also, it was recently announced that the U.S. Congress will be investigating potential price manipulation of the Nymex natural gas futures market.

Q. How was Aquila involved in the Nymex market manipulation?

A. In its Form 10-Q for the quarterly period ended September 30, 2006, page 25, Aquila reported that on August 18, 2003, Cornerstone Propane Partners filed a suit in the Southern District of New York against 35 companies, including Aquila, alleging that the companies manipulated natural gas prices and futures prices on the Nymex through misreporting of natural gas trade data in the physical market. In the third quarter of 2006, Aquila agreed to pay $6.59 million to settle the case.

Also, as part of a January 28, 2004 agreement with the Commodity Futures Trading Commission (CFTC), Aquila paid $26.5 million in civil fines following a CFTC finding stating Aquila had delivered false reports to the reporting firms that publish price indexes. Aquila proposed a settlement to this case and did not admit that it engaged in these activities.

Q. At page 13 of his direct testimony, Mr. Rooney states that it is appropriate to use the current Nymex futures contract prices for normalizing the fuel costs in this case because Aquila's hedging policy includes the purchase of futures contracts. Do you agree with this statement?

A. No. Nymex futures gas prices are poor predictors of actual gas costs. The fact that Aquila purchases futures contracts under its hedging policy does not make the Nymex any better at predicting natural gas costs. In addition, the Staff believes that there are serious problems with Aquila's hedging strategy.

Q. Please explain the Staff's concern with Aquila's hedging strategy?

A. In my direct testimony in Case No. ER-2005-0436, I described the Staff's concern that Aquila may be going too far in its systematic purchases of its financial hedges without giving appropriate consideration to current market conditions. Aquila's policy is to purchase a set number of futures contracts each month on a specific date, with little or no consideration of the current natural gas futures contract price. In effect, Aquila is not using the professional judgment of its natural gas buyers nor is it considering the professional judgment of experts in the industry in its decisions to purchase futures contracts each month. Aquila created a systematic, no judgment hedging policy and it is sticking with it no matter how significant the hedging losses it is incurring. The Staff believes this is a serious flaw in Aquila's hedging policy.

While the Staff expressed this concern to Aquila in testimony in the last rate case, Aquila has made no changes in its hedging policy. It continues to purchase futures contracts on a systematic basis with little regard to the price. The Staff has a concern that too much rigidity in the application of its systematic hedging policies may be causing Aquila's hedging policy to accumulate hedging losses in excess of what a reasonable hedging program would accumulate.

Q. Has Aquila delayed the purchase of any of its natural gas futures contracts in 2005?

A. No. Aquila witness Gary L. Gottsch states at page 6 of his direct testimony that Aquila did not deviate at all from its hedging strategy of a systematic purchase of natural gas futures contracts in 2005.

Q. What was Aquila's actual commodity cost of natural gas over the past three years?

A. Aquila's actual costs for the period 2004 through 2006, as reflected in Staff Data Request No. 113 are shown below:

2004	**	_____ **
2005	**	_____ **
2006	**	_____ **

Q. How does the Staff's proposed commodity price of natural gas compare to Aquila's actual incurred cost of natural gas over the past three years?

A. The Staff's proposed level of natural gas commodity prices in its direct filing was ** _____ **. This amount was a weighted average of Aquila's actual natural gas costs for the period January 2005 through September 2006. The Staff has updated its natural gas price by including the months of October, November and December 2006. The Staff's current proposed 24-month price is ** _____ **. The Staff's proposed natural gas price is higher than Aquila's actual cost of natural gas incurred in 2004 and 2006. Aquila's 2005 actual natural gas costs were significantly increased by the extraordinary damage in the Gulf region caused by Hurricanes Katrina and Rita in the last quarter of 2005.

Q. How does the Aquila's proposed $7.20/MMBtu commodity price of natural gas compare to Aquila's actual incurred cost of natural gas over the past three years?

