BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

DOCKET NO. 150001-EI

FUEL AND PURCHASED POWER COST RECOVERY CLAUSE WITH GENERATING PERFORMANCE INCENTIVE FACTOR.

_____/

VOLUME 5

PAGES 811 through 1017

PROCEEDINGS: HEARING

COMMISSIONERS PARTICIPATING: CHAIRMAN ART GRAHAM
COMMISSIONER LISA POLAK EDGAR
COMMISSIONER RONALD A. BRISÉ
COMMISSIONER JULIE I. BROWN
COMMISSIONER JIMMY PATRONIS

DATE: Tuesday, November 3, 2015

TIME: Commenced: 12:10 p.m.
Concluded: 3:55 p.m.

PLACE: Betty Easley Conference Center
Room 148
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: Andrea Komaridis
Court Reporter

APPEARANCES: (As heretofore noted.)

PREMIER REPORTING
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I N D E X

WITNESSES

EXHIBITS

NUMBER:	ID	ADMITTED
53 through 55 (as identified on (Comprehensive Exhibit List)		816
126	885	915
56 through 63 (as identified on Comprehensive Exhibit List)		914
64 (as identified on Comprehensive Exhibit List)		915
69 (as identified on Comprehensive Exhibit List)		931
127	954	1000
128	954	1000
129	964	1000
130	967	1000
105 through 109 (as identified on Comprehensive Exhibit List)		999

P R O C E E D I N G S

(Transcript follows in sequence from Volume 4.)

CHAIRMAN GRAHAM: Okay. You guys want to start with Gulf or Florida Power & Light?

MR. BUTLER: Well, we can make it easier by starting here, as I don't have any questions for him.

CHAIRMAN GRAHAM: Okay.

MR. BERNIER: We have no questions as well.

MR. BEASLEY: We have no questions.

MR. BADDERS: No questions.

CHAIRMAN GRAHAM: Okay. Staff.

MR. VILLAFRATE: If we could have one minute.

CHAIRMAN GRAHAM: Okay.

MR. VILLAFRATE: Actually, we are going to decline to ask questions. So, ignore the handout that is being passed out. If staff could recollect that, we would appreciate it.

(Laughter.)

CHAIRMAN GRAHAM: Okay. Commissioners.

Commissioner, Brisé?

COMMISSIONER BRISÉ: Thank you.

I'm going to ask you the same question I've asked the others. Considering the framework that

we have over the past 12 years, looking at hedging, can you provide me a clear picture as to how customers have been impacted if there were not hedging?

And since you all are paying attention to the cost to the consumers, what that cost would have meant to the consumers during two sets of time periods, 2004 to 2008, and then 2009 to 2014. If you can, show me the impact of that, one versus the other.

THE WITNESS: Thank you for the question, Commissioner.

As a fact witness in this proceeding, I have not performed that type of analysis.

COMMISSIONER BRISÉ: Okay. Thank you.

THE WITNESS: You're welcome.

CHAIRMAN GRAHAM: Any other Commissioners?

Redirect -- I guess there is none, unless you want to redirect against Commissioner Brisé.

(Laughter.)

MR. SAYLER: No, sir. No redirect.

And if there are no further questions, may this witness be excused from the hearing today?

CHAIRMAN GRAHAM: Sure.

Thank you, sir.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: No exhibits. So, let's go to your next --

MR. SAYLER: Yes, there were three exhibits for Mr. Noriega. It was 53, 54, and 55.

CHAIRMAN GRAHAM: 53, 54, and 55?

MR. SAYLER: Yes, sir. We would like to move those into the record.

CHAIRMAN GRAHAM: Okay. We will move those into the record.

(Exhibit Nos. 53, 54 and 55 admitted into the record.)

CHAIRMAN GRAHAM: Okay. Next witness, please.

MR. SAYLER: The Office of Public Counsel would like to invite Mr. Daniel Lawton to the stand to testify for the customers, citizens of the state.

DIRECT EXAMINATION

BY MR. SAYLER:

Q Are you ready, Mr. Lawton?

A I am.

Q All right. Welcome back, Mr. Lawton, to Florida to testify for the customers. You were here yesterday when all the witnesses were sworn; is that correct?

A I was, and I was sworn in. Thank you.

Q All right. Would you please state your name and business address for the record, sir.

A Yes, my name is Daniel Lawton. My business address is 12600 Hill Country Boulevard, Austin, Texas 78738.

Q And by whom are you employed and in what capacity?

A I am self-employed. I'm an attorney and a consultant in the utility industry.

Q All right. And you have been tendered as an expert witness in this proceeding; is that correct?

A I believe so, yes.

Q All right. And would you please reference those areas of expertise?

A My areas of expertise -- I testify in areas -- cost of capital and financial analyses. I've -- and I do this around the country and I've done it in Florida. I'm also an attorney on regulatory policy. And I do advise various cities in Texas who are my clients on municipal regulation because cities in Texas have original jurisdiction over rate matters. So, I'm an advisor to 66 cities in East Texas on that matter and represent them in rate cases.

Q And in that capacity, you're very familiar

with the natural gas markets?

A Oh, I am. My cities -- many of my client cities have to rely -- fuel factor is established by -- twice a year. And it's primarily based on the NYMEX prices, forward-looking prices. So, we follow those prices in my office and advise the cities of expected results on upcoming fuel factors that will impact those cities and jurisdictions.

Q All right.

MR. BUTLER: Mr. Chairman? Excuse me. I'm going to object to this. It's not the procedure that we've been using to date. I don't know that there is anybody who has objected to his expertise. And to the extent that there had been, the procedure was that the objecting attorneys would ask the witness about their area of expertise and then, if needed, the sponsoring attorney would ask questions on redirect to clarify areas.

But this is just basically new direct testimony, which Mr. Lawton is talking about his areas of expertise. I don't think it's warranted.

CHAIRMAN GRAHAM: I have to agree with Mr. Butler. I think let's just stick to what the normal script is as far as making sure there is no changes to his direct testimony.

MR. SAYLER: Certainly. And that was the end -- end of that questions.

CHAIRMAN GRAHAM: Okay.

BY MR. SAYLER:

Q Mr. Lawton, you have prepared and submitted your prefiled testimony in this proceeding?

A I have.

Q And you have that testimony before you?

A I do.

Q And do you have any corrections or revisions to make to that testimony?

A None to my knowledge.

Q All right. And do you adopt your prefiled testimony as your testimony today?

A I do.

MR. SAYLER: All right. I would ask that the prefiled testimony be inserted into the record as though read.

CHAIRMAN GRAHAM: We will insert Mr. Lawton's prefiled testimony into the record as though read.

(Prefiled direct testimony inserted into the record as though read.)

DIRECT TESTIMONY

OF

DANIEL J. LAWTON

On Behalf of the Office of Public Counsel

Before the

Florida Public Service Commission

Docket No. 150001-EI

SECTION I: <u>INTRODUCTION/BACKGROUND/SUMMARY</u>

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Daniel J. Lawton. My business address is 12600 Hill Country Blvd, Suite R-275, Austin, Texas 78738.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I have been working in the utility consulting business as an economist since 1983. Consulting engagements have included electric utility load and revenue forecasting, cost of capital analyses, financial analyses, revenue requirements, fuel reviews, and cost of service reviews, and rate design analyses in litigated rate proceedings before federal, state and local regulatory authorities, and in court proceedings. I have worked with numerous municipal utilities developing electric rate cost of service studies for reviewing and setting rates, including fuel clause rates and reconciliations. In addition, I have a law practice based in Austin, Texas. My main areas of legal practice include administrative law representing municipalities in electric and gas rate proceedings and

other litigation and contract matters. I have included a brief description of my relevant educational background and professional work experience in my Exhibit ____ Schedule (DJL-1).

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN UTILITY RATE PROCEEDINGS?

A. Yes. I have previously filed testimony in Florida and a number of jurisdictions across the country. A list of cases where I have previously filed testimony is included in my Exhibit ____ Schedule (DJL-1).

Q. ON WHOSE BEHALF ARE YOU FILING TESTIMONY IN THIS PROCEEDING?

A. I am providing analyses and testimony related to fuel hedging on behalf of the Office of Public Counsel, State of Florida ("OPC"). I will review the Florida Power & Light Company ("FPL"), Tampa Electric Company ("TECO"), Duke Energy Florida ("DEF), and Gulf Power Company's ("Gulf"), collectively ("the Companies") annual fuel cost recovery filings related to fuel cost hedging.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony in this proceeding is to address some of the economic and regulatory policy issues surrounding the Companies' proposals to continue their natural gas financial hedging programs as described in their 2016 Risk Management Plans. I address the historical impacts of the Companies' hedging programs on

consumers and the potential impacts on consumers if the 2016 Risk Management Plans are approved by the Florida Public Service Commission ("Commission"). Another OPC witness, Tarik Noriega, will quantify the historical impacts of hedging on consumers.

Q. WHAT MATERIALS DID YOU REVIEW AND RELY ON FOR THIS TESTIMONY?

A. I have reviewed prior rate orders of the Commission, the Companies' various filings in Docket No. 150001-EI, the Companies' filings in prior dockets, discovery responses to various requests in this proceeding, along with other information available in the public domain. When relying on various sources, I have referenced such sources in my testimony and/or attached Schedules and included copies or summaries in my attached Schedules and/or work papers.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE REASONABLENESS OF CONTINUED FINANCIAL HEDGING.

A. My analysis leads me to conclude that the overall costs of the natural gas financial hedging programs exceed the benefits to consumers. Therefore, I recommend that, on a prospective basis, the proposed continuation of gas hedging activities should be ended as a mechanism to limit gas (fuel) price volatility, and that the 2016 Risk Management Plans proposed by the Companies regarding future financial hedging proposals should not be approved by the Commission for the following reasons:

1. There is significant doubt as to the benefits of fuel hedging given the historical, ongoing, and potential financial costs to consumers;

2. From 2009 to 2014, significant hedging losses were experienced in five of the six years; and current estimates by the Companies indicate 2015 to be another year of hedging losses, making it six out of the last seven years with hedging losses;

3. The amount of hedging losses or "costs" passed on to consumers in the form of higher-than-market price fuel costs has been substantial with hedging costs (or higher-than-market fuel costs) amounting to a staggering $2.5 billion between 2011 and the estimated 2015 year;

4. Natural gas markets in terms of gas production and market supply have changed substantially in recent years reducing the probability and extent of significant supply-side market disruption and also reducing natural gas price volatility relative to past years;

5. Regulatory authorities are recognizing the limitations of financial hedging in the changed natural gas markets; and

6. The current fuel factor design and mechanism in Florida already adequately mitigates fuel cost volatility without the need and cost risk of financial hedging.

Q. PLEASE PROVIDE A BRIEF SUMMARY OF YOUR CONCLUSIONS.

A. Since the early 2000 time period, when gas markets experienced substantial volatility and price spikes for natural gas due to supply constraints along with adverse weather impacting natural gas demand, market conditions particularly the supply of natural gas have changed substantially. Annual gas production has grown dramatically and available gas reserves are well beyond forecasted levels from even ten years ago. As a result, price levels have declined substantially and price volatility is substantially reduced from past levels. Moreover, current forecasts of gas market prices indicate stable gas prices in the near-term, mid-term, and longer-term time horizon. The recent market experience since 2011 and the current market forecasts for natural gas all indicate that volatility is declining, natural gas prices are more stable, and the facts and circumstances that once supported natural gas hedging as a tool to limit price volatility are no longer present. Further, there are available, transparent, cost-free opportunities to limit price volatility impacts on consumers going forward through the fuel adjustment clause. Given the enormous lost-opportunity costs experienced by consumers in terms of overall fuel costs, and the potential for additional lost opportunities for lower gas costs under the status quo hedging and risk management plans, financial hedging of natural gas should be ended at this time.

For all the above reasons, I recommend the Commission deny the 2016 Risk Management Plans submitted by the Florida Companies and that financial hedging of natural gas should be discontinued.

SECTION II: SUMMARY OF ISSUES ADDRESSED

Q. WHAT ISSUES DO YOU ADDRESS WITH REGARD TO THE FLORIDA COMPANIES' PROPOSALS TO CONTINUE HEDGING NATURAL GAS PURCHASES THROUGH THE VARIOUS RISK MANAGEMENT PLANS?

A. I first provide a brief summary of the historical financial hedging position of the Florida Companies. OPC witness Noriega addresses the history of the fuel adjustment clause and hedging in his testimony, and the amount of historical hedging losses experienced. My analysis of the financial hedging history examines these historical results from a statistical and volatility metric perspective;

Second, I address the natural gas market changes that have impacted natural gas market supply, prices, and market volatility;

Third, I address how the natural gas market results, related to declining gas price volatility in recent years, are tied to market changes making financial hedging in natural gas less effective;

Fourth, I address how regulatory authorities around the country are beginning to recognize that financial hedging of natural gas is not beneficial to consumers; and

Fifth, I address how the existing fuel factor mechanism addresses price volatility issues. I also address previously proposed changes that, if adopted, address fuel price volatility without the unnecessary cost or risks of financial hedging.

These issues and topics are addressed in the following testimony to arrive at a recommendation in this case.

SECTION III: HISTORICAL OVERVIEW OF NATURAL GAS HEDGING

Q. BEFORE GETTING INTO THE HISTORICAL OVERVIEW OF HEDGING, PLEASE DESCRIBE AND DEFINE NATURAL GAS PRICE HEDGING.

A. Natural gas price hedging is an action or economic activity intended to reduce price fluctuations or volatility. Hedging accomplishes the goal of reducing price volatility by locking in the future price to be paid ahead of time rather than subjecting future fuel purchases to the day-to-day price changes in the market place. The simplest form is an action taken to insure against price volatility risk. A natural gas hedge can be a physical or financial hedge. An example of a hedge is the purchase of a future gas quantity at a fixed price. Thus, no matter what the future market price, this pre-purchased gas quantity is hedged or locked-in.

A hedge is analogous to an insurance policy that protects against future price changes and volatility. It is important to note that the hedged or locked-in price assured by the hedge may be higher or lower than the future gas market price at the time the commodity is needed and consumed. In other words, hedges are not designed to beat the future market prices. Instead, hedging programs are designed to lock down prices and avoid the day-to-day volatility in market prices. However, when the sole purpose is to mitigate price volatility, then there is no built-in ability to capture any of the benefits associated with declining fuel prices on the hedged portion of natural gas.

The Commission has previously provided guidance as to a definition of financial hedging as follows:

> Financial hedging is a term used to describe the purchase or sale of an exchange-traded futures or options contract with the specific intent of protecting an existing or anticipated physical market position from unexpected or adverse price fluctuations.[1]

Financial hedging of fuel purchases has been defined and employed in Florida as a tool in the fuel procurement process for a significant period of time.

Q. DO HEDGING PROGRAMS HAVE COSTS?

A. Yes. There are two types of hedging costs. First, there is the cost of running a hedging program in terms of labor of staff dedicated to implementing the hedging program. These hedging program costs are generally not large.

Second, there are opportunity costs associated with hedging. With the purchase and sale of various hedging instruments relative to ultimate market prices, there are opportunity costs (losses) when the market price settles lower than the hedged price, and benefits (savings or gains) when the market price settles higher than the hedged price. By locking in a future price through hedging instruments, consumers lose the benefit of lower market prices when the hedged or locked in price is lower than the market price. These hedged natural gas prices versus market prices are the key

[1] "Notice of Proposed Agency Action Order Finding Florida Power & Light Company Took Reasonable Steps To manage The Risks Associated With Changes In Natural Gas Prices For The Period March 1999 Through March 2001", Order No. PSC-02-0793-PAA-EI, issued June 11, 2002, in Docket No. 011605-EI, In re: Review of Investor-owned electric utilities' risk management policies and procedures, at 3.

opportunity costs associated with hedging that need to be evaluated when assessing the benefits and need of hedging future natural gas purchases.

As used in my testimony, "hedging cost" or "hedging loss" refers to these opportunity costs associated with hedging and not the costs to run or administer a Company's hedging program.

Q. DO THE DAILY NATURAL GAS PRICE CHANGES (PRICE VOLATILITY) DIRECTLY AND IMMEDIATELY IMPACT RATES PAID BY FLORIDA CONSUMERS?

A. No. The day-to-day changes in natural gas prices (price volatility) do not directly and immediately have an impact on the monthly rates consumers pay in their monthly electric bills. This is because of the manner in which the Commission establishes the annual fuel factor in the annual fuel adjustment clause proceeding (A/K/A "Fuel Docket"). The fuel portion of the utility bill is estimated annually based on projected sales of electricity, fuel quantities needed for electric generation, fuel prices, and prior over/under recoveries – all to establish a fuel factor to be applied to the kilowatt consumption of consumer bills. Once established by the Commission, the fuel factor stays in place until changed by the agency at some future date.

Fuel factors are reviewed and changed at least on an annual basis. A more frequent fuel factor review is also possible through what is referred to as a mid-course correction as discussed below.

The fuel factor mechanism in Florida is similar to what many regulatory jurisdictions employ regarding establishing tariffs for future unknown fuel costs, collecting fuel costs, and addressing material changes in fuel costs during the collection period.

While day-to-day changes in market fuel prices (price volatility) do not alter the fuel factor, the cumulative effect of unexpected changes in market prices could have the effect of creating the need for a mid-course correction in the fuel factor because the materiality threshold is met due to the unexpected price changes. In other words, if the current fuel factor is determined to materially over/under collect fuel costs, then the utility is required to notify the Commission. Depending on the circumstances surrounding the material recovery deficiency, a new fuel factor may be established and charged to consumers to address fuel cost recovery.

Thus, while changes in commodity price levels (up or down) certainly will affect future fuel factor calculations, there is no direct and immediate impact of this price fluctuation on consumers' rates while a fuel factor is in place. However, to the extent fuel price volatility creates a material change in fuel costs (generally 10% over/under recovery of fuel costs), then a mid-course correction in fuel charges could be required.

Q. IS THERE A HEDGING COST REASON OR CONSIDERATION FOR THE COMMISSION TO REVISIT HEDGING PROGRAMS?

A. Yes. In 2008, the Commission stated "Hedging program[s] are designed to assist in managing the impacts of fuel price volatility. Within any given calendar period, hedging can result in gains or losses. *Over time, gains and losses are expected to offset*

one another."[2] (emphasis added). Since 2008, high levels of losses or lost opportunities, related to lower market prices relative to the hedged payment that have been part of a continuing trend over time, have resulted and should raise a red flag concerning the continuation of the hedging program and the costs borne by customers. Regulatory authorities should expect to see some losses in hedging for some years and possibly most years given ongoing program costs and the fact that financial hedging, like insurance protection, for price stability is not free. However, large and prolonged hedging losses should signal a re-evaluation of hedging programs in order to stem the tide of losses and costs to consumers.

Q. PLEASE PROVIDE AN HISTORICAL OVERVIEW OF NATURAL GAS HEDGING COSTS TO CONSUMERS.

A. Historical hedging costs of the Companies are being addressed in the testimony of OPC witness Tarik Noriega. Also, a review of earlier year historical hedging in Florida has been addressed and described in the Commission Staff's review of "Fuel Procurement Hedging Practices of Florida's Investor-Owned Electric Utilities" at www.floridapsc.com/publications/pdf/electricgas/HedgingPracticesIOUs.pdf (June 2008). Since the Commission Staff's June 2008 analysis, the utility companies in Florida have collectively missed out on substantial lower gas cost opportunities due to fuel hedging activities required by their Risk Management Plans every year for 2009 through 2015, except in 2014. The following table summarizes the Companies' annual

[2] Order No. PSC-08-0030-FOF-EI, at 4, issued January 8, 2008, in Docket No. 070001-EI, In re: Fuel and purchased power cost recovery clause with generating performance incentive factor.

hedging opportunity costs (losses) for 2011 through 2015[3]:

Table-1[4]

Historic Hedging Opportunity Costs to Florida Customers

YEAR	HEDGING OPPORTUNITY LOSSES
2011	($694,455,607)
2012	($1,117,525,079)
2013	($140,565,299)
2014	$106,424,864
2015	($646,050,220)
Total 2011-2015	($2,492,171,341)

The hedging activities of the Florida Companies have cost consumers in terms of higher-than-market fuel costs every year except 2014. More recent hedging activities (since 2011) show substantial and mounting losses associated with fuel-related opportunity costs as a result of financial hedging.

While recent hedged prices may be locked-in and are not as volatile as market prices, the question before the Commission is whether the cost of the price stability - that is,

[3] The 2015 projected loss data is based on the Florida utilities' estimates of hedging losses provided in response to OPC's First Set of Interrogatories to Duke, Gulf, and TECO No. 5; and OPC's Fourth Set of Interrogatories to FPL No. 29.

[4] The Hedging Opportunity Losses are taken from the Responses to OPC's First Set of Interrogatories to Duke No. 2, To Gulf No. 2, To TECO No. 2, and OPC's Fourth Set of Interrogatories to FPL No. 26.

the elimination of price volatility, which cost consumers about $2.5 billion in lost market opportunities and higher gas prices since 2011 - is justified. Given current gas markets and current projections the answer to the question is: No.

Prices in the natural gas markets are declining. Volatility in gas prices is declining. There is just no basis to conclude that consumers should be paying substantially higher-than-market prices for natural gas to limit volatility when market evidence indicates volatility is declining and eliminating the need for hedging. Moreover, what price volatility impacts on consumers remain in today's environment are already mitigated through the Commission's fuel clause mechanism without financial hedging and its associated costs and risk to consumers.

Q. YOU USE THE TERM PRICE VOLATILITY IN CONJUNCTION WITH YOUR DISCUSSION OF HEDGING. WHAT IS PRICE VOLATILITY?

A. Generally speaking, price volatility is a broad and relatively loosely defined term. Price volatility speaks to changes in market prices; however, the impact and degree of volatility on market participants can vary substantially depending upon the geographic market or time interval of prices examined. For example, hourly price changes are different from daily, weekly, monthly, or annually averaged price changes.

Given that price volatility is not a precisely defined term, the measurement of price volatility can be subject to different approaches. For example, price volatility can be measured based on changes in the absolute value of price changes. This measure is

what one finds each day in the business reporting of price changes in markets. Absolute energy average price changes showing rapid and/or unanticipated change reflect a volatile market.

Another measure of volatility is viewed in terms of return, or the change in price relative to a previous price. These return measures of volatility measure the percentage change in price rather than the absolute value price increment described above. Thus, a 10 percent change is the same whether measured from a $0.20 increase from $2.00 per MMBtu, or a $1.00 increase from $10.00 per MMBtu.

Q. DO PRIOR COMMISSION ORDERS HELP IN DEFINING FUEL PRICE VOLATILITY?

A. No. Volatility is only defined generically. For example, in the "Order Approving Resolution of Issues" the Commission's Order No. PSC-02-1484-FOF-EI, in Docket No. 011605-EI, dated October 30, 2002, the proposed resolution of issues states the following:

> Each investor-owned electric utility recognizes the importance of managing price volatility in the fuel and purchase power it purchases to provide electric service to its customers. Further, each investor-owned electric utility recognizes that the greater the proportion of a particular fuel or purchased power it relies upon to provide electric service to its customers, the greater the importance of managing price volatility associated with that energy source.[5]

[5] Order No. PSC-02-1484-FOF-EI, issued October 30, 2002, in Docket No. 011605-EI, In re: Review of investor-owned electric utilities' risk management policies and procedures, at Attachment A "Components of Proposed Resolution, paragraph 1.

Thus, while the Commission points out the importance and potential impact of price volatility on electric consumer rates, no general or specific approaches to identifying and/or measuring price volatility are provided.

Q. DO THE FLORIDA COMPANIES PROVIDE AN APPROACH TO CALCULATING PRICE VOLATILITY?

A. Yes. The following was provided by each of the Florida Companies regarding price volatility:

> FPL: Volatility, as it relates to fuel prices, is a statistical measure of the variation in prices over time. Historical volatility for natural gas is measured by taking the standard deviation of the historical, measured day-to-day percentage deviations of the forward curve.[6]
>
> TECO: Tampa Electric measures variability and/or volatility of fuel costs primarily through standard deviation. Standard deviation is a common, mathematically sound means for assessing the variation in a set of values relative to the mean of that set of values.[7]
>
> DEF: There are two general methods for estimating volatility. One involves calculating the standard deviation of changes in historical prices, and the other derives the implied volatility using market prices of traded options. The Company uses the latter approach which provides the Company with observed market volatility which is the volatility that is trading in the market at a point in time and the market's view of uncertainty in future prices.[8]
>
> Gulf: [Both] the variance and standard deviation of hedged and unhedged natural gas prices are calculated based on monthly values over a period of twelve months.[9]

[6] FPL response to OPC's 10th Set of Interrogatories, Interrogatory No. 115.
[7] TECO Response to OPC's 3rd Set of Interrogatories, Interrogatory No. 39.
[8] DEF response to OPC's 3rd Set of Interrogatories, Interrogatory No. 40.
[9] Gulf Response to OPC's 3rd Set of Interrogatories, Interrogatory No. 40.

While there are differences in each of the Company's volatility estimates, all measures use a mathematical measure of dispersion variance and/or standard deviation applied to historical prices or prices of traded options.

As I discuss below, my review and analysis examines historical volatility in natural gas markets employing standard deviation utilizing daily, monthly, and annual data. These analyses demonstrate that volatility, as a measure of changes in gas market prices, is declining which is consistent with the significant market supply changes in the natural gas markets resulting from increased shale development since approximately 2007 – 2008. These analyses also show that price volatility concerns arose in the early 2000 period, when price hedging was viewed as a necessary mechanism by regulatory authorities in Florida and around the country for controlling fuel price changes, are no longer necessary given natural gas market changes.

SECTION IV: FLORIDA COMPANIES' HISTORICAL AND FUTURE HEDGING

Q. PROVIDE AN OVERVIEW OF WHAT THE FLORIDA COMPANIES ARE PROPOSING WITH REGARD TO FUTURE NATURAL GAS HEDGING.

A. A review of each Company's Risk Management Plan indicates more of the same of what was done in the past. In other words, there is no substantial change in their approaches to hedging. However, one difference is the provision that FPL will now incorporate the Woodford Project as part of its overall natural gas hedged quantities. Historically, substantial quantities of the expected natural gas burn quantities for each Company have been hedged. DEF, Gulf, and TECO provided their historical

percentage of volume hedged to fuel consumed for the period 2002 to 2014.[10] Since 2010, these Companies have hedged from a low of 33% for Gulf in 2010 to a high of 72% for TECO in 2014. According to a recent news article, FPL hedges about 60% of its fuel purchases.[11] Despite incurring enormous hedging costs (losses) since 2011, no major changes are described or proposed in the 2016 utility hedging plans for the future.

The obvious problem with the Florida Companies' "more of the same" approach with regard to hedging is that such approaches have generated cumulative losses exceeding $1.8 billion for the period 2011 through 2014.[12] The recent 2015 hedging efforts are expected to produce additional opportunity costs to customers of approximately $646 million.[13] Continuing to implement the same hedging practices, without modification and despite the paradigm shift in the natural gas markets, are likely to bring consumers more of the same lost opportunities in terms of overall fuel costs.

Q. WHEN DID THE FLORIDA COMPANIES BEGIN NATURAL GAS HEDGING?

A. Based on a review of the discovery in this case, most risk management hedging efforts began in the 2001 to 2002 timeframe.[14] Given the starting date, my analyses of gas markets and volatility issues will cover the period 2000 through the present.

[10] See DEF's, Gulf's, and TECO's Responses to OPC's 5th Set of Interrogatories, Interrogatory No. 71.
[11] "FPL says customers to save more in 2016 from utility's efficiency push" by Susan Salisbury, Palm Beach Post, September 2, 2015, *available at* http://www.mypalmbeachpost.com/news/business/fpl-says-customers-to-save-more-in-2016-from-utili/nnXKW/. Note: FPL's actual historical percentage of volume natural gas hedged to fuel consumed is confidential. See FPL's Response to OPC's 13th Set of Interrogatories, Interrogatory No. 148.
[12] See Table 1.
[13] *Id.*
[14] See TECO Response to OPC 3rd Set of Interrogatories, Interrogatory No. 37, DEF Response to OPC 3rd Set of

Q. WHAT ARE THE STATED GOALS OF THE FLORIDA COMPANIES' HEDGING PROGRAMS?

A. Based on a review of the discovery in this case, most risk management hedging objectives are to reduce fuel price volatility over time and to provide a greater degree of fuel price certainty.[15] FPL also notes that the "… goal is to execute a well-managed, non-speculative hedging program that is not intended to reduce fuel costs paid over time, but rather reduce the variability or volatility in fuel costs paid by customers over time."[16] Thus, the overriding concern in the risk management hedging programs (at least for FPL) is to limit fuel price variability impacts (volatility) and not fuel costs. Given the Companies' fuel price variability concerns, a significant factor in the hedging evaluation to be considered is whether price volatility concerns and issues are as important today as they have been in the past. It is also important to consider ongoing losses and the impact to consumers of paying substantially higher prices for fuel costs, especially if limiting potential fuel price volatility provides diminished and declining benefit. For example, if natural gas markets have expanded gas supply and the probability of market disruption is decreased, making unexpected price changes and spikes less and less likely, it may not make much sense to incur hundreds of millions of dollars in hedging costs through higher-than-market, locked-in or hedged, fuel costs.

Interrogatories, Interrogatory No. 37, FPL Response to OPC 10th Set of Interrogatories, Interrogatory No. 113, and Gulf Response to OPC 3rd Set of Interrogatories, Interrogatory No. 37. *See also* Order No. PSC-02-1484-FOF-EI, issued October 30, 2002, in Docket No. 011605-EI, In re: Review of investor-owned electric utilities' risk management policies and procedures.

[15] See TECO Response to OPC 3rd Set of Interrogatories, Interrogatory No. 38, DEF Response to OPC 3rd Set of Interrogatories, Interrogatory No. 38, FPL Response to OPC 10th Set of Interrogatories, Interrogatory No. 114, and Gulf Response to OPC 3rd Set of Interrogatories, Interrogatory No. 38.

[16] See FPL Response to OPC 10th Set of Interrogatories, Interrogatory No. 114.

Q. HOW DO THE FLORIDA COMPANIES EVALUATE EXPECTED PRICE VOLATILITY EACH YEAR TO DETERMINE THE EXTENT AND LEVEL OF HEDGING IN THEIR RESPECTIVE RISK MANAGEMENT PROGRAMS?

A. The short answer is: there is no analysis or evaluation being done. Instead, at the highest levels, hedging programs are implemented to limit volatility without consideration of market changes and/or expectations.[17] For example, on the issue of considering some acceptable level of volatility, Gulf stated: "[n]o target measurement of past fuel price volatility has been established that would preclude the Company from financially hedging future natural gas prices."[18]

DEF addressed this same issue by stating:

> As the **Company cannot predict future prices or actual volatility levels**, **defining a level of volatility that is acceptable is not possible**. What is known is that **prices are constantly changing and thus by definition contain volatility**. **The purpose of DEF's hedging program is to reduce that volatility by locking in prices**. Additionally, given the continued growth in natural gas generation for the Company and the State of Florida, the current level of natural gas prices, and the significant portion that natural gas makes up of the Company's fuel cost, the Company believes that executing a hedging program over time is a prudent risk management activity to reduce price volatility and create greater fuel cost certainty for customers.[19] (emphasis added)

It is difficult to envision something being more automatic at the macro level than DEF's hedging program described above. Certainly, it is a fact that market prices for natural

[17] See generally TECO Response to OPC 3rd Set of Interrogatories, Interrogatory No. 41, DEF Response to OPC 3rd Set of Interrogatories, Interrogatory No. 41, FPL Response to OPC 10th Set of Interrogatories, Interrogatory No. 117, and Gulf Response to OPC 3rd Set of Interrogatories, Interrogatory No. 41.
[18] See Gulf Response to OPC 3rd Set of Interrogatories, Interrogatory No. 41.
[19] See DEF Response to OPC 3rd Set of Interrogatories, Interrogatory No. 41.

gas, **like all markets, are constantly changing** and, as such, subject to some level of volatility. Given that the stated goal of hedging appears to be to mitigate volatility, which by definition **always exists**, it appears the hedging programs continue no matter the effectiveness and no matter the cost to consumers. I have found no cost/benefit evaluations of the hedging programs in Florida. Instead, the sole stated goal is to mitigate price volatility.

Q. DO THE FLORIDA COMPANIES' HEDGING PROGRAMS ACCOMPLISH THE GOAL OF LIMITING NATURAL GAS PRICE VOLATILITY?

A. Yes, it is an automatic result. Just as daily price changes by definition create the certainty of daily price volatility, locking-in and fixing future prices, rather than relying on day-to-day market prices, automatically reduces volatility. However, the fact that the result is automatic does not necessarily mean it is wise to hedge, especially in light of the decreasing need to hedge and the increasing cost to consumers resulting from automatic hedging activities.

Q. DID DEF EVALUATE THE ECONOMIC IMPACT OF THE DEF's AUTOMOATIC HEDGING ACTIVITIES FOR THE 2010 THROUGH 2014 PERIOD?

A. DEF readily acknowledges the automatic results of hedging and states:

> The Company's hedging plan reduces the risk of future price movements for a percentage of its forecasted burns by executing fix[ed] prices over time. No formal evaluation is necessary to reach this conclusion because by definition fixed prices are no longer subject to future price movements and as a result volatility and fuel cost price risk

> have been mitigated. … DEF's hedging activities do not attempt to outguess the market and may or may not result in net fuel cost savings.[20]

DEF readily admits that the results of its hedging program are automatic, and no consideration of whether hedging is necessary, or cost effective for consumers, is ever undertaken.

Further, DEF addresses the fact that it ignores cost effectiveness considerations by stating:

> … the purpose of hedging is to reduce the variability or volatility of fuel costs paid by customers over time and hedging does not involve speculating or attempting to anticipate the most favorable point in time to place hedges. Moreover, it is recognized that hedging can result in significant lost opportunities for savings in fuel costs paid by customers, and to balance the goal of reducing customers' exposure to rising fuel prices against the goal of allowing customers to benefit from falling prices, the Commission has recognized that it is appropriate to hedge only a portion of the total expected volume of fuel purchases.[21]

Hedging has the singular purpose of limiting or reducing price volatility without regard as to whether volatility is high, low, increasing, or declining. For example, under the DEF approach, prices can be expected to decline substantially, yet according to DEF, for some reason volatility in the price decline must be addressed by hedging and locking in future prices, thus risking the declining fuel cost benefit to consumers.

Q. ARE THERE ANY LIMITATIONS ON HEDGING IN THE RISK MANAGEMENT PLANS YOU EVALUATED?

A. The only limitation on hedging is to hedge less than 100 percent; however, even the percentage to hedge does not appear to be supported by any market analysis. There is

[20] See DEF Response to OPC 3rd Set of Interrogatories, Interrogatory No. 47.
[21] *Id.*

no consideration of changes in the market or any evaluation of the cost of hedging on consumers. Instead, the goal is to mitigate volatility (whether volatility is a problem or not) and hedge less than 100 percent of fuel requirements to reduce the adverse impacts of lost fuel opportunity costs.

Q. DID TECO EVALUATE THE ECONOMIC IMPACT OF THE TECO HEDGING ACTIVITIES FOR THE 2010 THROUGH 2014 PERIOD?

A. Yes, but only in part. TECO provided the economic impact of its hedging by stating:

> For 2010 through 2014, financial hedging of natural gas prices has lowered the standard deviation from 19 percent for monthly NYMEX natural gas settlement prices to 18 percent for monthly-hedged natural gas prices.[22]

Absent from TECO's hedging evaluation of a one percent decline in volatility is the fact that TECO consumers lost about $150.9 million in lower fuel costs because of the hedges during the 2010 through 2014 period.[23] The effect of limiting volatility by one percent at a consumer cost of $150.9 million is never considered in deciding whether to hedge or even how much to hedge.

Q. HOW DOES FPL EVALUATE THE ECONOMIC IMPACT OF ITS HEDGING ACTIVITIES FOR THE 2010 THROUGH 2014 PERIOD?

A. In terms of natural gas price volatility reduction during the 2010-2014 period, FPL states:

> Through its hedging program, FPL locks in the price of a percentage of its projected natural gas requirements. Having done so, it is a mathematical certainty that the variability/volatility in fuel costs will be

[22] See TECO Response to OPC 3rd Set of Interrogatories, Interrogatory No. 47.
[23] See TECO Response to OPC's 1st Set of Interrogatories No. 2.

> reduced because the fixed price hedge replaces the floating market price for the volume that is hedged. Therefore, the price of the hedged volumes can no longer move with fluctuating market prices …[24]

However, FPL does not address that the consumer cost of the mathematical certainty of reducing volatility reduction in natural gas prices, i.e. higher fuel cost resulting from hedging, cost FPL consumers about $1.450 billion over the 2010 to 2014 period.[25] Based upon this substantial amount of higher fuel costs alone, it is difficult to discern a consumer benefit from hedging in the period since 2010.

Q. EARLIER YOU DISCUSSED HOW THE FLORIDA COMPANIES HEDGE LESS THAN 100 PERCENT OF THEIR FUEL REQUIREMENTS IN RECOGNITION OF POTENTIAL LOST FUEL COST BENEFITS WHEN MARKET PRICES ARE DECLINING. DOES THAT FACT MAKE A DIFFERENCE IN THE HEDGING EVALUATION?

A. No. First, there is a great deal of room between 1 percent and 100 percent hedging and, unfortunately, there is no analysis or basis that I have determined, in how the ultimate hedging percentage is established. For example, when gas markets have shown declining volatility and increased production and reserve levels with lower overall price levels (as the market exists today), one would expect to see less hedging. However, the Florida Companies are hedging more than ever without regard to market conditions or limited hedging needs. Further, there is no incentive to cease hedging because there

[24] See FPL Response to OPC 10th Set of Interrogatories, Interrogatory No. 123.
[25] The Hedging Opportunity Losses are taken from the Responses to OPC's First Set of Interrogatories To FPL No. 26.

is virtually no risk of fuel cost disallowance for any hedging decision so long as the Companies follow their approved hedging plans.

SECTION V: ANALYSIS OF HISTORICAL PRICE VOLATILITY

Q. WHAT ISSUES DO YOU ADDRESS IN THIS SECTION OF YOUR TESTIMONY?

A. The purpose of this part of my testimony is to review and summarize the historical volatility of the natural gas markets. The period covered by the Henry Hub database I employ is 1997 through July 2015. My general focus for this analysis is from January 2000 through July 2015. I address volatility and how it is measured along with the changes in volatility in the natural gas markets over time.

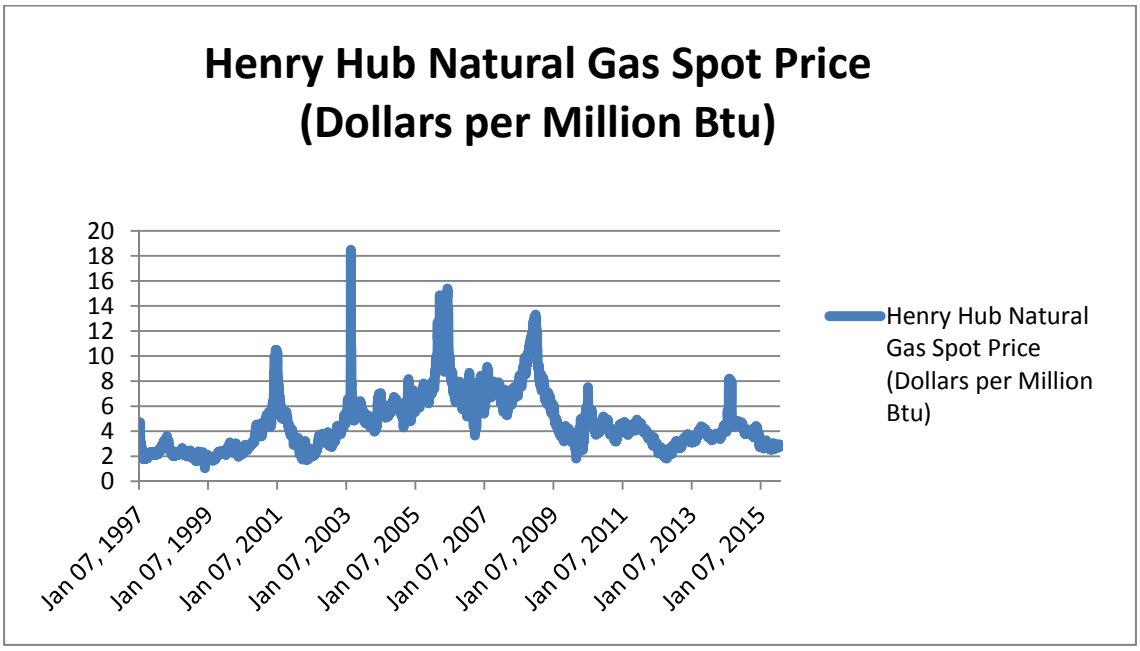
Q. PLEASE EXPLAIN HOW YOU MEASURE PRICE VOLATILITY FOR YOUR ANALYSIS.