A. As shown above, Aquila's proposed $7.20/MMBtu price is significantly higher than its actual costs it incurred in 2004 and 2006. The reason why this price is lower than Aquila's average cost of natural gas in 2005 is because of the significant rise in natural gas

prices beginning in the last week of August 2005 and continuing at least through the rest of 2005 as a result of Hurricanes Katrina and Rita. These hurricanes wreaked havoc on gas production and infrastructure in 2005 sending natural gas prices to unprecedented levels.

Q. Did Aquila recently do a complete reversal on its method of proposing natural gas prices in a rate case?

A. Yes. In its 2005 rate case, as in this case, Aquila proposed natural gas prices based on the 2006 Nymex futures strip. However, in its 2004 rate case, Case No. ER-2004-0034, Aquila took a completely different approach to developing natural gas prices for ratemaking purposes. In that case, Aquila felt that the best way available to forecast future natural gas prices was to do an analysis of all the basic components that influence the natural gas markets.

In its 2004 rate case, Aquila went into great detail to explain to the Commission how the use of Nymex futures prices is not appropriate for ratemaking purposes. Yet, just three years later, Aquila is now advising this Commission that Nymex natural gas futures prices is the best way to predict Aquila's actual natural gas prices.

Q. Please continue.

A. Aquila's witness on the issue of natural gas prices in the 2004 rate case was John Browning, who at the time held the office of Vice President, Resource Operations. The purpose of Mr. Browning's direct testimony in Case No. ER-2004-0034, as described at page 2, was to "present information to support Aquila's position in this case regarding the cost of natural gas and coal used for generation in Aquila's power plants."

Mr. Browning calculated the average of six industry analysts' natural gas price estimates that were made in March 2003. In this average he included the actual Nymex

settlements (used as a surrogate for actual market prices, not Nymex futures) for January and February 2003. No Nymex futures prices were included in Aquila's proposal.

Q. What was Aquila's position in the 2004 rate case with respect to using Nymex futures as a basis for predicting natural gas prices?

A. Aquila very clearly stated that Nymex futures prices should not be used as a basis for setting rates. The following quotes by Mr. Browning concerning the use of Nymex futures as a basis for setting rates were taken from his rebuttal testimony in the 2004 rate case:

> As I mentioned in my direct testimony, the use of NYMEX futures is questionable in both the near term as well as the long term for predicting future spot prices. The near term futures can be highly volatile and react to short-term events irrationally. On the other hand, futures for years such as 2005 and 2006 are illiquid and lightly traded making them potentially meaningless as far as predicting future physical prices. [rebuttal page 10]

> Kwang Y. Choe, a Regulatory Economist with the Commission, filed testimony in Case No. ER-2001-672 that concurs with my opinion. Mr. Choe describes in great detail why the correlation between NYMEX futures and future spot prices is very weak and not suitable for ratemaking. [rebuttal page 11]

> I completely agree that the most realistic and most up-to-date price information should be used for ratemaking. That would exclude the use of historical costs from 2001 or 2002 and the usage of NYMEX futures. [rebuttal page 13]

Q. Please summarize your comments on Mr. Rooney's direct testimony as it relates to natural gas prices.

A. Utility rates in Missouri have been based, to the greatest extent possible, on actual costs incurred by a utility. Aquila must be able to justify an increase in utility rates by showing that the increase is caused by actual increases in actual costs. It is unreasonable to use a futures market that bears no resemblance to Aquila's natural gas market to predict what prices will be when actual costs are available and should be used. This is especially true

when, as I have shown in this testimony, the futures market is such a bad predictor of future natural gas prices.

The Commission should seriously question any attempt to set utility rates in Missouri on any basis or methodology that does not consider the actual costs or prices paid as a basis for an expense in the provision of utility service. Given the absence of strong and convincing evidence that Aquila's futures marked-based natural gas prices are superior to the traditional method of setting rates based on relevant actual historical costs, Aquila's method should be rejected outright by this Commission.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