A. My analysis of natural gas price volatility examined the changes in market prices for natural gas at the Henry Hub.[26] The data series of prices was extracted from the Energy Information Agency's ("EIA's") historical database and covered the period January 1, 1997 through July 31, 2015. The data examined over this time period consisted of daily, weekly, monthly, and annual natural gas price data. I have included in Table 2 below a graph of the Daily Henry Hub Spot Price for the period January 1997 through July 31, 2015.

[26] The Henry Hub pipeline is the pricing point for natural gas futures on the New York Mercantile Exchange (NYMEX). The settlement prices at the Henry Hub are used as benchmarks for the entire North American natural gas market.

The level of prices does not determine price volatility; rather, it is the degree of price variation one evaluates to determine price volatility. As shown in Table 2, from January 1, 1997 through July 31, 2015, the level of prices ranges from a high of over $18.00 to a low of under $2.00 per MMBtu, and the volatility changes substantially over time. Also, the trends in prices either increasing or decreasing do not necessarily indicate whether a market is volatile. Volatility is generally measured by the percent changes in day-to-day prices. A large price movement when prices are high may equate to the same volatility level as a smaller price movement when prices are at lower levels.

TABLE-2



Q. HAVE YOU REVIEWED ANY STUDIES THAT HAVE EVALUATED NATURAL GAS MARKET VOLATILITY?

A. Yes. One study that stands out is "*An Analysis of Price Volatility in Natural Gas Markets*" published by the EIA, Office of Oil and Gas in August 2007, which addresses gas market volatility in the January 1994 through December 2006 period. The purpose

of the EIA volatility study was to "… address whether [or not] natural gas prices have been more volatile in recent years …"[27] The EIA analysis found no increasing or decreasing trend in natural gas spot price volatility at the Henry Hub for the 1994 through 2006 period.[28]

For the analysis in this case, I utilize the same approaches for measuring volatility employed by EIA in their 1994 through 2006 volatility study. The goal of my review is to determine if there is a discernable trend in natural gas spot price volatility. If in fact a trend exists, that will be important information for the Commission to consider in terms of how fuel price hedging should be addressed in the future.

Q. HOW DID YOU MEASURE OR CALCULATE PRICE VOLATILITY FOR YOUR ANALYSIS?

A. To evaluate volatility trends, my analysis evaluated daily Henry Hub natural gas spot prices between January 1997 and July 31, 2015. The Henry Hub spot price data is available from the EIA at http://www.eia.gov/dnav/ng/hist/rngwhhdm.htm. The Henry Hub is a primary trading location and, in my opinion, is representative of gas market prices that Florida companies encounter in the market.

Historical price volatility is defined as the standard deviation of the relative change in natural gas prices times a measure of trading days within the time period measured.[29]

[27] "*An Analysis of Price Volatility in Natural Gas Markets*," Energy Information Administration, Office of Oil and Gas, (August 2007) at 2.
[28] *Id.*
[29] *Id.*at 3.

Viewed as a formula, natural gas price volatility is the standard deviation of price change, where price change is measured as the day-to-day price change (p_t / p_{t-1})[30] A natural log transformation of the day-to-day price change is where: $\Delta p_t = \ln(p_t / p_{t-1})$[31] This log normal volatility measurement is similar to the statistical measure employed by Morningstar in its historical measures of stock price volatility[32] To annualize the volatility result, the resulting standard deviation of the price change calculation was multiplied times the square root of the ratio of 252 trading days by the number of trading days for the period examined. For this analysis, annual and monthly periods were examined.[33] The number of trading days employed for these analyses is 252 days for the annual analysis.[34]

One could measure volatility in terms of measuring the standard deviation of daily percentage price changes ((p_t / p_{t-1})-1) or daily absolute price changes ($p_t - p_{t-1}$). The relative historical relationships will remain the same so long as the volatility metric employed is consistently applied.

Q. DOES THE COMMODITY PRICE LEVEL DETERMINE VOLATILITY?

A. No. Volatility is generally defined by the degree of price variation in the market. Neither the absolute level of price nor the trend or direction of price determines

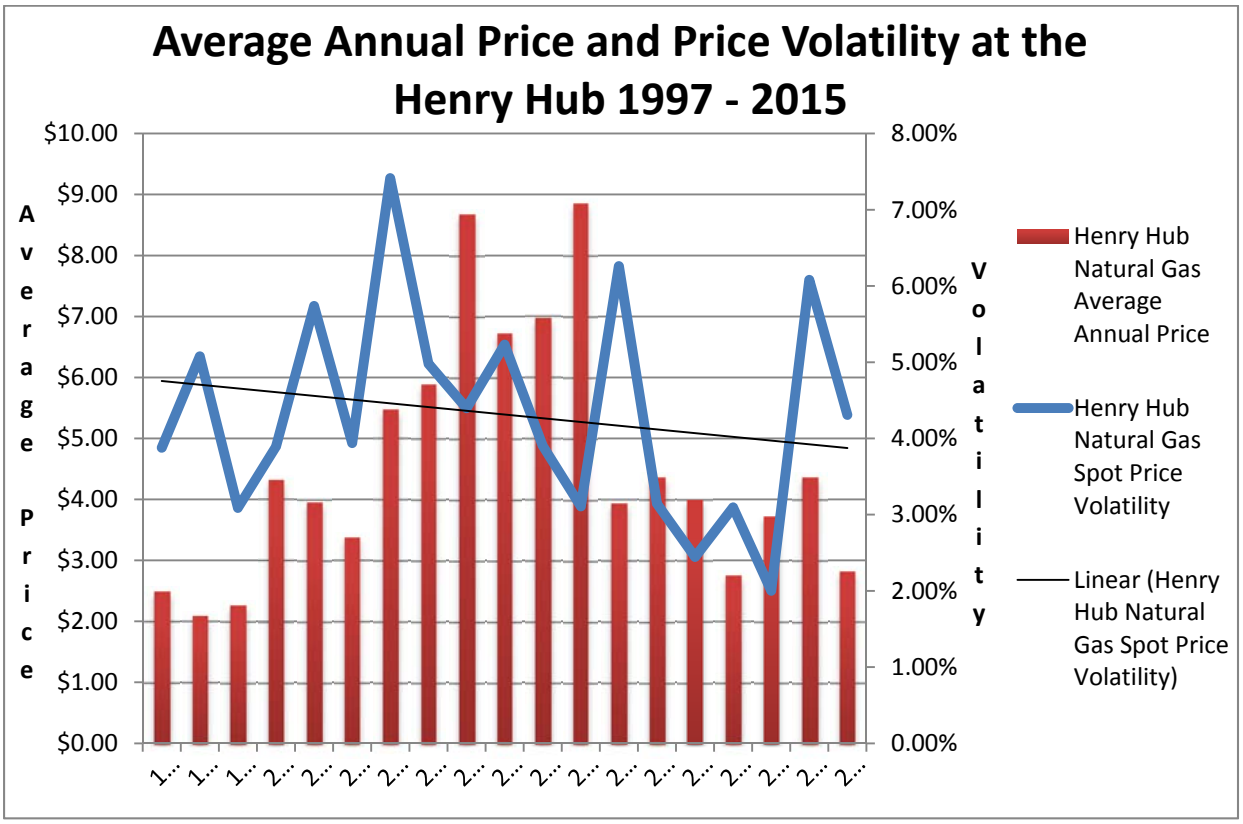
[30] Where p_t is today's price and p_{t-1} is the prior day price.
[31] "*An Analysis of Price Volatility in Natural Gas Markets,*" Energy Information Administration, Office of Oil and Gas, (August 2007) at 3-4.
[32] Morningstar Investment Glossary, Historical Volatility at http:/www.morningstar.com/InvGlossary/historical_volatility.aspx
[33] "*An Analysis of Price Volatility in Natural Gas Markets,*" Energy Information Administration, Office of Oil and Gas, (August 2007) at 3-4.
[34] *Id*. at 4.

volatility. Price volatility can be high or low when commodity prices are generally high, and price volatility can be equally high or low when commodity prices are low. Remember, volatility is a measure of change in the price of natural gas and not the actual price itself.

Q. PLEASE DESCRIBE YOUR ANNUAL PRICE VOLATILITY ANALYSIS AND THE RESULTS OF YOUR PRICE VOLATILITY CALCULATIONS ON THE NATURAL GAS MARKETS.

A. I have included in Schedule (DJL-2) the results of my annual volatility analysis of natural gas market price volatility for the period January 1997 through July 2015. The analysis demonstrates that volatility measure has declined by about 24 percent from the 2000 to 2010 period to the more recent 2011 to July 2015 period. The volatility trend is down, and average annual prices have declined 37.8 percent and are currently at some of the lowest levels in the 2000 to 2015 historical period. I have included in Table 3 a graphic depiction of average prices and price volatility measured on an annual basis over the 2000 to July 2015 time horizon. Schedule (DJL-2) also includes separate graphs of volatility and average price over the 2000 to 2015 period to capture the trends in each market variable.

TABLE-3



The declining trend in volatility and decreased levels of volatility are clearly discernable in the 2010 to 2015 time period. While 2014 is an outlier to this declining volatility trend; much of the 2014 price volatility is due to a few days in February and March 2014 reflecting extreme weather expectations (related to the polar vortex impacting much of the country). If the short-term, extreme weather event is removed, the 2014 price volatility would be consistent with the levels estimated for 2011, 2012, 2013, and 2015.

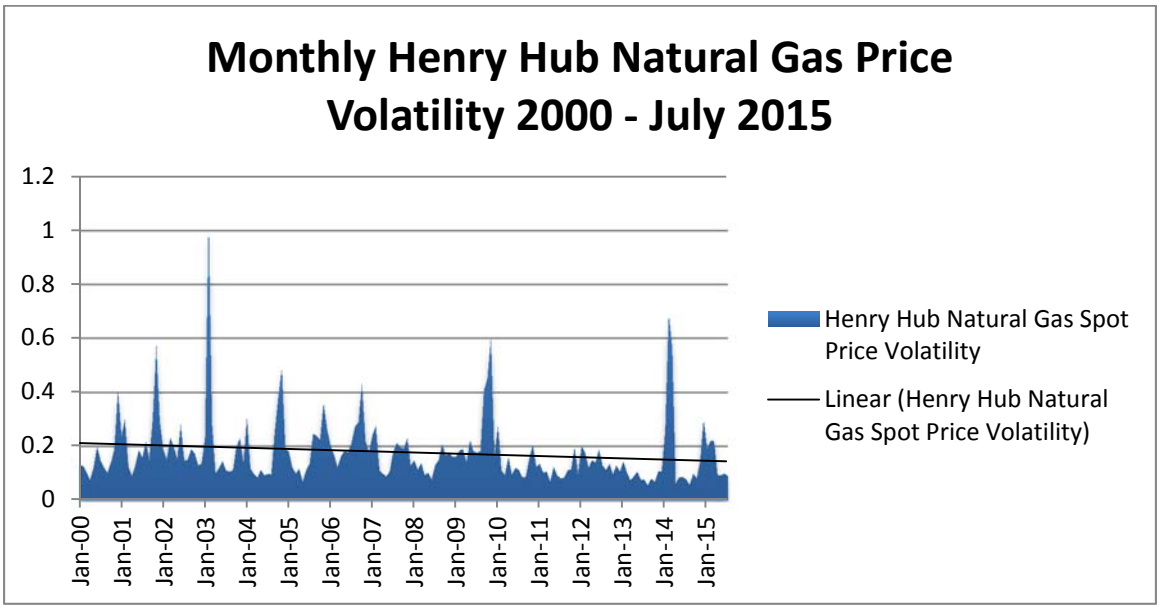
As discussed in the next Section of my testimony, the market changes from the supply side given expanded shale production and increased levels of reserves has led to decreased average annual prices and decreased levels of price volatility. Taking into

account the increases in supply and increases in natural gas storage, the potential for short-term supply disruptions is reduced, which results in lower prices and less price volatility. When I discuss the more recent EIA forecasts of the gas markets, I will address this natural gas supply side impact on price and volatility.

Q. PLEASE DESCRIBE YOUR MONTHLY PRICE VOLATILITY ANALYSIS AND THE RESULTS OF YOUR PRICE VOLATILITY CALCULATIONS ON THE NATURAL GAS MARKETS.

A. I have also included in Schedule (DJL-3) the results of the monthly volatility and average price analyses for the period January 2000 through July 2015. All the calculations employed the same data and formulas as the annual approach except that monthly volatility estimates were annualized. Volatility, on a monthly basis, has declined by over 28.0 percent from the 2000 – 2010 period to the more recent 2011 – July 2015 as shown in Schedule (DJL-3). The volatility trend is down and average monthly prices have declined 36.8 percent and are currently at some of the lowest levels in the 2000 – 2015 historical period. I have included in Table 4 below a graphic depiction of average prices and price volatility measured on a monthly basis over the 2000 to July 2015 time horizon.

TABLE-4



Similar to the results of the annual analysis, the monthly evaluation also shows price volatility is declining. For the period 2011 – 2015, the amount of price dispersion is much less than the earlier historical period. Again, the February 2014 period reflects an outlier event explained by a few days of abnormal weather events impacting much of the country simultaneously. Schedule (DJL-3) contains more detailed analyses of the historical data that also shows the declining volatility and natural gas price trend.

In my opinion, these trends related to declining volatility and price are the result of changes in the natural gas markets resulting from the increased gas supply, more stable/less volatile gas prices, and lower gas prices, all of which are less subject to intermittent supply disruptions.

Q. PLEASE DESCRIBE YOUR MONTHLY PRICE VOLATILITY ANALYSES CONTAINED IN SCHEDULES (DJL-4) THROUGH (DJL-8).

A. These analyses are similar to the monthly analysis of natural gas price volatility discussed in Schedule (DJL-3) above. The difference is that I broke down the 1997 to 2015 period into five periods to show added detail and changes over time in the markets. Schedule (DJL-4) covers the 1997 to 1999 historical period, which is generally a pre-hedging period. As demonstrated in Schedule (DJL-4), natural gas prices remained relatively low throughout the period. Also, price volatility was relatively low except for January 1997 and March through June of 1998.

Schedule (DJL-5) examines the period 2000 to 2002. This is the period where natural gas hedging was implemented in many jurisdictions around the country and in Florida. Price levels increased during 2000 with price spikes at the end of that year. Also, the general level of volatility increased at the end of 2000 continuing into 2001.

Schedule (DJL-6) addresses the monthly volatility and average price levels in the 2003 to 2006 period. Average monthly price levels are substantially higher than prior periods and trending up over the period. Natural gas price volatility levels and ranges have increased during this period as well.

Schedule (DJL-7) reflects the monthly volatility and average price levels in the 2007 to 2010 period. This period covers increased natural gas shale development and, while average price and volatility is generally the same as the 2003 to 2006 period shown in

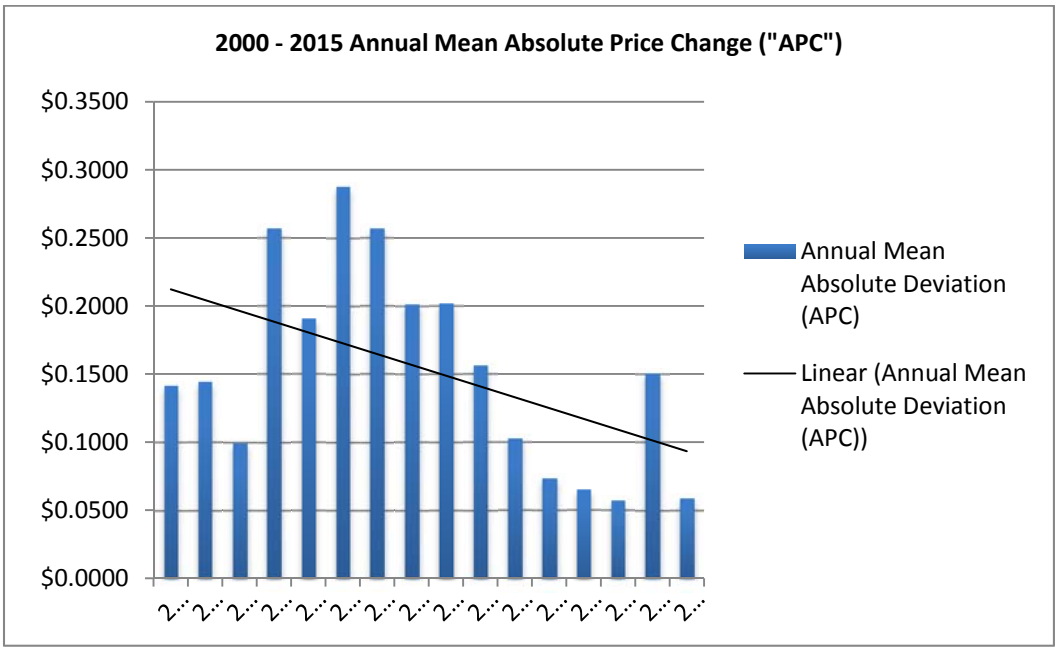
Schedule (DJL-6), the later months in Schedule (DJL-7) show lower price levels and a declining trend.

Schedule (DJL-8) covers the period 2011 through July 2015. In this period, average price levels are substantially below price levels since 2003. Further, the general level of volatility is well below all volatility levels experienced since 2000. The historical market data clearly demonstrates lower and declining average price levels and lower and declining price volatility levels.

Q. HAVE YOU PERFORMED ADDITIONAL ANALYSES OF GAS MARKET PRICES ADDRESSING VOLATILITY?

A. Yes. Below in Table 5 is an analysis of price variation considering the absolute value of the price changes. This analysis of absolute price change deviation differs from the previous analyses of percent changes in prices or volatility. The absolute price change ("APC") is determined by calculating the mean of the absolute day-to-day price movements at the Henry Hub. The APC was calculated for all days for the period 2000 – July 2015. Each year the annual average was calculated on the absolute value of price changes and the results are shown in Table 5 below:

TABLE-5



As shown in Table 5, the average absolute price change is less than 6 cents in 2013 and 2015, spiked in 2014 (due to extraordinary weather events), but overall shows a trend of a steady and steep decline from the early 2000's. I have included in Schedule (DJL-9) the underlying data and additional information related to the APC analysis. The bottom line is that the declining APC in market prices is consistent with the findings of a declining trend in gas price volatility discussed earlier.

Q. HAVE YOU REVIEWED ADDITIONAL EVIDENCE DEMONSTRATING DECLINING VOLATILITY OF GAS MARKET PRICES?

A. Yes. The findings of the declining average price deviation discussed above is reinforced by calculating the number of days in each calendar year that the absolute deviation in price from the previous day exceeds 25 cents, 50 cents, and $1 from 1997 through 2015.

Below in Table 6, I have included a tabulation of days where price deviations meet the criteria above for the period 2000 through July 2015:

Table-6

Number of Trading Days with Absolute Price Deviations Meeting the Following Criteria			
YEAR	≥ 25 cents	≥ 50 cents	≥ $1.00
2000	35	14	6
2001	47	17	1
2002	15	0	0
2003	51	19	6
2004	58	25	5
2005	90	40	13
2006	117	39	2
2007	69	15	1
2008	82	13	0
2009	46	9	1
2010	13	3	1
2011	2	0	0
2012	1	0	0
2013	1	0	0
2014	28	15	7
2015	4	0	0

As shown in Table 6, since 2010 there are very few daily price movements that exceed 25 cents on a given day. Since 2011, there are no price movements that exceed 50 cents or $1.00 (except for the unusual events in 2014 discussed earlier). Given that the purpose of hedging, in my opinion, is to avoid **extreme price changes and price volatility**, Table 6 demonstrates extreme price changes are nonexistent since 2011 (except for the extraordinary events of 2014).

The raw data in Table 6 is summarized graphically in Table 7:

Table 7

As can be seen in Table 7 above, data in the years 2011, 2012, 2013, and 2015 barely register above zero, indicative of a substantial decline in large price movements.