On first trading day of	Futures Contract	Settled at 1st Trading Day	Expired at	Difference	Difference %
Jan-02	Jan-03	$3.23	$4.99	$1.76	54%
Feb-02	Feb-03	$2.93	$5.66	$2.73	93%
Mar-02	Mar-03	$3.17	$9.13	$5.96	188%
Apr-02	Apr-03	$3.59	$5.15	$1.56	43%
May-02	May-03	$3.75	$5.12	$1.37	37%
Jun-02	Jun-03	$3.61	$5.95	$2.33	65%
Jul-02	Jul-03	$3.78	$5.29	$1.52	40%
Aug-02	Aug-03	$3.58	$4.69	$1.11	31%
Sep-02	Sep-03	$3.76	$4.93	$1.17	31%
Oct-02	Oct-03	$3.89	$4.43	$0.54	14%
Nov-02	Nov-03	$4.06	$4.46	$0.40	10%
Dec-02	Dec-03	$4.28	$4.86	$0.58	14%
Jan-03	Jan-04	$4.99	$6.15	$1.16	23%
Feb-03	Feb-04	$5.00	$5.78	$0.78	16%
Mar-03	Mar-04	$5.49	$5.15	($0.34)	-6%
Apr-03	Apr-04	$4.63	$5.37	$0.73	16%
May-03	May-04	$4.73	$5.94	$1.21	26%
Jun-03	Jun-04	$5.13	$6.68	$1.55	30%
Jul-03	Jul-04	$4.87	$6.14	$1.27	26%
Aug-03	Aug-04	$4.74	$6.05	$1.31	28%
Sep-03	Sep-04	$4.72	$5.08	$0.37	8%
Oct-03	Oct-04	$4.68	$5.72	$1.05	22%
Nov-03	Nov-04	$4.81	$7.63	$2.81	58%
Dec-03	Dec-04	$5.06	$7.98	$2.92	58%
Jan-04	Jan-05	$5.79	$6.21	$0.43	7%
Feb-04	Feb-05	$5.63	$6.29	$0.66	12%
Mar-04	Mar-05	$5.81	$6.30	$0.49	8%
Apr-04	Apr-05	$5.37	$7.32	$1.96	36%
May-04	May-05	$5.41	$6.75	$1.34	25%
Jun-04	Jun-05	$6.01	$6.12	$0.11	2%
Jul-04	Jul-05	$5.92	$6.98	$1.05	18%
Aug-04	Aug-05	$6.11	$7.65	$1.54	25%

Exhibit No.:
Issue: *NYMEX Natural Gas Futures Prices*
Witness: *Kwang Y. Choe*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Surrebuttal Testimony*
Case No.: *ER-2004-0570*
Date Testimony Prepared: *November 24, 2004*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

SURREBUTTAL TESTIMONY

OF

KWANG Y. CHOE

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Jefferson City, Missouri
November 2004

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In The Matter of the Tariff Filing of The Empire District Electric Company to Implement a General Rate Increase for Retail Electric Service Provided to Customers in its Missouri Service Area.	)))))	Case No. ER-2004-0570

AFFIDAVIT OF KWANG Y. CHOE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Kwang Y. Choe, being of lawful age, on his oath states: that he has participated in the preparation of the following surrebuttal testimony in question and answer form, consisting of 7 pages to be presented in the above case; that the answers in the following surrebuttal testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Kwang Y. Choe

Kwang Y. Choe

Subscribed and sworn to before me this 22nd day of November 2004.

TONI M. CHARLTON NOTARY SEAL NOTARY PUBLIC STATE OF MISSOURI

Notary

TONI M. CHARLTON
NOTARY PUBLIC STATE OF MISSOURI
COUNTY OF COLE
My Commission Expires December 28, 2004

SURREBUTTAL TESTIMONY

OF

KWANG Y. CHOE

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Q. Please state your name and business address.

A. Kwang Y. Choe, P.O. Box 360, Jefferson City, Mo. 65102.

Q. By whom are you employed and in what capacity?

A. I am the Regulatory Economist of the Procurement Analysis Department with the Missouri Public Service Commission (Commission).

Q. How long have you been employed with the Commission?

A. I commenced employment with the Commission Staff (Staff) in January of 2000.

Q. Please describe your educational background and experience.

A. I received a Bachelor of Arts, Master of Arts, and Doctor of Philosophy degrees in economics. My undergraduate degree is from the University of California, San Diego. My graduate degrees are from the University of Missouri, Columbia. I worked in the Department of Economics at the University of Missouri, Columbia as a graduate teaching instructor from 1997 to 1999, and as a graduate teaching assistant from 1991 to 1993 and from 1996 to 1999. Also, I am currently a visiting assistant professor in the Department of Economics at the University of Missouri, Columbia. I am a member of the International Association for Energy Economics.

Q. What has been the nature of your duties at the Commission?

A. Since early 2000, I have assisted the Commission with monitoring and evaluating the various economic aspects of the natural gas market, both nationally and in Missouri.

Q. Have you previously testified before the Commission?

A. Yes. I previously filed testimonies in three general rate cases, Case No. ER-2001-299 (The Empire District Electric Company), Case No. ER-2001-672 (Utilicorp United Inc. d/b/a Missouri Public Service), and Case No. ER-2004-0034 (Aquila, Inc. d/b/a Aquila Networks – MPS (Electric)).

Q. What is the purpose of your testimony in this case?

A. My purpose is to respond to the rebuttal testimony of The Empire District Electric Company (Empire or Company) witness Brad P. Beecher, who recommends the use of the natural gas futures market in setting the price of natural gas in this case.[1] In doing so, I will provide the Commission with a general outline of the natural gas futures market. I will explain why the natural gas futures market is not a reliable forecasting tool for predicting actual future natural gas prices, and therefore, should not be used for forecasting in the ratemaking process.

Q. What are natural gas futures?

A. Natural gas futures are financial derivatives for natural gas, and traded on the New York Mercantile Exchange (NYMEX). Stated more specifically, natural gas futures contract is:

> ...a tradable document which entitles the buyer of the contract to claim physical delivery of the commodity, that is, natural gas from the seller at the contract delivery point at a specified date in the future, and entitles the seller to deliver the physical commodity to the buyer under the same conditions.[2]

[1] Rebuttal Testimony of Brad P. Beecher, Pages 2-16.
[2] Fletcher J. Strum, *Trading Natural Gas: A Non Technical Guide*, 1997, page 35.

A unique characteristic of natural gas futures contracts is that they are standardized contracts, meaning that each natural gas futures contract has the same quality and quantity of natural gas, and is to be delivered and received at the same delivery location (see Schedule 1 for the standard contract specifications for the NYMEX natural gas futures contract).[3] Natural gas futures prices are based on demand for and supply of the commodity in the future.

Q. What purpose do natural gas futures mainly serve?

A. Natural gas futures serve mainly for risk management purpose.

Q. Please explain.

A. When the natural gas demand and supply are fairly predictable and we can buy or sell the commodity at any time in the future for the prices that we want, there may not be a real need for a natural gas futures market. But we cannot predict, with any certainty, what the future of the natural gas market will bring, and therefore, it is difficult to plan ahead for this market. This is where the natural gas futures market comes in; i.e., it helps to minimize uncertainty or risk associated with price movements. But the natural gas futures market is in no way able to accurately predict that there will be a certain price prevailing in the future.

Q. What are some of the factors that affect natural gas prices?

A. There are several factors that affect natural gas prices, including weather, oil prices, drilling rig counts, the level of electric generation from natural gas-fired combustion turbines, national storage levels for natural gas, the level of economic activity, war, and the psychology of the natural gas market participants. All of these factors influence market speculation as to where the natural gas market will be heading.

Q. What is an index price?

[3] Ibid.

A. An index price is typically an average of fixed prices at which buyers and sellers agree, during the last week of a month, to purchase and sell gas for the following month.[4]

Q. Do you believe there is any significant correlation between prices in the futures market one year before closing of a contract and spot prices at the time of closing a year later?[5]

A There is no systematic correlation between the two prices (see Schedule 2).[6]

Q. Please explain.

A. According to the data, while the futures market has predicted a relatively stable price trend going forward at the 12-month horizon, actual spot prices have fluctuated considerably since May 2000 (see Schedule 2). This indicates that there is no systematic correlation between futures market prices and spot prices.