Q. PLEASE SUMMARIZE YOUR EVALUATION OF HISTORICAL NATURAL GAS MARKET PRICES AND PRICE VOLATILITY.

A. The historical data demonstrates that natural gas market prices have generally declined to lower levels since 2011. More importantly, the historical data demonstrates that ***price volatility*** has substantially declined since 2011. The historical data demonstrates that the absolute level of price change has declined to lower levels relative to historic experiences. The size and frequency of average daily price changes has diminished to much lower levels demonstrating that price volatility has substantially declined.

Q. DOES THE FACT THAT THE HISTORICAL AND CURRENT TRENDS IN NATURAL GAS PRICES AND PRICE VOLATILITY ARE DECLINING MEAN THAT FUTURE PRICES AND PRICE VOLATILITY WILL CONTINUE TO DECLINE AND/OR REMAIN AT LOW LEVELS?

A. No. The fact that price levels and price volatility have declined does not necessarily mean that future price and volatility levels will remain low and/or continue to decline. Given that gas price levels and price volatility are driven by the supply and demand interaction in the market place, a review of the market and market expectations is important to make an assessment of what the future holds. Historically, short-term natural gas price levels and resulting volatility have been sensitive to short-run supply and/or demand shifts and disruptions. Due to the natural gas consumers' inability to fuel shift in the short run, supply and demand imbalances due to unexpected extreme weather or other demand disruption, combined with limited ability to expand short-run supply, have made gas markets significantly vulnerable to commodity price volatility. I discuss in the next section how market changes have substantially expanded the supply and availability of natural gas, leading to generally lower prices and decreased levels of volatility relative to the past.

SECTION VI: <u>OVERVIEW OF CURRENT NATURAL GAS MARKETS</u>

Q. HAVE ESTIMATES OF PROVED GAS RESERVES IN THE UNITED STATES INCREASED?

A. Yes. Proved reserves represent gas quantities that analyses show to be economically recoverable. Proved reserves have increased every year since 1999[35] The total natural gas proved reserves "… set a record of 354 trillion cubic feet ("Tcf") in 2013."[36] EIA's analysis indicates that "[m]ajor advances in natural gas exploration and production technologies has resulted in increased U.S. natural gas proved reserves."[37]

In terms of reserves, there are additional large volumes of natural gas referred to as "*undiscovered technically recoverable resources*."[38] Such resources are expected to exist, as geological formations are favorable despite the uncertainty of the specific locations. The EIA estimated that as of January 2012 the U.S. "had 1,932 Tcf of undiscovered, technically recoverable resources of dry natural gas."[39] That is about 65 years' worth of gas, assuming a consumption level of 30 Tcf per year. Obviously, the actual number of years of gas supply will depend on annual gas consumption, gas imports and/or exports, and net additions to gas supply reserves each year.

[35] "Natural Gas Explained", U.S. Energy Information Administration (February 2, 2015) at 1. URL: www.eia.gov/Energyexplained/index.cfm?page=natural_gas_reserves
[36] *Id.*
[37] *Id.*
[38] *Id.*
[39] *Id.*

Q. HAVE YOU REVIEWED THE FORECAST OF FUTURE NATURAL GAS MARKET PRICES AND SUPPLIES?

A. Yes. My first review examined the EIA Annual Energy Outlook 2011. This was the most current long-term forecast available to this Commission when the October 2011 Workshop reviewed hedging for Florida utilities. The EIA Annual Energy Outlook 2011 forecast estimated long-term growth (through 2035) in prices of 4.1%, production growth of 0.9%, reserves of 314 Tcf, and consumption levels growing through 2035 at 0.6%.[40]

The 2011 EIA forecast states the following regarding natural gas prospects in general and shale gas specifically:

> Unlike crude oil prices, natural gas prices do not return to the higher levels recorded before the 2007-2009 recession. … The large difference between crude oil and natural gas prices results in a shift in drilling towards shale formations with high concentrations of liquids.
>
> **Shale gas continues to have enormous potential**….[41] (emphasis added)

Now, a short four years later, the 2015 EIA forecast estimates long-term natural gas growth in prices of 4.4% (through 2035), production growth of 1.5% (through 2035), consumption levels growing through 2035 at 0.4%[42] and gas reserve levels of 345 Tcf.[43] The following Table 8 summarizes the comparison of the 2011 and 2015 EIA forecasts

[40] Annual Energy Outlook 2011, Energy Information Administration Table A1 p.115 and Table A13 & A14 pp. 142-143.
[41] *Id.* at 78-79.
[42] Annual Energy Outlook 2015, Energy Information Administration, Appendix A, Table A-1, The compound annual growth rate (CAGR) in nominal price of 4.4%, production 1.5%, and consumption 0.4% calculated between 2013 and 2035 from Appendix A, Table A-1.
[43] Id. Appendix A, Table A-14.

of natural gas prices, production, and reserves through 2030.

Table 8[44]

COMPARISON OF 2011 TO 2015 EIA NATURAL GAS ESTIMATES

	2011 EIA Forecast	2011 EIA Forecast	2015 EIA Forecast	2015 EIA Forecast
YEAR	FORECAST PRICE	PRODUCTION (Tcf)	FORECAST PRICE	PRODUCTION (Tcf)
2015	$5.09	23.01	$2.80 current price	24.40
2020	$6.10	24.04	$5.54	28.82
2025	$7.90	24.60	$6.72	30.51
2030	$9.28	25.75	$7.63	33.01

As demonstrated in the above chart, the EIA's current 2015 natural gas forecast estimates show increased production and lower prices in every year when compared to the 2011 EIA estimates. Generally, the stability and strength in the natural gas markets continue with the dramatic increases in production at lower price levels. Further, the declining prices estimates for natural gas are consistent with the historical record, showing declining prices, as discussed in Section III above. The natural gas market strength and maturity are also demonstrated by the continued increases in production in light of lower price forecast estimates.

[44] Annual Energy Outlook 2011, Energy Information Administration Table A1 p. 115-116, Annual Energy Outlook 2015, Energy Information Administration Tables A-14 and Table B-1. Note: Price value of $6.72 interpolated from 2020 and 2030 estimates.

Q. DO CURRENT FORECASTS OF NATURAL GAS MARKET PRICE, SUPPLY LEVELS, AND RESERVES SUGGEST THAT CONTINUATION OF FINANCIAL HEDGING WILL CONTINUE TO BE COSTLY TO FLORIDA CONSUMERS RELATIVE TO ANY POTENTIAL BENEFITS OF PRICE VOLATILITY REDUCTIONS?

A. Yes. As discussed above, current forecasts of natural gas markets indicate low and stable prices in the near term. These same forecasts also show plentiful supply and availability of natural gas and stable economic conditions. These forecasts indicate substantial changes (e.g., increased shale development) in natural gas markets have taken place since 2008 and 2011. Moreover, these current natural gas market forecasts demonstrate that the prior justifications and reasons for past natural gas hedging efforts (e.g., price volatility mitigation, threats to market supply, other factors influencing demand) are no longer available as reasons supporting the need to continue natural gas financial hedging activities. Given these current factors, it is more important than ever to consider the enormous opportunity costs incurred by consumers resulting from locking in fuel costs through hedging plans.

Q. IS THERE ADDITIONAL EVIDENCE THAT THE MARKET CHANGES YOU DISCUSSED HAVE HAD AN IMPACT ON NATURAL GAS PRICE VOLATILITY AND PRICE LEVELS?

A. Yes. A June 2013 Wall Street Journal article and analysis "*Volatility Evaporates in Natural-Gas Market*" describes and analyzes how price volatility has collapsed in the natural gas market. The article and analysis conclude that, "[b]ooming U.S. gas

production has led to fewer supply disruptions, smoothing out the big ups and downs that once dominated the market for natural gas."[45] The Wall Street Journal analysis also noted that day-to-day price moves have declined each year since 2005.[46] As discussed earlier, the historical analyses demonstrate how the statistical metrics for natural gas price volatility is declining significantly each and every year. A review of the historical data discussed in Section III demonstrates this declining price variability to be a fact.

SECTION VII: REGULATORY REVIEW OF FINANCIAL HEDGING

Q. HAS THIS COMMISSION REVIEWED THE FLORIDA COMPANIES' HEDGING PROGRAMS?

A. Yes, this Commission reviews the Florida Companies' hedging proposals and Risk Management Plans each year in the fuel docket.

The Commission specifically reviewed the natural gas financial hedging issues in an October 2011 Workshop Session ("Workshop").[47] As I understand, the purpose of the Workshop was to:

> **…** look at … with the additional shale gas production … any other changes that are out there, do we need to relook at how we're doing or what we're doing at this point …[48]

[45] "Volatility Evaporates in Natural-Gas Market," http://blogs.wsj.com/moneybeat/2013/06/06/volatility-evaporates-in-natural-gas-market/
[46] *Id.*
[47] New Issues In Hedging, Florida Public Service Commission, Undocketed Workshop, (October 4, 2011)
[48] Id. at 5:13-17 quoting Commissioner Balbis.

The Commission Staff further summarized the purpose of the Workshop:

> … this workshop is to discuss new information that may affect the hedging activities by the investor-owned utility companies. Today's topic for discussion include issues that affect natural gas price hedging since the issuance of Commission Order PSC-08-0667-PAA-EI on October 8, 2008. These topics include but are not limited to areas such as development of shale gas, natural gas price volatility, current state of the economy …[49]

Based on a review of the Workshop transcript, Mr. McCallister of Progress Energy (N/K/A DEF) proceeded to provide a joint investor-owned utility ("IOU") presentation addressing the Workshop topics.[50] Mr. McCallister's IOU presentation basically concluded that: "… developments in the natural gas markets do not warrant changes to the Commission's hedging policies and procedures that were established in 2008."[51]

The Companies' joint presentation addressed and emphasized growth in shale gas production.[52] The joint presentations also emphasized while "…natural gas prices and volatility have declined, it is impossible to predict to what magnitude circumstances may change and an increase in price and volatility."[53] Presented as examples of factors that could impact natural gas market output, prices, and price volatility were "[i]ncreased regulation of shale gas production,"[54] and the potential of LNG exports pressuring gas prices upwards.[55]

[49] *Id.* at 6: 2-10 quoting Mr. Franklin Commission Staff.
[50] *Id*. at 6:10-12.
[51] *Id*. at 7:10-12.
[52] *Id*.
[53] *Id*. at 22: 14-17.
[54] *Id*. at 22: 17-18.
[55] *Id*. at 22: 19-21.

The IOU joint presentation basically concluded that:

> … developments in the natural gas market do not warrant changes to the Commission's hedging policies and procedures that were established in 2008. And as we stand today, the IOUs continue to implement their hedging programs consistent with those policies and procedures.[56]

Since the 2011 Commission Hedging Workshop, the IOU hedging programs were left intact, and were implemented by the IOUs, which brings us to the main issue in today's fuel docket proceeding – Is it in the consumers' best interest for the utilities to continue to financially hedge natural gas?

Q. HAVE THE FLORIDA IOUs INCURRED SUBSTANTIAL ADDITIONAL ABOVE MARKET NATURAL GAS COSTS SINCE THE OCTOBER 2011 WORKSHOP?

A. Yes. As shown in Section III above, since the October 2011 Workshop, the IOU's financial hedging efforts have collectively cost customers approximately $2.5 billion in increased gas fuel costs. Moreover, the historical facts demonstrate that natural gas price market volatility is declining from historical levels. Thus, since the October 2011 Commission Workshop, the cost/benefit evaluation of the natural gas financial hedging programs indicates a substantial cost to consumers with questionable benefits.

Q. HAVE OTHER REGULATORY COMMISSIONS ADDRESSED THE FINANCIAL HEDGING ISSUE?

A. Yes, the Kentucky and Nevada utility commissions have addressed hedging.

[56] *Id*. at 22:23 through 23:2.

Q. WOULD YOU DESCRIBE THE SITUATION IN KENTUCKY?

A. Yes. In recent gas cases in the state of Kentucky, the Kentucky Public Service Commission ordered that the then existing financial hedging programs should not be extended.[57] In the case of Columbia Gas of Kentucky, Inc., a gas utility proceeding, the Kentucky Commission concluded the following regarding financial hedging natural gas prices:

> … the Commission finds that Columbia's hedging program should not be extended. **The Commission finds that current conditions and the outlook for future natural gas supplies and price are sufficiently different in 2014 from what they were in 2001 to allay our concern regarding the potential adverse impact of price volatility and extreme winter spikes on customer bills. We therefore conclude that it is no longer reasonable to impose the cost attendant to hedging, to the extent there is net cost rather than net savings, to be passed along to Columbia's customers as part of their gas cost**….
>
> …
>
> While there is no guarantee that comparable [higher] prices and volatility will not recur, current projections from the United States Energy Information Administration's ("EIA") 2014 Annual Energy Outlook indicate prices not to exceed $8.00 per Mcf through 2040 using the reference case … More importantly with regard to volatility, the trend in price increases is projected to be gradual and steady in the long run.[58] (emphasis added)

The Kentucky Commission then issued an order that Columbia Gas "…cease hedging activities as of the date of this Order."[59]

[57] See for example *Application of Columbia Gas of Kentucky, Inc. to Extend its Gas Price Hedging Plan*, Case No. 2013-00354 Final Order at 4 (September 17, 2014), also see *Application of Atmos Energy Corporation For Continuation Of Its Hedging Program*, Case No. 2013-00421, Final Order at 4, (September 18, 2014), also see *Application Duke Energy Kentucky, Inc. To Implement A Hedging program to Mitigate Price Volatility In the Procurement Of Natural Gas*, Case No. 2015-00025, Final order at 4, (May 27, 2015).
[58] *Application of Columbia Gas of Kentucky, Inc. to Extend its Gas Price Hedging Plan*, Case No. 2013-00354 Final Order at 4 (September 17, 2014).
[59] *Id*. at 7.

Contemporaneous with the Columbia Gas hedging issues, the Kentucky Commission addressed the same issue involving another Kentucky gas utility, Atmos Energy Corporation ("Atmos").[60] In the Atmos case, the Kentucky Commission stated:

> Based on the evidence of record … the Commission finds that Atmos' hedging program should not be extended. … **The Commission finds that current conditions and the outlook for future natural gas supplies and prices are sufficiently different in 2014 from what they were in 2001 to allay our concern regarding the potential adverse impact of price volatility on customer bills. We therefore conclude that it is no longer reasonable to impose the cost attendant to hedging** ….[61] (emphasis added)

On or about March 27, 2015, the Kentucky Commission addressed the Duke Energy Kentucky, Inc.'s ("DEK's") January 28, 2015 request to continue its gas hedging program for its gas utility for an additional three years through March 2018.[62] DEK is a combined electric and gas utility. In that proceeding, the Kentucky Commission noted that DEK "… declared its willingness to discontinue seeking to extend its [hedging] program if the Commission did not want the program to be continued."[63] The Kentucky Commission went on to state:

> The Commission's concern with regard to the extension of gas cost hedging programs, ….**continued low and stable gas prices could obviate the need for hedging.** This was the conclusion we reached in those cases and is the conclusion we now reach in this case. …The **Commission finds that current conditions and the outlook for future natural gas supplies and prices are sufficiently different in 2015 from what they were in 2001 to allay our concern regarding the potential adverse impact of price volatility on customer bills.**[64] (emphasis added)

[60] *Application of Atmos Energy Corporation For Continuation Of Its Hedging Program*, Case No. 2013-00421, Final Order at 4, (September 18, 2014).
[61] *Id.* at 4-5.
[62] *Application Duke Energy Kentucky, Inc. To Implement A Hedging program to Mitigate Price Volatility In the Procurement Of Natural Gas*, Case No. 2015-00025, Final order at 1, (May 27, 2015).
[63] *Id*. at 3.
[64] *Id*. at 4.

The financial hedging programs for gas utility companies are no longer part of the fuel procurement process in Kentucky. Moreover, the current EIA forecasts demonstrate that gas market fuel supply is plentiful and gas price volatility is not the issue it once was.

Q. HAVE OTHER REGULATORY AUTHORITIES ENTERED RECENT ORDERS APPROVING THE CESSATION OF GAS HEDGING ACTIVITES?

A. Yes. On or about November 5, 2013, the Public Utilities Commission of Nevada ("Nevada Commission") approved a Stipulation of the parties that ceased the operation of the Southwest Gas hedging program.[65]

This approval of the Stipulation in the Southwest Gas case follows Nevada Commission Orders approving ending natural gas financial hedging for the two major electric utilities in Nevada.[66] There has been no financial gas hedging for these Nevada utility companies associated with natural gas procurement since the Nevada Commission issued the above referenced orders.

[65] Application of Southwest Gas Corporation to establish Base Tariff General rates, Unrecovered Gas Cost Expense rates, distribution shrinkage rates, commodity and reservation rates, and Renewable Energy Program rates, Before the Public Utilities Commission of Nevada, Docket No. 13-06006, Order approving Stipulation and Agreement at 3, 4, 13-14 (December 3, 2013).

[66] *See* Application of Sierra Pacific power Company d/b/a NV Energy for approval of its 2011-2013 Triennial Integrated Resource Plan, Docket No. 10-07003 (October 20, 2010), Compliance Order approving Amended and Re-stated Phase II (Energy Supply Plan) Stipulation at 4, 10-11, paragraph 10((a)-(g). *Also see* Application of Nevada Power Company d/b/a NV Energy for approval of its Energy Supply Plan Update for 2011-2012, Docket No. 10-09003, Order approving Stipulation at 2 (December 16, 2010); *See* Stipulation at 2-3, paragraph 1 (a)-(f).

Q. ARE YOU AWARE OF OTHER REGULATORY AUTHORITIES THAT DO NOT ALLOW FINANCIAL HEDGING IN THE NATURAL GAS PROCUREMENT PROCESS?

A. Yes. The Public Utility Commission of Texas historically has not authorized the regulated fully integrated electric utilities in areas outside of the Electric Reliability Council of Texas to employ financial hedging in the fuel procurement activities of the utility. The Railroad Commission of Texas, the regulatory authority charged with regulating gas utility companies in Texas has not pre-approved a gas utility company including expenses of financial hedges (including the increased expense of an out of money hedge) from gas or fuel adjustment clauses.[67] CenterPoint Energy Texas has elected to not employ financial hedging as a fuel procurement strategy.

It is true that most regulatory authorities authorize utility companies to employ some form of financial hedging in fuel procurement. However, those regulatory authorities which have recently taken up and ruled on this financial hedging question (like Kentucky and Nevada) have concluded that, given current gas market conditions and forecasts, there is no need for financial hedging in the gas procurement process.

Q. HAVE ADDITIONAL UTILITIES CONSIDERED THE NATURAL GAS MARKET CHANGES AND SUSPENDED HEDGING ACTIVITIES?

A. Yes. Colorado Springs Utilities is an example of a utility that in 2009 considered

[67] Statement of Intent of CenterPoint Energy Resources Corp. D/B/A CenterPoint Energy Entex and CenterPoint Energy Texas Gas To Increase rates On A Division-Wide Basis In The Houston Division, Railroad Commission of Texas, Gas Utilities docket No. 9902 (Consolidated), Final Order at 12, FoF 103, (February 23, 2010).

declining gas market costs and reviewed the merits of its hedging program, and in 2010 reduced the volumes and lengths of its hedges. Subsequently, after added market review and the recognition of gas market stability, Colorado Springs Utilities suspended all hedging in 2011, allowing its hedged supply contracts to expire in 2013.[68]

Q. IN YOUR OPINION, HAS THE NATURAL GAS MARKET SUBSTANTIALLY CHANGED SINCE THE FLORIDA COMMISSION'S 2011 FUEL HEDGING WORKSHOP?

A. Yes. As outlined in the Kentucky Commission Orders discussed earlier and shown in the analysis presented in my testimony, the natural gas markets have changed substantially over the past few years. The recent and current EIA forecasts show that natural gas production has substantially increased, probable and recoverable gas reserves for the future have increased substantially, forward estimates of natural gas prices have declined and become more stable, and price volatility has declined. Based on these factors, some regulatory authorities and utilities have concluded financial hedging is no longer necessary and moreover is no longer worth the risks or costs associated with financial hedging.

[68] Colorado Springs Utilities web page "Natural gas hedging program," www.csu.org/Pages/nghedging.aspx

SECTION VIII: AN ALTERNATIVE APPROACH TO PRICE VOLATILITY

Q. WHAT ISSUE(S) ARE YOU ADDRESSING IN THIS SECTION OF YOUR TESTIMONY?

A. The issues addressed in this Section of my testimony consider – in light of recent historical events in the natural gas markets with low natural gas price volatility, stable markets with limited disruptions, increased supply and growing natural gas reserves, and stable gas prices – what alternatives to financial gas hedging are available to address gas price volatility?

Q. HAVE ANY OF THE FLORIDA COMPANIES PREVIOUSLY PROPOSED ALTERNATIVES TO FINANCIAL HEDGING THAT WOULD ADDRESS FUEL PRICE VOLATILITY IMPACTS ON CONSUMERS?

A. Yes. In 2008, FPL proposed a volatility mitigation mechanism ("VMM") as an alternative to FPL's financial and physical fuel price hedging programs.[69] FPL later withdrew its request for a VMM and proposed hedging guidelines to govern the regulatory risk associated with its prior hedging program.[70] In its VMM proposal, FPL noted concerns related to asymmetric risks and rewards under FPL's hedging program.[71] FPL stated "… hedging the prices FPL pays for fuel, that is not necessarily the only or best approach."[72] FPL went on to state:

> FPL has concluded that the volatility in customer fuel charges can be mitigated almost as effectively as it has under FPL's current hedging

[69] Notice of Proposed Agency Action Order Clarifying Hedging Order And Providing Guidelines, Docket No. 080001-EI (October 2008) at 2.
[70] *Id*. at 3.
[71] Petition of Florida Power & Light for Approval of Improved Volatility Mitigation Mechanism, Docket No. 080001-EI (January 31, 2008) at 4.
[72] *Id*. at 7.

> program, by collecting under-recoveries of unhedged fuel costs over two years instead of one year … other aspects of the fuel clause would continue to work as they do currently.[73]

In terms of benefits of the VMM versus hedging, FPL noted the following: (i) FPL customers would avoid transaction costs associated with hedging, (ii) FPL customers would no longer pay risk premiums for fuel costs, (iii) deferred two-year fuel under-recoveries are financed at the low cost commercial paper interest rate; (iv) over-recoveries would flow back to FPL customers over one-year per the fuel rule; and (v) more opportunities for FPL customers to benefit promptly and completely from short-term price declines.[74]

Given the substantial changes in the natural gas markets regarding price, production, supply, and overall market stability, and given current forecasts of stable natural gas markets, and given the enormous customer higher-than-market fuel opportunity costs experienced since 2011, an alternative such as the FPL proposed VMM in 2008 is better than the *status quo* automatic hedging required by the Companies' Risk Management Plans.

Each year, the Commission reviews fuel costs and determines the appropriate amount of over/(under) fuel recovery. However, to the extent the Commission determines a large or material under-recovery of fuel costs has occurred, the Commission *in its regulatory discretion* can determine, without formally adopting FPL's 2008 VMM

[73] *Id.* at 7.
[74] *Id.* at 8-9.

proposal, whether a large under-recovery should be recovered over a one-year or longer period. Such an efficient, rational approach curbs the impact of price volatility on customers without the negative impacts of financial hedging.

Q. ARE YOU RECOMMENDING THAT THE COMMISSION ADOPT FPL'S 2008 VMM PROPOSAL OR A SIMILAR MECHANISIM?

A. No. I am recommending that the Commission deny approval of the Companies' 2016 Risk Management Plans, and order the Companies to discontinue financial hedging of natural gas.

SECTION IX: CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS REGARDING NATURAL GAS FINANCIAL HEDGING.

A. Since this Commission's first order on hedging in 2002, natural gas markets have changed substantially. Natural gas prices, production, and supply are not as volatile as was experienced in the early 2000 time frame. Current gas market forecasts do not estimate volatile markets, but instead predict increased production at lower prices than earlier forecasts. Historical evidence since 2000 shows volatility in the gas markets to be declining. The historical cost of hedging in terms of paying higher-than-market prices for fuel has been staggering to Florida consumers for the past 12 years. A fair balancing of the declining volatility and declining hedging benefits to consumers against the substantial costs of hedging suggest that the cost/benefit assessment does not support future hedging. For all of the above reasons, I recommend that the Companies' proposed financial hedging plans not be approved and that financial

hedging of natural gas should be discontinued on a going-forward basis. If circumstances change substantially, hedging can be visited again in the future.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

BY MR. SAYLER:

Q And did you prepare several exhibits for your testimony; is that correct, Mr. Lawton?

A I did.

Q And for the record, those exhibits are on the staff comprehensive exhibit list identified as Nos. 56 through 63?

A Yes.

Q Have you prepared a summary of your testimony for the Commission?

A I have.

Q Would you please summarize your testimony.

A Sure.

Thank you, Commissioners. I'm glad to be back in the Sunshine State, but I haven't seen the sun yet. Coming from Texas, it's been a while since I've seen the sun.

Good -- good afternoon. It is -- it is afternoon, I believe. And again, my name is Daniel Lawton. I'm here to talk a bit about my testimony with regard to hedging and the hedging activities in Florida and other parts -- parts of the country.

Now, my testimony addresses hedging in a number of ways. "A," I start off with when did hedging start in the 2000 time frame. And it started in Florida

for the same reason it started in many regulatory jurisdictions around the country. There were price spikes, supply disruptions. Many folks were concerned because they come -- they, being the utilities, were coming in asking for large increases in fuel balances and other costs. So, you -- regulatory authorities around the country and Florida started hedging programs.

I, then, looked at what is this hedging program produced in Florida; "A," it's -- it's stable prices, which are automatically stable any time you hedge because you fix the price, but also as the prior witness, Mr. Noriega, pointed out, there have been substantial costs for that stable price.

And as I look at the data from 2011 through 2015, that price has been, as I point out in my testimony, roughly two and a half billion. And the reason I start at 2011 is because this Commission held a workshop back in October 2011 evaluating hedging at that time. So, I wanted to take from that period forward to give you an assessment of what's been happening.

Now, the next thing I look at is natural gas markets today and forecasts for the future. Natural gas markets today -- you've heard a group of testimonies already. Natural gas prices are down. Volatility is down. Natural gas projections also project low and

stable gas prices.

So, if you were to stop hedging now, as I've suggested and recommended in my testimony, what we're looking at is lower forecast, lower prices. Can I guarantee it? No. Obviously, nobody can guarantee it.

But what are the options if anything should happen should you decide to stop hedging. You have a -- a formulary rate that you change every year. That's what the customer sees, that annual rate change.

And I pointed out that FPL, one of the utilities involved in this case, suggested that you not hedge anymore back in 2008 and proposed that you look at amortizing any large fuel changes over two years. So, there is a lot of discretion this Commission has to deal with any problems.

What will happen is, if you stop hedging, these price or opportunity costs that have been talked about a lot in this proceeding will end for customers. They will not see those.

And that concludes my summary. And I would be glad to answer any questions you may have. Thank you.

MR. SAYLER: Mr. Chairman, Office of Public Counsel would tender the witness for cross.

CHAIRMAN GRAHAM: Okay.

Florida Power & Light?

MR. BUTLER: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. BUTLER:

Q Good afternoon, Mr. Lawton.

A Good afternoon, Mr. Butler. Good to see you again.

Q Likewise. I reviewed your Exhibit DJL-1, which lists your prior rate case proceedings where you testified.

A Yes.

Q The last column of that exhibit states the topics of your prior testimonies; is that correct?

A I didn't hear the last part of your question. I'm sorry.

Q The last column on that exhibit states the topics of your prior testimonies; is that right?

A Yes. It's summarized as best I can. That's correct.

Q Would you agree that hedging isn't listed as a topic for any of those prior testimonies?

A I didn't go through to look at that, but I certainly can check that. So, I would accept that, subject to check. I mean, I don't list everything I -- I do in a -- in a proceeding.

Q Have you ever managed a utility fuel hedging

program?

A Have I managed a utility's hedging program? No. I don't work -- I don't get hired to manage utility hedging programs.

Q Have you ever had any responsibility for making decisions on whether to implement a utility fuel hedging program?

A Again, I -- I don't work for the utilities. I don't get hired by them, so no.

Q Okay. Have you ever had any experience generally in managing a fuel procurement program for any entity?

A No, but there have been entities in the past years where I've had -- I represent municipalities where I'm asked advice by the utility director, but -- but no, I haven't made the procurement decisions for them.

Q Okay. Let me ask you a few questions about your Exhibit DJL-2.

A Yes, sir.

Q Do you have that?

A Give me a moment.

Q Okay.

A I'm there.

Q Good. Now, this exhibit shows your calculation of the average annual price and price

volatility for natural gas from 1997 to 2015, correct?

A That's correct. Prices and volatility are on the left-hand side, and the graphic representation are on the right or in the middle.

Q Okay. I think you sort of answered my next question. But you show that -- the actual figures of how you calculated the price and volatility in a series of columns to the left on the graph; is that right?

A Yes.

Q And then in sort of the top half of this information, you also go on to calculate an average of both price and volatility for two periods, is that right; a 2000 to 2010 and, then separately, 2011 to 2015?

A I -- I'm not clear on your question because you asked me if I calculated an average. Yes, at the bottom. Yes.

Q Yes, that's what I'm asking.

A Yeah.

Q The figure -- for example, you show an average for 2011 to 2015 -- and by the way, next time for us old guys, could you make this type a little bigger? I think --

A I agree with you, sir, because I, too, am optically challenged.

(Laughter.)

Q But would you agree that if you stare at it closely that 3.59 percent is the average volatility over the 2011 to 2015 time frame?

A Two -- yeah. Yes, sir.

Q Okay.

A That's what the document says.

Q Okay. And then in 2002, which was the year when the Commission initially directed utilities in Florida to engage in hedging, would you agree that the volatility for that year, according to your calculation was, 3.94 percent?

A That is correct.

Q Now, would you look at 2010 -- I'm sorry -- 2008. Do you see that?

A The volatility or the average?

Q The vol- -- the volatility for 2008 -- what's the figure for that?

A I see that at 3.11 percent.

Q Okay. Would you agree that that figure is significantly below the average volatility for the period, 2011 to 2015?

A I didn't hear the full question. Is it significantly below what?

Q The average for 2011 through 2015.

A "Significant" is a relative term. I will agree that it's below.

Q It would be about .48 percent below?

A Yes.

Q And in 2011, this shows a volatility, by your calculation, of 2.45 percent, correct?

A Correct.

Q And would you agree, again, that that is below the average for the period of 2011 through 2015?

A I would.

Q Okay. In fact, just doing the math, you would agree that that's 1.14 percent below the average for the past five years?

A That's roughly it, yes.

Q Okay. You're aware that the Commission -- I think you mentioned in your summary, the Commission held a workshop on the merits of hedging in 2011; is that right?

A That's right. I believe the workshop was in October of 2011.

Q Okay. And that workshop didn't lead to any changes in the Commission's policy on hedging, did it?

A No. I believe the purpose of the workshop was to evaluate the impact of shale gas development on the markets and evaluate the hedging program relative to

those changes. And you're correct, sir, in your question; no changes were made to the hedging program at that time.

Q And if they had been concerned about the average volatility at that point declining, they would have seen it actually at a level considerably below what the average has been over the 2011 through 2015 period, correct?

A They would have seen a declining volatility level at that time, yes.

Q Okay.

A And I think that was agreed to or discussed, along with prices, during the workshop. It might be in the record now in that exhibit with Mr. McCallister.

Q Let me ask you a moment about the -- sort of how low -- I guess the easiest way to put it is: How low could you expect to see gas prices go.

Would you agree, as a general economic principle, that you would not expect gas -- I'm sorry -- that you would expect gas production to decline substantially if the price were to go below the variable cost of production?

A You would expect it to decline, but the gas industry, sir, is a little bit different because we are -- have a number of situations where gas production

is along -- coming along with other products; whether that be liquids from natural gas or oil as a byproduct. So, when you use the word "significant." The answer is not easy to come up with.

Q Would you agree that the price of oil is down substantially now as well?

A It is. But is it below variable cost? The answer is no for most producers.

Q And what do you base that statement on?

A They are still producing rapidly in the markets in the states, the markets have been driven down roughly to $45. And we still see many of the producers there. What you -- the difference we see is in the exploration and production and incurring those costs for new wells before the price comes up.

Q Okay. Do you know anything about what the rig count is of rigs involved in drilling operations now compared to, say, a year or two ago?

A Rig counts have been coming down, but there is -- that is a tricky number to look at. You cannot rely upon rig counts for production because many existing producers are employing more efficient methods to get more gas out of the ground.

It's a phrase called "super-fracking." It's a -- it's a -- some new approaches are being taken. And

your own witness, sir, Mr. Butler, pointed out how you're getting more gas out of the Woodford field.

Q So, do you know, sitting here today, whether the current gas prices are close to the variable cost of production for natural gas?

A It's going to depend upon the producer and their -- and their cost structure.

Q So, you don't know?

A I -- no, it depends. It's something I can't know unless I get all the producers together to give me their numbers.

Q Okay. Mr. Lawton, would you turn to Page 29 of your testimony.

A I will. Give me a moment, sir (examining document). I'm there.

Q Okay. You characterize here the volatility of gas prices in 2014 as an outlier because of extreme weather expectations. Do you -- do you see that testimony?

A Yes.

Q Do you agree that weather conditions can significantly affect gas prices?

A They -- they have historically affected gas prices. This event that I talked about was the polar vortex that we all remember from 2014, especially if you

were up north. And it was represented approximately 14 days of gas prices and volatility, both up and down.

Q But the -- that weather condition and others, you would agree, significantly affects gas prices?

A It did in that instance, but what we're seeing in New York and New England and some northern states -- the pipelines being completed from the Marcellus Shale so that gas -- more gas can flow up to New York in those areas where -- hopefully to alleviate that problem.

Q Do you believe that future weather conditions can be predicted with a high degree of accuracy a year or more into the future?

A No. I -- my weatherman in Austin gets it wrong all the time. So, I -- I doubt it.

Q Okay. I would also like to ask you on Table -- or on Page 29 about your Table 3.

A Yes, sir.

Q Now, this table shows what you've characterized as a decline in price volatility over the 1997 to 2015 period; is that right?

A That is correct.

Q Okay. And would you agree that the decline is from a level of about 5 percent down to a level just slightly below 4 percent?

A I believe that's what we talked about at the

start of this examination.

Q Okay. So, over this 19-year period, there has been a 1-percent decline in the volatility; is that right?

A That's correct, using the metrics I have employed to measure volatility in this calculation.

Q Would you agree that this trend line masks some much more substantial changes up and down in volatility from year to year?

A That this trend, what? Masks?

Q Masks some much more substantial changes up and down in volatility from year to year.

A Yeah, there are changes in volatility year to year, but you're trying to factor in a trend. That's what -- the purpose of this graph.

Q Those trends -- I mean, I'm sorry -- those year-to-year swings are, in many instances, on the order of several -- several percent; is that right?

A Yes. They are what they are.

Q Versus a decline of 1 percent over a 19-year period, correct?

A Correct.

Q Are you able to predict what next year's volatility will be based on the data that you show here for the past years?

A No, and I -- and I don't predict the volatility. What I did do is discussed, in my opening, is I looked at gas market forecasts for the future. That is indicia and evidence of what's going to happen in the gas markets, what's expected. And when you see the declines, you would expect lower volatility.

MR. BUTLER: Mr. Chairman, I would like to hand out an exhibit --

CHAIRMAN GRAHAM: Sure.

MR. BUTLER: -- that I would use for cross examination of Mr. Lawton.

CHAIRMAN GRAHAM: Sure.

MR. BUTLER: Give it a title, EIA short-term energy and winter fuels outlook.

THE WITNESS: Wait a minute. Oh, I'm --

MR. BUTLER: Okay.

CHAIRMAN GRAHAM: We'll give it Exhibit No. 126.

And what was your short title?

MR. BUTLER: EIA short-term, energy, and winter fuels outlook.

CHAIRMAN GRAHAM: Okay.

(Exhibit No. 126 marked for identification.)

THE WITNESS: I have it, sir.

BY MR. BUTLER:

Q Very good. Do you recognize the EIA as an important source of data on fuel price projections?

A I -- I do. I've used it throughout my testimony. I know FPL relies upon it, as do many utilities.

Q If you turn to the second page in the excerpt on the graph that has a header, EIA forecasts henry Hub spot prices to average $2.92 per million BTU this winter, but significant uncertainty exists as always -- do you see that?

A Yes.

Q I'll just ask you about this graph that is shown here. Would you agree that the graph shows Henry Hub spot prices in black up through -- the actual data up through the time of the -- this forecast, which is October of 2015.

A Well, it -- it -- it graphically represents the spot prices.

Q Yeah.

A It doesn't state them.

Q State them. Okay. Fair enough.

But it's -- it graphically represents the trend --

A Correct.

Q -- in the spot prices.

And then it shows for projections two different projections; one, the STEO price forecast.

A Yes.

Q Do you see that?

A Yeah, the short-term forecast.

Q Yes. That's EIA's forecast; is that right?

A Yes.

Q Okay. And then the blue line, NYMEX, Henry Hub futures price?

A Yes.

Q And they are fairly close together. Would you agree?

A Yes.

Q Have you --

A The --

Q So, did -- I'm sorry?

A Just that the Henry Hub future price is graphically representing lower prices.

Q Right. But not a lot lower. I mean, it's tracking fairly close to the STEO price forecast. Would you agree?

A I would agree that the short-term forecast, for example, in 2016 is roughly $3, and Henry Hub is under that -- I mean, the NYMEX, Henry Hub is under

that.

Q Okay. Now, do you see the green dash lines on the chart?

A I do.

Q Okay. Would you agree that these represent the NYMEX 95-percent confidence intervals?

A Yes. As calculated, the EIA has been putting out these confidence intervals in their forecast for -- oh, heavens -- a number of years. I -- I don't want to state the number. I forget the number of years, but I -- I am familiar with it.

Q Would you agree at the sort of right-hand end of this graph, that there is nearly a $4 per MMBTU difference or spread between the upper and lower confidence intervals shown here?

A I would say it would be closer to three.

Q A little under two is the lower interval, and the upper interval looks like it's somewhere around 5.50. Would you agree?

A I think you're generous at 5.50. And it's -- yes, it's a tad below two. So, I would say closer to three.

Q Okay.

A It could be my eyes again.

Q Okay. Would it be fair to characterize this

spread as representing the reasonable range of potential volatility in 2006 gas prices -- or 2016 gas prices that EIA projects?

A I would drop the adjective "reasonable." It's showing a range within a 95-percent confidence interval. And depending upon the calculations, it may be reasonable.

Q Okay. Would you agree that the upper confidence interval is farther above the 2016 forecasted prices than the lower confidence interval is below those 2016 forecast prices?

A I would agree that the -- the green line on the top is farther above the forecasted estimate. And the green line on the bottom is probably closer to the forecasted estimate, if that's what you're asking.

Q It is. Thank you.

A Okay.

Q All right. Let me ask you to turn to Pages 52 to 53 of your testimony.

A 52. I'm there, sir.

Q Okay. And your -- your recommendation, as I understand it, is that the Commission discontinue hedging, but you hold open the possibility that they could revisit hedging in the future if circumstances change substantially; is that right?

A That's what I said, yes.

Q Okay. And that is your position?

A That is correct. I wouldn't have said it.

Q Just wanted to be sure.

Would you agree that, if FPL stops hedging now, FPL would not be able to use hedging to mitigate the impact of any price increases that occurred prior to restarting hedging?

A That would be correct, but if they stopped hedging now, I would expect that all hedges that are in place be left in place until they expire in the future when the hedge contract requires.

Q But if we ended up in a situation where we're no longer participating in hedging, prices spiked up and there was a decision to start again, whatever those price increases had been that occurred leading to the decision to restart hedging, you would agree that FPL and no other utility would be in a position to hedging against those increases that had already occurred.

A That is correct. You would hedge from the future from that point forward. But again, it makes clear that if circumstances change -- and it doesn't look like they are -- this Commission always has the authority to revisit any of these mechanisms.

Q But with the lost opportunity to hedge against

at least that first price spike, correct?

A Yeah, but look at all the opportunities you're going to save in between given the 5 billion that's been lost.

MR. BUTLER: Thank you. I have no further questions.

THE WITNESS: Thank you, Mr. Butler. It was good seeing you.

MR. BERNIER: I have no questions, Mr. Chair.

MR. BEASLEY: No questions, sir.

MR. BADDERS: No questions.

CHAIRMAN GRAHAM: Staff.

CROSS EXAMINATION

BY MS. BROWNLESS:

Q Hey, Mr. Lawton. How are you?

A I'm great. How are you?

Q Fine, thanks. Can you look at Page 7 of your testimony, please.

A What page?

Q Seven.

A I'm there.