Q. Is the natural gas futures market an accurate predictor of actual future natural gas prices?

A. No.

Q. Please explain.

A. The idea that the natural gas futures market can accurately predict the actual future natural gas prices is predicated upon the assumption that the natural gas futures market is efficient. The efficient market theory, when applied to the natural gas futures market, says that the natural gas futures price today contain all available relevant information regarding the actual natural gas price in the future, and, as such, permits a correct forecast of the future actual prices.[7]

[4] Typically this index price is denoted as a first of month index price and tied to a specific natural gas pipeline. See schedules 3 and 4.
[5] Spot prices refer to the prices for immediate delivery of natural gas.
[6] Based on the New York Mercantile Exchange (NYMEX) Natural Gas Futures Prices (Monthly) with one-year maturity and the prices at the time of closing a year later, *Wall Street Journal*, Jan 1999 – November 2004.
[7] W. David Walls, "An Econometric Analysis of the Market for Natural Gas Futures," The Energy Journal, Vol. 16, No. 1, 1995, pages 71-83.

However, that is not true of the natural gas futures market.[8] If you look at the price comparisons between the futures prices and the subsequent spot prices at the 12-month horizon during July 1995 through November 2004, there are significant discrepancies between these two prices during the winters of 1996 - 97, 2000 - 01, 2001 - 02, and 2002 - 03 (see Schedules 3 and 4).[9] This demonstrates another characteristic of the futures market; namely, its inherent volatility. Therefore, it is very difficult to predict the future movement of the market.[10]

Q. Can the natural gas futures market be successfully used in the determination of the rates that customers pay for electricity use?

A. No. Because of the inherent risk in the market and the historical volatility of natural gas prices, it is extremely difficult to develop a method that will provide enough assurance to be able to use the futures market prices in the ratemaking process. There is no "safety net" for consumers if the futures market prices overstate natural gas prices, and ultimately, fuel expense. Using futures market prices to determine natural gas prices for fuel expense places substantial risk on the customers in that any overstatement will be a windfall to the Company in higher fuel costs.

Q. What is your conclusion?

A. The efficient market theory does not apply to the natural gas futures market because the market faces a great deal of uncertainty. Furthermore, due to the inherent volatility of the natural gas futures market, it is highly risky to rely solely on what the natural gas futures market indicates as a means of determining actual future natural gas prices. In particular,

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[8] Chinn, Menzie, Michael LeBlanc, and Olivier Coibion, "The Predictive Characteristics of Energy Futures: Recent Evidence for Crude Oil, Natural Gas, Gasoline and Heating Oil", University of California, Santa Cruz Economics Working Paper No. 490, October 2001.

[9] Based on the New York Mercantile Exchange (NYMEX) Natural Gas Futures Prices, *Wall Street Journal and Inside FERC's Gas Market Report,* July 1995 – January 2004 and Williams Pipeline (WNG) First of Month Index Prices. WNG's March 2003 First of Month Index Price is not available.

[10] Victor Chwee, "Chaos in Natural Gas Futures?", The Energy Journal, Vol. 19, No. 2, 1998, pages 149-164.

Company witness Brad Beecher's proposal that the price of natural gas be based on the futures strip price on a single day is arbitrary at best and highly risky for purposes of setting permanent rates for electric service.