Q Okay. There is -- let's see. Where am I here. The sentence on Line 21, which starts with, "However," okay -- which says, "However, when the sole purpose is to mitigate price volatility, then, there is

no built-in ability to capture any of the benefits associated with declining fuel prices on the hedge portion of natural gas." That's the line I'm looking at, Line 21.

A That's correct. And you read it correctly.

Q Okay. Would you agree that your testimony here seems to emphasize benefits associated with the declining fuel prices? Benefits to customers associated with the declining fuel prices.

A Could you repeat your question? I'm...

Q Would you agree that your testimony, taken as a whole, seems to emphasize that there are benefits associated with declining fuel prices?

A Yes.

Q And I think you would agree, would you not, that fuel prices both rise and fall?

A Correct.

Q Can you explain how hedging programs would be beneficial to customers to mitigate price volatility if gas prices rise?

A If gas prices rise, customers are going to benefit because you would lock in the price in advance. So, if we could lock in the price today at -- and the prices -- you know, we heard testimony, yesterday -- are running $2 in MCF for gas.

If you could lock that in today and prices rise next year to $6, then customers will get the benefit of the $2 and not have to pay the six. So, they would have -- the benefit would be $4.

Q Thank you.

Can you look at Line 7 on Page 11, please.

A Yes.

Q Okay. If the Commission voted to eliminate hedging programs, prospectively, would that vote effectively signal that price stability for consumers is not necessary?

A No, because what the Commission could do is end the hedging program. And it's not saying price stability is not necessary. What the Commission would be doing is looking at recent gas markets and projections of future gas markets and say that the gas markets are very different than when we started hedging. They are stable. They are low-priced. And taking all that into consideration, consumers can feel more secure today than they could in 1999 and 2000 without hedging.

Q Is it fair for me to say that your opinion is that fuel-price volatility is relatively small at this time and that you expect it will continue to be relatively small in the near future?

A Yes. And if you could -- if I could show you

an example -- if you would, turn to Page 22 of my testimony, and I'm looking at Lines 9 through 12. And I asked the utilities in this case, try to get a handle on a cost-benefit evaluation.

And in 2010 to 2014, TECO -- I believe the witness was just before me a little while ago -- was able to say they have reduced volatility from 19 percent, which it would have been unhedged, to 18 percent.

So, the entire hedging program reduced TECO's volatility from 19 percent to 18 percent. But what they didn't say is they lost or the customers lost -- I believe it was 150.9 million, which I point out on Line 15.

So, the little change in volatility that we're getting out of these hedging programs is costing an enormous fortune to customers. That is the problem.

Q And is your testimony today that you were able to predict with certainty that there will not be significant increases in fuel-price volatility in 2016 or 2017?

A It's absolutely not my testimony that I can predict that won't happen. What I can say -- and that's what I try to do in my testimony is to marshal the evidence, what are the markets then -- and I looked at

2010 to '15 -- what are the markets today, and what are the projections.

Every utility witness that's gotten on this witness stand so far has said utility -- volatility is declining, save one, Mr. Yupp from FPL. Every utility witness has gotten on this stand so far has said prices are declining and are expected to stay low. And we see the forecast. They are all relying upon them. And I'm just pointing it out.

But I can't project it, no. I can't guarantee it.

Q Okay. Thank you.

Can you turn to Page 23 of your testimony, please, and look at Lines 18 through 20.

A Yes, I've read it.

Q Okay. You note that one would expect to see less hedging with increased production of natural gas and lower prices; is that correct?

A One would expect to see less hedging --

Q Yes.

A -- with increased production?

Q Right, and lower -- because increased production produces lower natural gas prices.

A Yes, it does.

Q Okay. Wouldn't less hedging in this case

carry the risk that the increased-production trend and the lower-price trend would not continue into the future?

A No, I don't think so. If -- if -- if this Commission indicates through an order or states in an order that hedging should cease and let these existing hedges unwind, current forecasts put out by EIA and its -- there is a table in my testimony -- show that production is increasing between 2016 and 2035 at a faster rate than consumption.

A couple of things you've got to look at. The economy in the United States has not been as robust as many have projected. Therefore, the demand -- consumer demands are down and have been down and are projected not to grow at very fast rates, if we look at gross domestic product growth.

Second, production has and continues to expand, despite declining rig counts because of increased efficiencies in the fields. So, all the forecasts and market evidence indicates that's not correct, ma'am.

Q So, the bottom line for you is that you believe fuel-price volatility will continue to either remain stable or decrease because you believe that production will remain high and there will be sufficient

supply.

A Yes. There is a supply-and-demand issue that disrupts prices and causes enormous volatility. Any time the supply and demand gets out of equilibrium, we have -- the result is a price change. Supplies are out there and they are plentiful. Gas is plentiful. And demand is not growing as fast as the supply.

Moreover, if you look at the low prices, even if volatility were to increase at low-level prices, the impact on consumers is de minimus.

Q And the impact on consumers is de minimus because, if the price is low enough, from their standpoint as a -- let's say a residential customer -- they wouldn't see a significant increase in their bill?

A Sure, because if you look at prices running at $2, if they become more volatile, and say the volatility is 10 percent, 10 percent of $2 is a two-cent movement in the gas prices, but in -- back earlier in the -- when hedging started and gas prices were running five, eight, you know, $9 and even higher, volatility in those ranges were -- really makes a difference.

Q Thank you.

Mr. Butler asked you about extreme weather events.

A Yes.

Q Would you agree with me that the hedging programs that were in place in 2014 effectively mitigated the volatility of the extreme weather events that occurred in 2014?

A It -- it -- it mitigated it for the seven to 14 days that it occurred. Yes, how much gas was purchased during those seven -- it's -- it's actually -- the percent of gas would be -- give me a moment, 14 -- about 3 percent of the 3.8 percent of the gas purchased by the utility company for that year was mitigated during that event, but it was at a cost.

Q But then, of course, you, as you've indicated to Mr. Butler, have no way of predicting extreme weather events, neither of the Austin weathermen nor you.

A No. No. And moreover, if we look back at why we have hedging today, back in 2000, it wasn't because of extreme weather. We've always had that on the planet. I mean, weather is never predictable and always runs into extremes. Weather wasn't the reason.

It was typically supply disruptions and demand disruptions and the supply of gas was not as robust as we see today.

Q Can you turn to Page 45 and 46 of your testimony, please.

A I'm there, ma'am.

Q And you've talked about what the Kentucky Commission has done in your testimony; is that correct?

A Yes.

Q Okay. How alike are the states of Kentucky and Florida in this sense with regard to how their fuel adjustment clauses actually work, the mechanics of the fuel adjustment clauses in both states?

A I haven't looked at the differences in the Fuel Clause. What I looked at is these Kentucky orders are -- for gas utilities were a hundred percent of the gas -- not 50 percent, not 60 percent, a hundred percent of the gas was for consumption. That's the commodity they sell. That's what the consumer faces.

So, it's even more important, if hedging is required, to have it in Kentucky than it is in Florida if you're a gas customer.

Q If you're an electric utility customer in Kentucky, how much of the generation mix is fired by coal versus natural gas?

A This isn't an electric utility that I'm talking about here, but if you are -- in answer to your question, most of your generation mix in Kentucky would be from coal.

Q Right. And is that true for the state of Florida?

A No. It -- it depends on the utility. Duke and FPL are probably 72 to 73 percent gas generation.

Q Right.

A In TECO's case, I believe the last witness did point out, if my recollection is right, it runs 50/50. And I forget the Gulf witness's statement.

Q So, if you were a Kentucky electric utility and the majority of your power was being generated by coal, whether or not you hedged a small percentage of natural gas necessary to provide your generation mix would not have as significant an impact, if you guessed wrong, than if you are FP&L, for example.

A That -- that -- that is true, but the premise of your question assumes my testimony talks about electric utilities. And as, of course, you can see, these are gas utilities where 100 percent of the commodity is gas. And it's much more important to them than it is to FPL in Florida.

Q Okay. In the state of Kentucky, do you believe that the administrative procedures instituted by Kentucky with regard to electric utilities has true-up mechanisms that are equivalent to that of Florida?

A I -- I didn't look at the administrative procedures for the electric utility. I was looking at -- and I quoted the stuff on the gas utilities, which

I think is even more significant.

Q But you didn't look at any of the mechanisms for regulating fuel factors for electric utilities in Kentucky?

A No, I didn't look at them in Kentucky or Rhode Island.

Q Or Nevada?

A Or -- well, Nevada, I'm familiar with them because my client in the state of Nevada is the OPC out there. And so, I do work with the Nevada group on --

Q And for Nevada, is the generation mix out there similar to what it is in Florida, heavily dependent upon natural gas?

A It is. They are now -- they passed a state law up there where the coal plants are being demolished early, converting to more and more gas. There is one major power company that owns both utilities and -- it's owned by Warren Buffet's group. They are, now, petitioning to put another very large gas generator in. And they have moved primarily from purchased power to gas generation.

Q Do you know what the percentages are?

A The exact percentage -- well, if you add in purchased power, it's -- it's very, very high percentage and -- and will be climbing. And the percentage doesn't

come to mind.

Q Okay. What about in Texas? Do you know what the percentage of as a state, what the percentage of natural gas generation is?

A In Texas?

Q Yes, sir.

A My clients are served by Entergy Corp. And Entergy Corp's gas generation is well over 50 percent.

Q Okay.

A And they do not hedge. They are not allowed to hedge. They buy gas at the market. And their fuel factor in price is stable and have had no problems.

Q Okay. And Colorado Springs -- do you know what that is as well?

A No, I don't.

Q With regard to Nevada and Texas, do you know how the mechanics of the fuel adjustment clauses work there for the PUCs?

A Yes. The fuel adjustment clause in Texas -- what we do, for example, where my clients in the Entergy service area is we change the fuel factor twice a year. Gas and -- and -- I mean, coal and nuclear costs are -- are added -- are stated as their actual costs. And gas cost is added to that, but it's based on the NYMEX futures market, based on the first two weeks of February

and the first two weeks of August.

We take a one-year strip and the first ten business days. We take the ratio of the average price of those strips relative to the prior year. And that percent change is applied to gas. We do that twice a year. And that's how the fuel factor is set.

If we have a materiality problem which exceeds roughly 4 percent of base-rate revenues, then the company is required to come in, like your 10-percent rule in Florida, and make a proposed adjustment, either give money back or seek a surcharge.

Q In --

A In Nevada, they do an annual revenue adjustment and -- not too dissimilar from what I just described.

Q So, in Texas, you're actually having your Commission review this every six months, correct?

A Yes.

Q And make fuel factor adjustments every six months?

A Every six months, the fuel factor is changed for the next six months. And the logic behind it is because of the seasonality differences between the summer loads and winter loads. And by adjusting -- adjusting for the seasonality, because you're going to

be buying different amounts of fuel, you adjust the fuel factor.

That way, you don't have very large over- and under-recoveries if the fuel factor gets out of balance.

Q And you're aware that our Commission looks at these fuel factors only once a year.

A Yes, I talked about that in my testimony. Absent a 10-percent materiality change where the utility -- I'm trying to recall if it's required to notify the Commission that there is a 10-percent over- or under-recovery.

Q Do you think that the fact that our Commission only adjusts factors once a year, if hedging were eliminated, would have a material effect such that it might be different than what has happened in Texas?

A No, I -- I think because you only change it once a year, if -- there was a chart up here yesterday. But you can imagine, prices change everyday. Those price changes in the marketplace do not affect your fuel factor here. It's the cumulative total of the price changes throughout the year that affects your fuel factor but once a year, absent a materiality change. So, not changing it twice a year makes it even less volatile for customers.

Q However, if you're only looking at it once a

year, isn't there the potential for there to be a much larger under-recovery and then -- and therefore, a much more severe impact on customers when it's trued up the next year?

A That's not correct because the potential for a large under-recovery is based -- would be triggered by that 10-percent rule, which would require the company to come in and report it. So, if -- you don't have to wait until the end of the year.

Q But anything under 10 percent might have a substantial impact on ratepayers.

A It may or may not. I mean, if we look at the history of over- or under-recoveries that would have occurred hedged or unhedged, there is a document in the record, I believe, that -- that shows that for FPL. And throughout the years of this hedging program, customers would have gotten more money refunded than charged and they wouldn't have incurred $5 billion of hedging costs. That shows the benefits to customers.

Q Can you please turn to Page 29 of your testimony.

A I'm sorry, ma'am. I didn't hear the page.

Q Page 29, please.

A I'm there.

Q Okay. And Lines 1 through 9 -- and I think

Mr. Butler has asked you some questions about this.

A He did.

Q Do you believe that one should conclude from your graph that price volatility will continue to trend lower for the future, for example, in the next five years?

A You've asked me that question, I think, four times now. I told you, I don't -- I can't tell you what the volatility is going to be out into the future. I haven't predicted it here. But what I did do is look at the EIA markets. And those markets in the future are forecasted to be like they've been recently. Therefore, you can presume that volatility would be in the range it will -- it has been.

So, when you ask me to predict that it's going to be lower for the next five years, I haven't predicted that. What I've given you is evidence of what the markets are like on a projected basis and what the markets are like now. And you can see they are similar and volatility should be low and there is no need to hedge.

Q Thank you.

On Page 39 of your testimony, Lines 11 through 16 -- you want to take a minute to look at that?

A I'm there.

Q You quote an EIA forecast that notes shale gas has tremendous potential; is that correct?

A Yes. And that was -- the reason for that quote -- that was around the time of the October 2011 workshop that the Commission had on hedging. And that's what EIA was saying at that time.

Q Okay. And on the bottom of Page 41 of your testimony, continuing on Page 42 -- and I'll give you a chance to get there.

A I'm there.

Q You quote a Wall Street Journal article that notes booming gas production, right?

A Yes.

Q Do you agree that the increase in natural gas production that you have cited is coming primarily from increased shale gas production?

A Shale gas production is certainly a major part of it.

Q In preparing your testimony, did you analyze any risks that are associated with shale gas production, such as environmental concerns, water-use concerns, wastewater-disposal issues, or seismic activity?

A Yeah -- well, I have over the years that I've been involved in -- in gas markets. And environmental concerns and -- and issues in a number of states that

have been raised have been pretty much put to rest by various recent government studies.

And in terms of the earthquake issue, that has mostly to do with the reinjection of wastewater into -- back into the -- into the ground. And some states are dealing with that in different ways, whether they are going to truck it out, whether they are going to allow them to reinject it differently, and -- or they have pools rather than reinjection. Those issues are being addressed. They are not as major as they once were.

There still is a state, the state of New York, that does not allow fracking. Whether that will change over time, I don't know.

Q But do you have any way to know today whether there might be, or not, serious regulatory impediments that would impact shale gas production?

A I -- I have the latest Federal studies that looked at it and, I think, put those issues to rest. Is it possible? Anything is possible. Is it probable? No.

Q Nationwide, is natural gas in- -- the use of natural gas is increasing --

A Is use --

Q -- for the production of the electricity?

A Well, nationwide, what is happening in terms

of gas consumption is use per customer is decreasing for gas distribution companies.

For gas consumption commercially or industrially, it's increasing. And 2016 is projected to increase. And 2017 is actually projected to decrease by the latest EIA forecast. But electric utility usage has increased over time.

Q Okay. Do you anticipate that the use of natural gas to produce electricity will continue to increase?

A The answer -- the current forecast, at least for the short run, is it's increasing, but that in- -- that rate of increase is slowing.

Q Okay. You reference in your testimony the 2008 or the 2000 -- well, let me think -- 2008 proposal by FPL on Page 50 of your testimony.

A What page, ma'am?

Q 50.

A 50. Okay. Yes. The VAM -- the VMM proposal.

Q Yeah. And I want to make sure I understand what this proposal was. Was the idea that if you had a severe under-recovery, that you could spread that out over more than one-year period? In other words, instead of recovering that entire under-recovery and the true-up the following year, you could recover that money over a

period of two years, for example?

A That is correct.

Q Okay. Was the proposal that there would be a carrying cost charged by the utility associated with the amount that was carried forward to the second year?

A Yes, I believe that's at the commercial paper rate, which would be the lowest interest rate. And actually, that was seen and proposed by FPL as a -- as a benefit because of the interest rate being so low, that consumers -- the time value of money -- it would be a benefit to them.

Q Okay. But there would have been an interest charge --

A Sure, but versus -- you know, if the alternative is hedging and a $5 billion loss, that's -- that's what you've got to look at.

Q Okay. If one were to recover it over a two-year period or a longer period, three years, whatever -- it doesn't matter.

A Yes.

Q And you had the carrying costs, customers would actually be paying more money over that two-year period than if it had been recovered in the next year, right? Because they are -- they are having to pay for carrying costs plus the under-recovery.

A Yes. I mean, that's just simple arithmetic that you're paying interest charge for an extra year on a -- you would do it on a smaller balance or you would do it on the average balance.

Q Right. And so, that would be -- it works out, depending on the interest rate, that it's worthwhile if there is not an under-recovery -- sequential years -- in other words, if is there an under-recovery in year one and you carry it over two years, and there is an under-recovery in year two and you carry it over two years, it carries forward, correct?

A Yeah. The math works that way, but it's so small relative to the five billion. I mean, we put in power plants and we have carrying costs, which is called the rate of return. And customers pay that year after year for the 30-year life of the plant.

I mean, that is an enormous cost relative to what you're talking about. Regulatory authorities all the time amortize assets and there are carrying costs. And the lowest carrying cost is the commericial paper rate.

Q Of the jurisdictions that you're familiar with, particularly Texas -- we'll just use them as an example.

A Well, Florida does it.

Q Yes, sir. Do they allow this type of carrying forward over more than one year? Or does Texas true it up every year?

A Generally, it's -- it's a one-year true-up, but they are in unusual circumstances, the true-ups go out further. Typically, in a fuel proceeding, parties settle issues or agree to carry it out to a further date to lessen the impact on consumers.

If you amortize it over 24 months rather than 12, consumers are better off, albeit, they do pay a carrying charge for each of those 24 months, but the economics of it is it turns out better for the consumers.

Q And I guess --

A Regulatory authorities around the country have the regulatory authority given to them by the Legislature typically to amortize things in periods that -- that are necessary to ensure just and reasonable rates.

Q And I guess what I'm trying to get an answer to is: Has Texas done that on a regular basis or, to your knowledge, has Texas done it?

A To my knowledge, Texas has done it. Do they do it on a regular basis? No. I told you in my response in the previous answer was in unusual

circumstances, you would take this approach. It's no different than in base rates, we have -- I think there was an issue on a nuclear cost in years past in a fuel proceeding where the Commission in Florida amortized those costs over a longer period of time, more than one year.

The Commission has the discretion, looks at the cost, and looks at the impact and, in its regulatory duties, in setting just and reasonable rates has extended costs.

Q But it's not a normal thing.

A And my testimony doesn't suggest it should be a normal thing, even under the company's VMM plan.

MS. BROWNLESS: Thank you so much.

THE WITNESS: You're welcome.

CHAIRMAN GRAHAM: Commissioners?

Redirect?

MR. SAYLER: No redirect.

CHAIRMAN GRAHAM: All right. Let's take up the exhibits.

MR. SAYLER: We would like to move Exhibits 56 through 63 into the record for the Office of Public Counsel.

And we don't have any objection to FPL's exhibit.

CHAIRMAN GRAHAM: That's Exhibits 56 through 63?

MR. SAYLER: Yes, sir.

CHAIRMAN GRAHAM: Okay.

(Exhibit Nos. 56 through 63 admitted into the record.)

MR. BUTLER: And FPL would move Exhibit 126.

CHAIRMAN GRAHAM: We'll move --

MR. MOYLE: Can I ask a question on 126?

CHAIRMAN GRAHAM: Sure.

MR. MOYLE: So, it looks like -- and this relates to the idea that parties can say, could you please put the entire exhibit in. It looks like it's Page 12, if you look at the exhibit.

MR. BUTLER: Yes.

MR. MOYLE: The first page, October 6th, 2015, and then the second page of the exhibit says Page 12. Could we get the whole exhibit?

CHAIRMAN GRAHAM: Mr. Butler?

MR. BUTLER: I can make that available, if that is the Chairman's wish. I don't think it's necessary. I think we've had full examination on it with no questions raised about the completeness of what was presented for the purpose of the examination.

I think Mr. Moyle is a little late coming to this. If he had had concerns about that, he should have asked, but we can certainly provide that, if that's what your wish is.

MR. MOYLE: I was trying to be respectful and thought the appropriate time to do it was when they were going to put in the exhibit, which is now. So, maybe --

CHAIRMAN GRAHAM: We'll --

MR. MOYLE: Maybe I can get a copy of it.