Q. Does this conclude your testimony?

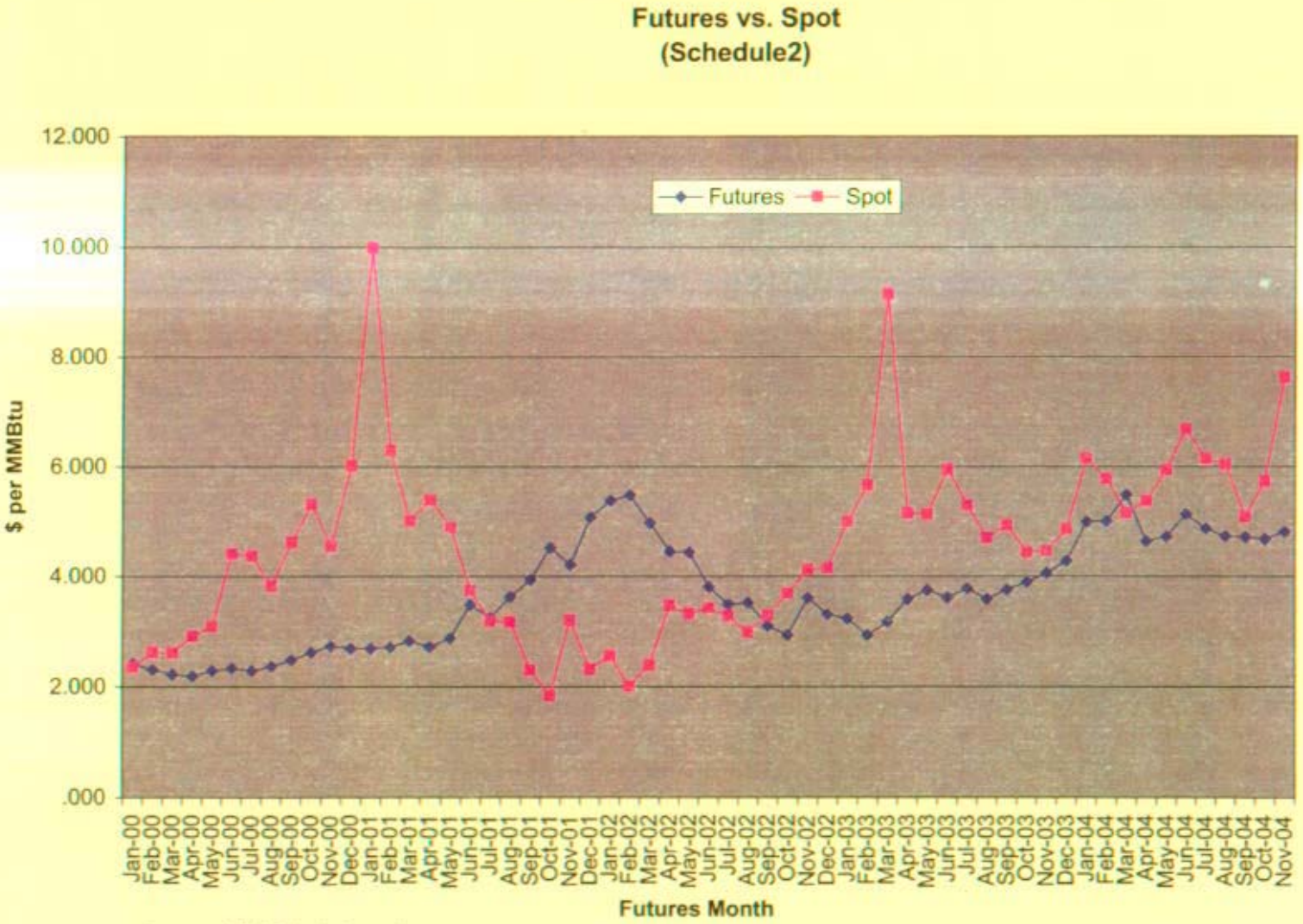
A. Yes, it does.

The New York Mercantile Exchange Natural Gas Futures Contract Specifications

Delivery Location:	Sabine Pipeline Hub at Henry, Louisiana
Contract Size:	One (1) contract equals 10,000 MMBtu
Minimum Price Fluctuation:	$0.001 per MMBtu ($10.00 per contract)
Maximum Daily Price Fluctuation:	$3.00 per MMBtu for all months ($30,000 per contract)
Trading Months:	Seventy-two (72) consecutive months commencing with the next calendar month
Last Trading Day:	Three (3) business days prior to the first calendar day of the delivery month

Source: http://www.nymex.com

Schedule CRH-S-8
10/12

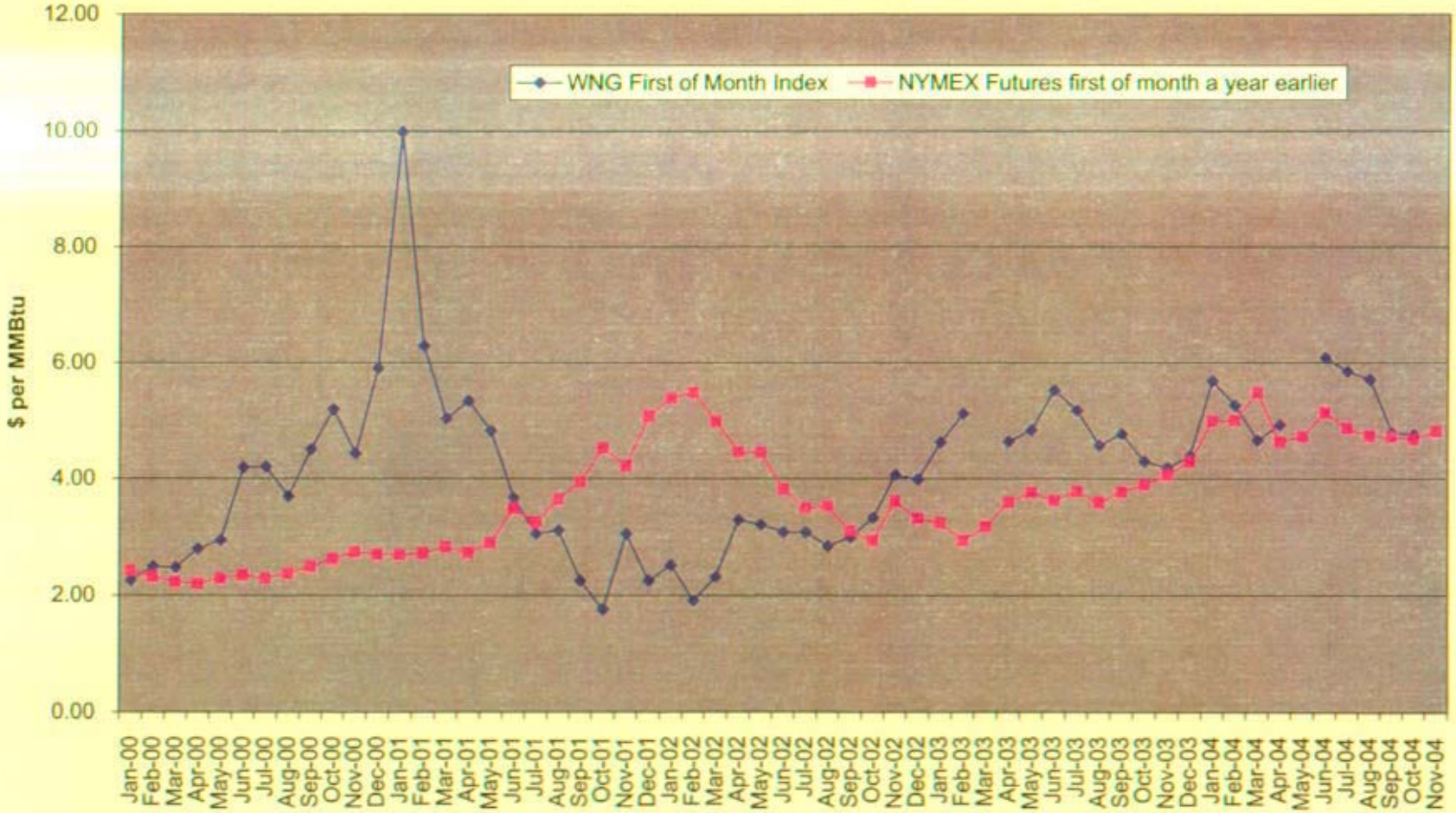


Source: Wall Steet Journal

Schedule 2

Schedule CRH-S-8
11/12

Williams Pipeline(WNG) First of Month Index vs NYMEX Futures Prediction A Year Earlier
(Schedule 3)