CHAIRMAN GRAHAM: We'll put the entire exhibit, however many pages it is, into the record.

MR. MOYLE: Thank you.

(Exhibit No. 126 admitted into the record.)

MS. BROWNLESS: Mr. Chairman, before we leave, I just want to make sure -- I didn't hear OPC move Exhibit No. 64, which was DJL-9. Is that --

MR. SAYLER: Yes, my apologies. I meant to move all of our exhibits, 56 through 64.

Thank you for that. Yes.

MS. BROWNLESS: Thank you.

CHAIRMAN GRAHAM: So, we'll also move Exhibit 64 into the record.

(Exhibit No. 64 admitted into the record.)

CHAIRMAN GRAHAM: Any other exhibits?

OPC, was that your last witness?

MR. SAYLER: Yes, sir, that was Office of Public Counsel's last witness. And we would ask for Mr. Lawton to be excused.

CHAIRMAN GRAHAM: Yes. We will excuse Mr. Lawton.

Right now, it's about 20 after one. It seems like a good time to take -- from here, we're going to rebuttal; is that correct?

(Simultaneous speakers.)

CHAIRMAN GRAHAM: Oh.

MS. BROWNLESS: The next witness is -- the next witness is Jeffrey Small, who is adopting the testimony of Ms. Leon.

CHAIRMAN GRAHAM: We'll go ahead and take that witness. We'll do it now.

MR. VILLAFRATE: Thank you, Mr. Chairman. Staff calls as our first witness Mr. Small.

DIRECT EXAMINATION

BY MR. VILLAFRATE:

Q Good afternoon, Mr. Small.

A Good afternoon.

Q Were you here yesterday when all the witnesses were sworn in at the beginning of this proceeding?

A Yes, I was.

Q Would you please state your full name and business address for the record.

A My name is Jeffrey Small. My business address is 3625 Northwest 82nd Avenue, Suite 400, Miami, Florida 33166.

Q By whom are you employed and in what capacity?

A I work for the Florida Public Service Commission. I am a regulatory analyst supervisor for the Miami district office.

Q Are you the direct supervisor of Gabriela Leon, who was -- who previously filed testimony and exhibits in this proceeding on September 29th, 2015?

A Yes, I am.

Q Have you adopted the testimony and sponsored the exhibits of Gabriela Leon, which were prepared under your direct supervision and control?

A Yes, I have.

Q Do you have any changes or revisions to that testimony or exhibits?

A No, I do not.

MR. VILLAFRATE: Mr. Chairman, I would ask that the previously filed testimony and exhibit of Ms. Leon, which is Exhibit GL-1, marked on the expensive exhibit list as Exhibit 69, be inserted to the record as though read.

CHAIRMAN GRAHAM: We'll hold off until after the cross examination before we put the exhibits in.

MR. VILLAFRATE: Thank you.

BY MR. VILLAFRATE:

Q Mr. Small, would you please give the Commission a brief summary of your testimony.

A Yes, I will. Thank you.

Commissioners, we have audited FP&L's hedging transactions for the period of August 1st, 2014, through July 31st, 2015. We verified that the hedging settlements were in compliance with FP&L's risk management plan. And we verified that the accounting treatment used for the hedging transaction and transaction costs were consistent with Commission orders relating to the hedging activities. No exceptions were noted in our audit.

Thank you.

MR. VILLAFRATE: Thank you, Mr. Small.

Mr. Chairman, I tender the witness for cross examination.

CHAIRMAN GRAHAM: Okay. We'll start down here with OPC, if you have any cross examination. No friendly cross, remember.

MR. SAYLER: No, Mr. Chairman, the Office of

Public Counsel didn't have any cross for this and we had indicated we could excuse the witness previously.

Also, Mr. Wright from FRF also indicated he had no cross for the witness.

CHAIRMAN GRAHAM: Okay. Mr. Brew?

MR. BREW: No questions.

CHAIRMAN GRAHAM: Mr. Moyle?

MR. MOYLE: We have a few.

CHAIRMAN GRAHAM: Sure.

CROSS EXAMINATION

BY MR. MOYLE:

Q Have you been in the room since this hearing started?

A Off and on, but not that much.

Q Okay. Well, listen. First of all, thank you for coming live. FIPUG had a few questions for you. And really, what the questions relate to are the scope of your -- of your audit. As I understand it, in review of the testimony and audit, you audited the financial hedges of FP&L; is that correct?

A That is -- that is correct.

Q Okay. And so, specifically, there was a gentleman from FPL who took the stand and said, we have some costs in here related to 2015 to the Woodford

Project. He didn't know whether staff had audited anything related to the Woodford Project. So, could you help shed light on that?

A Is there a specific period?

Q Well, I think they are seeking costs for 2015. You just testified that your audits run through July of 2015. Have you audited anything related to Woodford?

A The scope of our audit for the hedging transactions related to the hedging transactions only. The 2015 costs were outside the scope of our investigation. That information -- those costs occurred in 2015 and were not subject to this audit.

Q Why not?

A The Fuel Clause audits -- the Fuel Clause part of the audit covered historical 2014. The hedging is just the concept or the hedging part of the gains or losses on the hedging transactions themselves for the hedging audit.

Q So, do you -- do you all have a plan for auditing Woodford costs that you'll execute and, you know, at this time next year, if I'm asking you these questions, we'll say, well, what did you look at with respect to Woodford -- would you be able to answer me and say, yes, we looked at Woodford or what's -- what's the plan going forward?

A At the beginning of each clause cycle, we develop an audit plan to look at the costs that are related to whatever FP&L files. So, if there are -- and it appears to be that there will be Woodford costs, as you call them, in the Fuel Clause for the 2015 period. Then they would be subject to our objectives and procedures for the audit that will be performed for the 2015 cycle.

Q Okay. So, is it your understanding that FPL is seeking some costs for Woodford for 2015 that this Commission is going to be asked to vote thumbs up, thumbs down on in this case?

A The only cost that I'm aware of are the costs that relate to the gains or losses on the hedging transaction.

Q Again, I'm focusing just on Woodford. Do you have an understanding as to whether this Commission is being asked to consider voting on dollars to charge FPL ratepayers related to Woodford in this proceeding?

MS. BROWNLESS: At this time, we'd object to this question. Mr. Small has done a staff audit for the period August 1st of 2014, through July 21st -- 31st of 2015. He -- they do not look at individual transactions, per se. So, his testimony and the audit report that's associated

with the testimony is associated with -- is -- essentially, they look at what the transactions were, what the settlement costs were, and they compare those and trace them through to the general ledger.

So, I don't know that the questions Mr. Moyle is asking about specific costs associated with Woodford are the subject of the audit. And therefore, I think it's an irrelevant question.

MR. MOYLE: Well, I guess, maybe the witness can just confirm that what Ms. Brownless said is right, I mean, because I appreciate her attempt to clarify.

Here is my concern: The FPL witness took the stand and said, yes, we have Woodford costs -- I forgot the exact numbers -- for '15 and '16. I asked him, did Commission staff audit that. He goes, I don't really know.

So, now I have Commission staff and I want to ask them, did you audit the numbers for 2015 that the ratepayers are going to, you know, be asked to pay. If he says no, that's okay. Do you have a plan to do it going forward, we can follow up. If he said, yes, I audited them, then that's -- that's good, too.

I'm just trying to get a little information about how the Commission staff is going to deal with Woodford.

CHAIRMAN GRAHAM: Well, I think he asked -- I think he's already answered the question that, no, they did not do the audit.

MR. MOYLE: Okay. And then I guess the follow-up would be is there a plan to specifically look at Woodford costs in '16.

CHAIRMAN GRAHAM: And I think that's beyond his direct testimony.

MR. MOYLE: I think '16 costs for Woodford -- the FPL witnesses said they are trying to get some of those costs.

MS. BROWNLESS: Yes, sir, but that is not what this audit covers.

MR. MOYLE: Okay.

MS. BROWNLESS: This audit covers August 1st of 2014, through July 31st of 2015.

MR. MOYLE: Okay. So, let me ask -- let me ask this question: With respect to what they are going to audit next year, then I would assume that that would include looking at specific Woodford costs, correct?

CHAIRMAN GRAHAM: You're asking --

MR. MOYLE: I mean, I can ask you as the Chairman of that question or ask the witness --

(Laughter.)

CHAIRMAN GRAHAM: I think that's something beyond his direct testimony, though.

MR. MOYLE: Okay. Well, this may not be -- here -- we're all in new territory with Woodford. You know, I was kind of told Woodford questions are in the Fuel Clause. That's what FPL said. You know, we're going to true this up every year. We're going to come through -- I'm trying to understand is somebody looking at the bills coming in from PetroQuest saying here is what it costs to do this, that, or the other, and what the plan for that is.

So, maybe this witness isn't the right person to do it. I mean, my impression is I've got a shot at this once a year in this clause proceeding, so...

MS. BROWNLESS: Well, perhaps we can offer some clarity. If the technical staff asks for a specific audit of the Woodford transactions next year, they will be included in the audit to the extent there were any Woodford transactions from August 1st of 2015, through July 31st of 2016.

But my understanding of what these hedging audits are is not transaction or company specific. They are -- they cover a specific period and they use -- and they take a number of sample transactions, and they trace those sample transactions from the settlement paperwork back to the general ledger.

MR. MOYLE: The only thing I'm struggling with is I'm having a hard time reconciling that with the testimony of the FPL witness who said, I'm assuming staff looked at Woodford. So, maybe that assumption was not correct.

I'll tell you what, I've raised the point. Let me -- I think we've gone awhile. Everyone is hungry. Why don't I -- why don't I just leave it at that.

CHAIRMAN GRAHAM: Mr. Butler?

MR. BUTLER: I don't have any questions within the scope of how you've defined Mr. Small's testimony. So, thank you.

CHAIRMAN GRAHAM: Okay. Duke?

TECO?

Gulf?

Commissioners?

Staff, I guess there is no redirect?

MR. VILLAFRATE: We just have one question on redirect, just to help maybe clarify this point.

CHAIRMAN GRAHAM: Sure.

REDIRECT EXAMINATION

BY MR. VILLAFRATE:

Q Mr. Small, could you please explain why the Woodford-specific costs do not appear in this audit?

A The costs associated with Woodford, it's my understanding, were 2015. And like I said, the scope of the audit -- the scope of the Fuel Clause audit did not include any costs in 2015 because we were limited to 2014 historical costs.

The transaction cost as far as the hedging side of it -- as was illustrated earlier, we are -- we were strictly limited to matching the settlement costs back to the general ledger and tracing -- making sure that that particular transaction was within the scope or the -- what was required under FP&L's risk management plan. And we also tied it back to the market price, which, the difference between the two would be either gain or loss.

MR. VILLAFRATE: Thank you.

Staff has no further questions.

CHAIRMAN GRAHAM: Okay. So, we need to enter Ms. Leon's direct testimony into the record as

though read.

MR. VILLAFRATE: Yes.

(Adopted prefiled direct testimony inserted into the record as though read.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

COMMISSION STAFF

DIRECT TESTIMONY OF GABRIELA LEON

DOCKET NO. 150001-EI

SEPTEMBER 29, 2015

Q. Please state your name and business address.

A. My name is Gabriela Leon and my business address is 3625 N.W. 82nd Ave., Suite 400, Miami, Florida, 33166.

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

A. I am employed by the Florida Public Service Commission (FPSC or Commission) as a Professional Accountant Specialist in the Office of Auditing and Performance Analysis. I have been employed by the Commission since December 1987.

Q. Briefly review your educational and professional background.

A. In 1987, I received a Bachelor of Science degree with a major in Accounting from Florida International University.

Q. Please describe your current responsibilities.

A. My responsibilities consist of planning and conducting utility audits of manual and automated accounting systems for historical and forecasted data.

Q. Have you previously presented testimony before this Commission or any other regulatory agency?

A. Yes. I filed testimony in the Nuclear Cost Recovery Clause, Docket No. 140009-EI.

Q. What is the purpose of your testimony today?

A. The purpose of my testimony is to sponsor the staff auditor's report of Florida Power & Light Company (FPL or Utility) which addresses the Utility's filing in Docket No. 150001-

EI, Fuel and purchased power cost recovery clause, for costs associated with its hedging activities. We issued an audit report in this docket for the hedging activities on September 21, 2015. This audit report is filed with my testimony and is identified as Exhibit (GL-1).

Q. Was this audit prepared by you or under your direction?

A. Yes, it was prepared under my direction.

Q. Please describe the work you performed in this audit.

A. I have separated the audit work into several categories.

Accounting Treatment

We obtained FPL's supporting detail of the hedging settlements for the twelve months ended July 31, 2015. The support documentation was traced to the general ledger transaction detail. We verified that the hedging settlements were in compliance with the Risk Management Plan and verified that the accounting treatment for hedging transactions and transactions costs are consistent with Commission orders relating to hedging activities. No exceptions were noted.

Gains and Losses

We traced the monthly balances of hedging transactions from the filings in this docket for the period August 1, 2014 to July 31, 2015 to FPL's Derivative Settlement Report. We selected various hedging transactions from various counterparties from December 2014 and May 2015 for natural gas as a sample and traced them from the Derivative Settlement Report to the invoices, purchase statements, confirmation notices and deal tickets. FPL does not have any tolling agreements where natural gas is provided to generators under purchase power agreements. We recalculated the gains and losses. We compared these recalculated gains and losses with FPL's journal entries for realized gains and losses. We compared a sample of the purchase prices to the futures rates published by the NYMEX Henry Hub gas futures contract rates. We traced a sample of settlement prices to the futures rates published by the NYMEX

Henry Hub gas futures contract rates. No exceptions were noted.

Hedged Volume and Limits

We reviewed the quantity limits and authorizations. We also obtained FPL's analysis of the monthly percent of fuel hedged in relation to fuel burned for the twelve months ended July 31, 2015, and compared them with the Utility's Risk Management Plan. The hedged targets for natural gas were traced to the Planned Position Strategy Schedule. The fuel burn forecast was traced to the Fuel Burn Summary. No exceptions were noted.

Separation of Duties

We reviewed the Utility's procedures for separating duties related to hedging activities. We verified the separation of duties during our testing of transactions by matching the names of various employees from deal tickets and confirmations with FPL's procedures. We reviewed two internal audits related to Sarbanes Oxley Compliance on back-office and mid-office control activities as part of the 2015 Fuel Cost Recovery Clause. No exceptions were noted. We also reviewed the external work papers in the Fuel Cost Recovery Clause for Hedging Activities. No exceptions were noted.

Q. Please review the audit findings in this audit report.

A. There were no findings in this audit related to hedging activities.

Q. Does that conclude your testimony?

A. Yes.

CHAIRMAN GRAHAM: And do we have any exhibits?

MR. VILLAFRATE: Yes, we would move -- Exhibit 69 is marked on the comprehensive exhibit list -- into the record.

CHAIRMAN GRAHAM: We'd move Exhibit 69 into the record as well.

(Exhibit No. 69 admitted into the record.)

MR. VILLAFRATE: And we would ask Mr. Small be excused.

CHAIRMAN GRAHAM: Mr. Small, you're excused.

Any other exhibits to be entered?

Now, are we to rebuttal? Good. I think it's a good time to take a break for lunch. That clock back there says 1:33. Let's come back at 2:35.

MR. BREW: Excuse me, Mr. Chairman. PCS does not have any questions for the remaining witnesses, including Duke's rebuttal, and asks to be excused from the remaining hearing.

CHAIRMAN GRAHAM: Mr. Brew, PCS will be excused. Thank you.

MR. BREW: Thank you.

(Brief recess from 1:33 p.m. to 2:40 p.m.)

CHAIRMAN GRAHAM: All right. So, I have a quorum. I'm ready to get started.

MR. BUTLER: Thank you, Mr. Chairman. We call

Mr. Yupp to the stand for his rebuttal testimony

Mr. Yupp has been previously sworn.

DIRECT EXAMINATION

BY MR. BUTLER:

Q Would you please state your name and business address for the record, Mr. Yupp?

A Yes, my name is Gerard Yupp. My business address is 700 Universe Boulevard, Juno Beach, Florida 33408.

Q And by whom are you employed and in what capacity?

A Employed by Florida Power & Light as senior director of wholesale operations.

Q Have you prepared and caused to be filed on October 9, 2015, 15 pages of prefiled rebuttal testimony in this proceeding?

A Yes, I have.

Q Do you have any changes or revisions to your prefiled rebuttal testimony?

A No, I do not.

Q If I asked you the same questions contained in your testimony, would your answers be the same today?

A Yes, they would.

MR. BUTLER: Okay. Mr. Chairman, I ask that Mr. Yupp's rebuttal testimony be inserted into the

record as though read.

CHAIRMAN GRAHAM: We will insert Mr. Yupp's prefiled rebuttal testimony into the record as though read.

MR. BUTLER: Thank you.

(Prefiled rebuttal testimony inserted into the record as though read.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

REBUTTAL TESTIMONY OF GERARD J. YUPP

DOCKET NO. 150001-EI

OCTOBER 9, 2015

Q. Please state your name and address.

A. My name is Gerard J. Yupp. My business address is 700 Universe Boulevard, Juno Beach, Florida, 33408.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power and Light Company (FPL) as Senior Director of Wholesale Operations in the Energy Marketing and Trading Division.

Q. Did you previously submit direct testimony in this proceeding?

A. Yes.

Q. Are you sponsoring any rebuttal exhibits in this case?

A. Yes. I am sponsoring the following rebuttal exhibits:

- GJY-6: Corrected Table – OPC's 4th Set of Interrogatories No. 26
- GJY-7: Corrected Responses – OPC's 12th Set of Interrogatories Nos. 127 and 128
- GJY-8: Corrected Henry Hub Price and Volatility Graph
- GJY-9: Black Scholes Model Results

- GJY-10: Annualized Volatility Comparison

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my testimony is to clarify the discrepancies related to FPL's hedging program savings ("gains") and costs ("losses") that were identified in the testimony of the Office of Public Counsel ("OPC") witness Tarik Noriega and to rebut the testimony of OPC witness Daniel J. Lawton. While witness Lawton's testimony covers a wide array of hedging related topics, ranging from market fundamentals to volatility analyses, his assertion that gas hedging activities should be ended as a mechanism to limit gas price volatility is based largely on the recent financial impact of collective hedging results and on the speculative premise that natural gas prices and volatility have reached a level that eliminates the need for hedging.

Q. Please summarize your rebuttal testimony.

A. My rebuttal testimony shows that FPL's natural gas financial hedging program has worked exactly as intended by the Commission and FPL to limit the volatility of fuel costs that FPL customers pay. I also show that it is unreasonable and speculative for Mr. Lawton to claim that the volatility of future natural gas prices will be so low that FPL's hedging program should be discontinued. I show that Mr. Lawton's focus on the general trend of declining natural gas volatility masks large swings in volatility from year to

year, so that it's impossible to predict from historical data what volatility will be in future years. I also show that it is wrong to suggest that currently low natural gas prices favor discontinuing hedging. Both intuition and a well-accepted analytical methodology to evaluate potential price distributions indicate that potential price outcomes stretch farther to the high end of the price range than the low end. This asymmetric price risk suggests that now could be an especially inauspicious time to discontinue hedging. Finally, I put natural gas volatility into perspective by showing that it has been and remains substantially greater than the volatility in two other key markets: crude oil and the S&P 500.

CLARIFICATION OF FPL'S REPORTED SAVINGS AND COSTS

Q. Please clarify the discrepancy that OPC witness Noriega identified on pages 16 and 17 of his testimony related to hedging gains and losses that FPL reported in its annual hedging filings and the response that FPL provided to Interrogatory No. 26 of OPC's 4th Set of Interrogatories.

A. In Interrogatory No. 26, FPL was asked to provide a table showing the annual gains and losses, by commodity, for all commodities FPL hedged for each of the years from 2002 through 2014. When putting that table together, FPL inadvertently "double counted" the cost of option premiums in the total gains and losses from 2002

through 2007. This error created a discrepancy with the hedging activity results that FPL had filed with the Commission for that same time period. The hedging activity filings properly included the cost of option premiums but did not double count them, so they accurately reflected the total gains and losses for those years. Therefore, FPL did not "over-report gains" and "under-report losses" to the Commission as described by OPC witness Noriega. Rather, FPL inadvertently under-reported gains and over-reported losses in its response to Interrogatory No. 26. FPL is serving on OPC and all parties to this docket a corrected table in response to Interrogatory No. 26, as well as to four other interrogatories that utilized the incorrect data from the original table. The corrected table matches FPL's gains and losses in each of its hedging filings and is included with this testimony as Exhibit GJY-6.