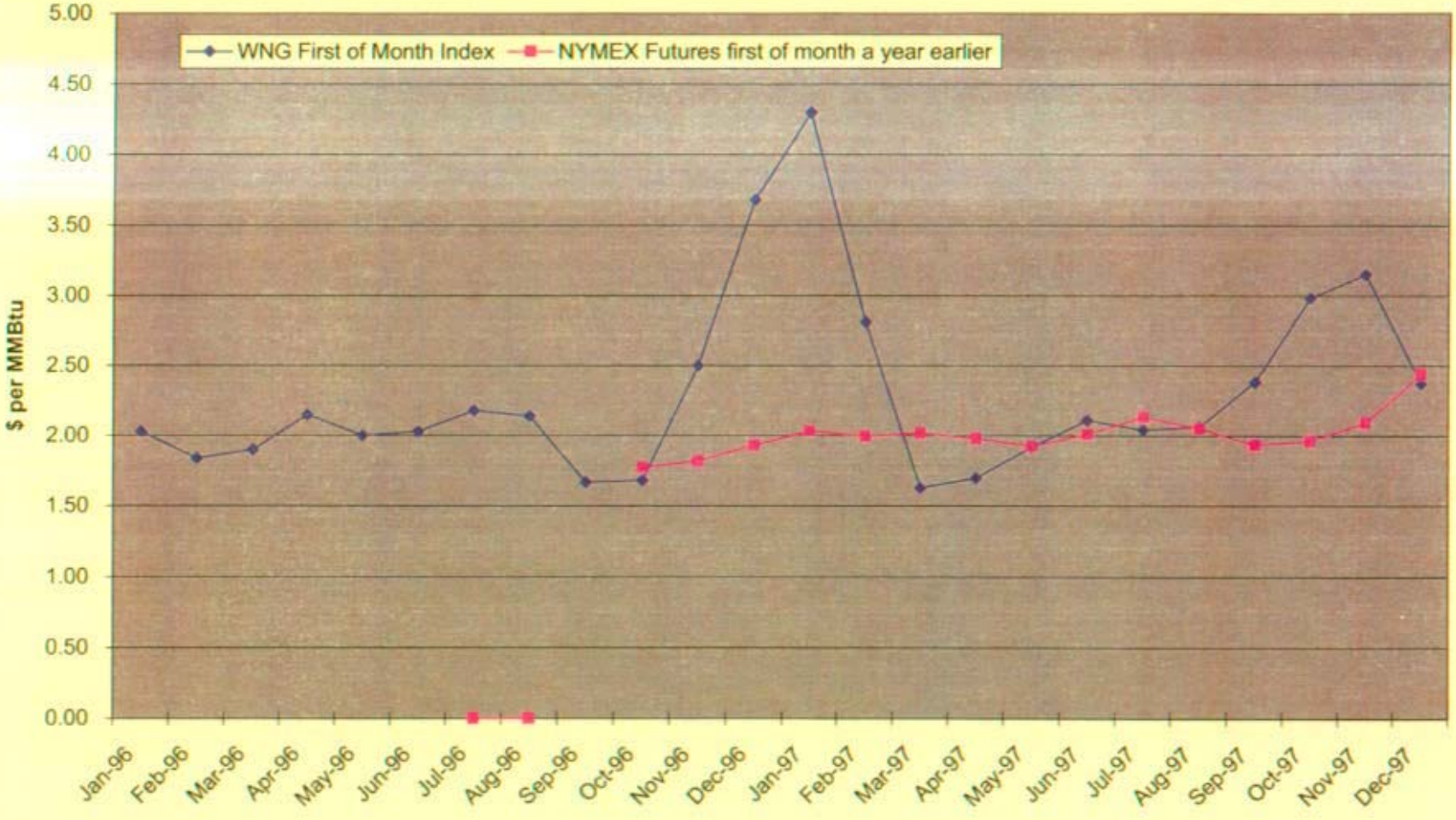


Source: Wall Street Journal and Inside FERC's Gas Market Report

Schedule 3

Schedule CRH-S-8
12/12

Williams Pipeline(WNG) First of Month Index vs NYMEX Futures Prediction A Year Earlier
(Schedule 4)



Source: Wall Street Journal and Inside FERC's Gas Market Report

Schedule 4