THE PURPOSE OF HEDGING IS TO CONTROL VOLATILITY

Q. Do you agree with OPC witness Lawton's assertion on page 4 of his testimony that there is significant doubt as to the benefits of fuel hedging given the historical, ongoing, and potential financial costs to consumers?

A. No. The primary goal of fuel hedging is and always has been the reduction of fuel price volatility. The result of reducing volatility is

that customers will experience savings during periods of rising prices and will incur costs during periods of falling prices. FPL's hedging activity filings clearly demonstrate this fact. From 2002 through 2014, a 13-year period, FPL's natural gas hedges show gains in 6 years and losses in 7 years. For the 2002 through 2013 time period, FPL's heavy oil hedges show gains in 8 years and losses in 4 years. To determine the success of a hedging program, or whether to continue a hedging program that was implemented to reduce volatility, by analyzing the financial results in hindsight is inappropriate and contradictory to the main purpose of hedging, because it introduces speculation into the equation.

Q. Has FPL's hedging program been successful in reducing the volatility in fuel costs paid by customers?

A. Yes. FPL's revised responses to Interrogatory Nos. 127 and No. 128 of OPC's 12th Set of Interrogatories demonstrate this fact. These interrogatories asked FPL to provide the number of mid-course corrections (for under-recoveries – No. 127 and for over-recoveries – No. 128) that were avoided as a direct result of FPL's hedging program. In response, FPL calculated the percentage, on an actual basis, that it had over- or under-collected its fuel costs at the end of each year. FPL then recalculated the percentage by removing the impact of hedges. The results showed that over the 13-year period, 2002 through 2014, FPL was outside of the +/- 10%

mid-course correction threshold band just once with hedges included but would have been outside that band 9 times with the impact of hedges removed. This clearly demonstrates the effectiveness of hedging as a means of reducing the volatility of fuel costs. FPL's corrected responses to Interrogatory Nos. 127 and 128 are attached to my testimony as Exhibit GJY-7.

Q. OPC witness Lawton refers to "significant losses" from hedging numerous times in his testimony. Is this a fair basis to assess the success of FPL's hedging program?

A. Absolutely not. Judging the success of any hedging program, not only in hindsight, but based on gains or losses is completely inappropriate. As stated previously, the goal of FPL's hedging program is to help mitigate volatility. Implementing a hedging program that was designed to achieve gains relative to market prices would inherently involve speculation about the movement of future market prices. This is a dangerous concept, as it would convert what needs to be a disciplined, well-structured program into a program that has extreme variability by introducing the concept of "outguessing the market".

Q. Do you believe that this would be an issue if FPL's hedging program had saved $3.1 billion?

A. No. The ironic part is that had FPL's hedging program saved $3.1 billion it would have been purely by accident because reducing fuel

costs is not -- and cannot be – a proper goal of a hedging program. FPL does not have any special insight into whether markets will ultimately rise or fall in the future. While there are fundamentals that drive markets, these fundamentals are subject to change. Moreover, for FPL's hedging program to have shown a gain of $3.1 billion, fuel prices would have had to turn out much higher than expected and FPL's customers would have paid much more for the unhedged portion of FPL's fuel portfolio. I cannot imagine that OPC would have wanted this outcome, but I also do not believe that OPC would have any concerns about FPL's hedging program if that was the case.

Q. OPC witness Lawton uses the terms "automatic" and "more of the same approach" to describe the hedging programs in Florida. What is your reaction to his characterization?

A. While I believe the characterization is meant to be negative, in fact he is describing exactly how a hedging program *should* work. A non-speculative hedging program must be "automatic" to a certain degree. FPL characterizes this as "well-disciplined", meaning we follow a well-defined process that eliminates any aspect of market speculation.

Q. OPC Witness Lawton also asserts on page 23 of his testimony that there is no analysis or basis for how the hedging percentage is established. Is this correct?

A. No. FPL's annual Risk Management Plan clearly states the rationale for the amount of natural gas it hedges.

Q. Do you believe that it is realistic, as witness Lawton suggests on page 53 of his testimony, to discontinue hedging now and revisit the topic if circumstances change "substantially" in the future?

A. No. Aside from ignoring the fact that volatility exists in the market today, which I'll discuss in more detail later in my testimony, I would characterize this approach as simply "chasing the market." This is certainly not a sound approach for mitigating short-term volatility. The approach suggests that one would know when a spike was going to occur and react accordingly. What would trigger reinstituting hedging: a spike in prices or a gradual increase in prices? And once hedging was re-instituted, would we cease hedging again as soon as prices decrease? Who would be responsible for speculating that the fundamentals had changed "substantially" to warrant either hedging or not hedging? This would not be a sound or reasonable approach to mitigate volatility, but simply another misguided attempt to outguess the market.

VOLATILITY CALCULATIONS

Q. On page 27, lines 5-8, witness Lawton describes the methodology he used to annualize the volatility results that are shown in Exhibit DJL-2. Is his methodology correct?

A. No. As described in the U.S. Energy Information Administration ("EIA") study that witness Lawton references in his testimony, "*An Analysis of Price Volatility in Natural Gas Markets,*" volatility is calculated by multiplying the standard deviation of the daily logarithmic price changes for all trading days within a certain time period by the square root of the number of trading days within the time period. Therefore, in order to annualize the volatility result, the standard deviation of the daily logarithmic price changes within the year should be multiplied by the square root of the number of trading days in the year.

That is not what Mr. Lawton did. The EIA study uses 252 trading days to annualize volatility. According to his testimony, witness Lawton annualized the volatility by multiplying the standard deviation of the daily logarithmic price changes by the square root of the ratio of 252 trading days by the number of trading days for the period examined. He goes on to state that the number of trading days employed for the annual analysis is 252 days. Therefore, in order to annualize the volatility, he appears to have multiplied the standard

deviation of the daily logarithmic prices changes by the square root of 252 divided by 252, or the square root of one. While the shape of the volatility curve shown in DJL-2 is correct, the actual level of volatility is incorrect. I have corrected the volatility calculation using the same data that was used by witness Lawton and the corrected graph is shown in exhibit GJY-8. This corrected volatility graph is in alignment with the graph that was included in the EIA study for the years 1997 through 2006. The final year of the EIA study was 2006.

Q. Do the results change significantly when the proper calculation is applied?

A. Yes. As mentioned previously, while the general shape of the curve shown in DJL-2 does not change, the magnitude of the volatility is drastically higher than he calculated. For example, the annualized volatility in 2014 is 96.7% -- almost *16 times* higher than witness Lawton's calculation of 6.08%.

VOLATILITY ANALYSIS

Q. What is your reaction to OPC witness Lawton's assertion on page 28 of his testimony that annual volatility has declined from the 2000 to 2010 period to the more recent 2011 to 2015 period?

A. Mr. Lawton is correct that the general trend has been toward lower average annual volatility, but this general trend masks some large

swings in the volatility from year-to-year. For example, the annual volatility in the natural gas market for 2014 was the third highest level over the last 18 years, 1997 through 2014. This level of volatility followed a year, 2013, in which the annual volatility was at the lowest level during the same 18-year period. The data clearly shows that averaging volatility over a number of years does not provide an accurate representation of the volatility that exists in the natural gas market from year-to-year. The volatility increase from 2013 to 2014 of 65% represents the largest year-on-year increase over the entire period that OPC witness Lawton evaluated, and it clearly demonstrates that averaging volatility can obscure the impact of price movement in the short-term.

Q. OPC witness Lawton dismisses 2014 as an outlier due to extreme weather expectations for a few days in February and March. Is this a realistic assessment?

A. No. Dismissing the impact of cold weather expectations on volatility and market prices misses the entire point of hedging. The reality is that cold weather expectations are a factor in driving short-term market prices. In an unhedged portfolio, FPL would have paid the prevailing market prices for its natural gas, including the price increases that resulted from the extreme weather. This example illustrates why hedging is an important tool for helping to mitigate price volatility and also demonstrates why ignoring certain periods,

as witness Lawton suggests, could cost customers additional money.

Q. Do you agree with OPC witness Lawton's assertion on page 23 of his testimony that one would expect to see less hedging with declining volatility and lower prices?

A. No. First of all, I disagree with his predicate that there is declining volatility. As I explained previously, while there may be a general trend of declining volatility over the past several years, that trend obscures some rather large swings in the level of volatility from one year to the next.

Exhibit GJY-8 illustrates how it would have been impossible to predict at any point over the 1997-2014 period whether the following year would have low or high volatility. Just to pick a couple of examples, if one had tried to predict the volatility in 2009 based on the trend in the prior three years (2006-2008), one would have seen a consistent trend of declining volatility and probably predicted that 2009 would have volatility of 40% or less. In fact, however, the 2009 volatility proved to be more than double that figure: 99.6%, the second highest level between 1997 and 2014. Similarly, if one had tried to use volatility in 2010-2013 to predict 2014 volatility, one would have seen volatility in the 30%-50% range and probably

predicted more of the same for 2014. Instead, the 2014 volatiliy was 96.7%, the third highest value in the 1997-2014 period.

Furthermore, Mr. Lawton's assertion that one should stop hedging because gas prices are low is completely counterintuitive. From a logical perspective, lower prices make hedging even more valuable due to the asymmetrical risks associated with price movement. Prices cannot go below zero even in theory, and in reality they cannot go below the variable cost of production over any extended period of time. Therefore, if natural gas is expected to settle on average at $2.50 per MMBtu, the downside risk has to be less than the upside risk because prices cannot go much below that average and still cover the cost of production. In contrast, there is no upper limit on how much *higher* prices might go from the expected $2.50 per MMBtu.

Q. Are there analytical methods that can be utilized to confirm this intuition about asymmetrical risk?

A. Yes. A common tool that is used in the commodities markets is the Black Scholes model. FPL utilized the Black Scholes model to generate a potential distribution of gas prices based on the current expected market price and varying levels of volatility. The results of this analysis are shown on Exhibit GJY-9 for several different measures of volatility. To pick one such measure, Exhibit GJY-9

shows that, if future volatility were equal to the average over the 1997-2014 period of 68%, then for the current expected market price of $2.75 per MMBtu, one could be 95% confident that prices would be higher than $2.01 per MMBtu and lower than $3.78 per MMBtu. The asymmetry in this probability distribution is readily apparent: the lowest probable price is only $.74 per MMBtu below the expected price, while the highest probable price is $1.03 per MMBtu higher. This difference would be substantial in terms of the the highest probable gains and losses for a system the size of FPL's. Using an average annual gas burn of 600 BCF that is representative for FPL's system, the gain to customers from hedging would be almost $619 million at the highest probable price, whereas the loss to customers from hedging would be about $444 million at the lowest probable price. Thus, because of this asymmetric distribution, the "upside" of hedging in this scenario would be about $175 million more than the "downside."

Q. How does the volatility in natural gas prices compare to the volatility of other key market goods?

A. Exhibit GJY-10 shows that the volatility in natural gas prices has been consistently higher than the volatility of crude oil and the S&P 500 index. From 1997 through 2014, 18 years in total, the average annual volatility of natural gas has been 68%, while crude oil and the S&P 500 have averaged 37% and 19%, respectively. During

the last 5 years, 2010 through 2014, the time period that OPC witness Lawton claims to be relevant, natural gas has an annual average volatility of 53% which is almost twice as high as the crude oil volatility (27%) and three and a half times higher than the S&P 500 (15%). Thus, while the average volatility of natural gas may have decreased somewhat over the last five years when compared to the previous ten years, it remains quite high relative to other traded commodities and market indices.

Q. Does this conclude your testimony?

A. Yes it does.

BY MR. BUTLER:

Q Mr. Yupp, are you also sponsoring Exhibits GJY-6 through GJY-10 into your rebuttal testimony?

A Yes, I am.

MR. BUTLER: Okay. Mr. Chairman, I would note that those have been premarked on the comprehensive exhibit list as Exhibits 105 through 109.

BY MR. BUTLER:

Q Mr. Yupp, have you prepared a summary of your rebuttal testimony?

A Yes, I have.

Q Would you please provide that now.

A Yes.

Good afternoon, Chairman Graham and Commissioners. Witness Lawton test- -- Witness Lawton's testimony covers a wide array of hedging-related topics ranging from market fundamental to volatility analyses.

However, his assertion that gas-hedging activities should be ended as a mechanism to limit gas price volatility appears to be based largely on the recent financial impact of hedging results and on the speculative premise that natural gas prices in volatility have declined to levels that eliminate the continued need for hedging. His conclusions simply cannot withstand scrutiny given the realties of the

natural gas market.

FPL's hedging program has worked exactly as intended by the Commission and FPL to limit the volatility of fuel costs that FPL's customers pay. This is illustrated by my Exhibit GJY-7 to my rebuttal testimony, which shows that the year-end variance in fuel costs exceeded the Commission's mid-course correction threshold only once with hedging, but would have exceeded it nine times without hedging.

The result of reducing volatility is that customers will experience savings during times of rising prices and incur costs during times of falling prices. Witness Lawton references significant losses numerous times in his testimony with the implication that the existence of losses means hedging isn't working and should be discontinued.

However, determining the success of a hedging program or whether to continue a hedging program that was implemented to reduce volatility by analyzing the financial results in hindsight is inappropriate and contradictory to the main purpose of hedging. Hedging is not designed to reduce fuel costs because that would involve speculation and the concept of outguessing the market. FPL does not have any special insight into whether markets will ultimately rise or fall.

Had FPL's hedging activities resulted in 3.1 billion in gains over the last 13 years, I wonder whether we would be sitting here today discussing hedging. While the answer is probably no, the reality is that FPL's customers would have paid significantly more in fuel costs.

I cannot imagine that any of us would have wanted that outcome, but ironically, I believe that OPC wouldn't have any concerns about FPL's hedging program under that scenario.

The simple fact is that FPL executes a well-disciplined hedging program that eliminates any aspect of market speculation, helps mitigate the impact of price spikes, and allows customers to benefit from falling market prices.

To suggest, as Witness Lawton does, that we should discontinue hedging now and revisit the topic if circumstances change substantially is simply a chasing-the-market approach that would constitute exactly the sort of speculation that this Commission directed utilities to avoid when it first announced hedging guidelines in 2002.

Mr. Lawton also asserts that the volatility of natural gas markets has declined to the point that hedging is no longer warranted. The reality is that

substantial volatility still exists in the natural gas market and the extent of the volatility goes up and down unpredictably.

Based on Witness Lawton's own data, the annualized volatility of the natural gas market in 2014 was the third highest level over the last 18 years. The volatility increased from 2013 to 2014 of 65 percent represents the largest year-on-year increase over the entire period that Witness Lawton evaluated. And it clearly demonstrates that averaging volatility can obscure the impact of price movement in the short-term.

Mr. Lawton, tries to dismiss the high volatility in 2014 by attributing it to cold-weather expectations, but this misses the entire point of hedging. Weather is one of the major factors that drives prices in the natural gas market.

The impossibility of accurately predicting weather is well-known. Hedging is designed to help mitigate the impact to customers of all of the unpredictable factors that drives market prices, including weather.

The volatility graph included as Exhibit GJY-8 to my rebuttal testimonies shows that it would have been impossible to predict the volatility in a future year based on trends in the prior years.

Furthermore, Witness Lawton's assertions that one should stop hedging when prices are low is completely counterintuitive. In theory, prices cannot go below zero. And in reality, they can't go below the variable cost of production for any extended period of time.

In contrast, we've seen prices as high as $13 per MMBTU as recently as 2008 and prices over $8 per MMBTU as recently as 2014. Intuitively, the upside risk is much greater than the downside risk at the current low-price levels and this intuition is confirmed quantitatively by the results of the Black Shoals model that are presented in Exhibit GJY-9 to my rebuttal testimony.

And that conclude my summary. Thank you.

MR. BUTLER: Thank you, Mr. Yupp.

I tender the witness for cross examination.

CHAIRMAN GRAHAM: Mr. Yupp, welcome back.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: OPC.

MR. SAYLER: Mr. Chairman, we have two exhibits we would like to pass out.

CHAIRMAN GRAHAM: Sure.

MR. SAYLER: Mr. Chairman, there are two exhibits I'd like -- I'm passing out. The first

exhibit, excerpts from the FPL risk management plans, I would like to have identified as Exhibit 127. And then the other one is EIA natural gas spot price historical data I would like identified for -- as Exhibit 128.

CHAIRMAN GRAHAM: All right. So, we are going to label the one that says, "Excerpts from Florida Power & Light, 2008, 2009, 2011 to 2016, risk management" as 127. And the other one is going to be 128, "EIA natural gas" -- E-I-A natural gas.

(Exhibit Nos. 127 and 128 marked for identification.)

MR. SAYLER: Yes, sir. Thank you.

CROSS EXAMINATION

BY MR. SAYLER:

Q Good afternoon, Mr. Yupp. How are you doing today?

A Good afternoon. I'm doing good. Thank you.

Q Would you please turn to Page 2 of your rebuttal testimony.

A Yes.

Q On Lines 12 to 14, you assert Mr. Lawton speculates that natural gas prices and volatility has reached levels that eliminate the need for hedging?

A Correct.

Q Okay. And it is true that when developing your risk management plans that FPL does not forecast -- forecast fuel-price volatility; is that correct?

A Correct.

Q Would you take a look at the exhibit identified as 127.

A Is that the risk management plan?

(Simultaneous speakers.)

Q Sorry. The excerpt is from the risk management plans.

A Okay.

Q And would you confirm that these are excerpts from Florida Power & Light's risk management plans?

A Yes, they are.

Q And the first -- when you turn the first page, the one labeled 2008 risk management plan is what the risk management plan looked like prior to the 2008 change to how risk management plans are done; is that correct?

A Yes, that is correct.

Q And would you look at the very last page in this exhibit, which is labeled "2016 risk management plans." Do you see that?

A Yes, I do.

Q And in Subsection C where it says: Market

price forecasts -- or excuse me -- market prices and forecasted market prices have experienced significant volatility and are expected to continue to be volatile -- do you see that?

A Yes, I do.

Q If FPL doesn't forecast volatility when developing its risk management plan, isn't it true that there is no basis for statement in FPL's risk management plan?

A Well, I think the basis for that statement is that when you look at historical volatility, it has been high. And there's -- there is nothing, I guess, out there to say that that volatility will not continue.

Q Okay. Now, would you look at the -- sorry, flip back to the front of the exhibit where it says 2009 risk management plan.

A Yes.

Q If you will, compare Subsection C from 2009, the next page, 2011, and the next page, 2016.

A Yes.

Q You would agree that those are all identical; is that correct?

A I would agree, yes.

Q And you would agree that market conditions have changed since 2009, correct, as it relates to

natural gas?

A I would agree that the shale gas supply has become plentiful over the last several years, yes. Outside of that, from a market condition's changing, I think the market has been -- has displayed high volatility in those years.

Q Okay. And despite these conditions, you have not updated Subsection C of this risk management plan; is that correct?

A No, we have not.

Q All right. Would you turn to Exhibit GJY-6.

A Just to make one clarifying point as --

Q I --

A I'm just trying to refresh my memory on this, though. The -- the risk management plan -- the heading of that section says the risk management plan is based on the following guiding principles, which I think were in the hedging guidelines, subject to check, but anyway --

Q Okay. No, thank you for that clarification.

A Uh-huh.

Q If you will, turn to GJY-6.

A Okay.

Q And also take a look at that EIA exhibit I passed out.

A Okay.

Q Excuse me. Keep your thumb on GJY-6 and turn to Page 5 of your testimony -- or the bottom of four, top of five.

A Okay.

Q And you testified the primary goal of fuel hedging is and always has been the reduction of fuel-price volatility. The result of reducing volatility is that customers will experience savings during periods of time rising prices and will incur costs during periods of falling -- falling prices. Do you see that in your testimony?

A I do.

Q So, essentially, when the expectation is in when natural gas prices are rising, the hedges should provide savings for customers, correct?

A For the most part, yes. I do need to clarify that it really depends on the time frame that you're implementing those -- those hedges prior to when the market is settling.

Q All right. Would you please take a look at your Exhibit GJY-6.

A Okay.

Q And also compare that with the EIA's Henry Hub. You would agree that the EIA natural gas Henry Hub

spot price data is reliable; is that correct?

A Yes.

Q Looking at the EIA data, isn't it true that between 2002 and 2003, you would agree that the average Henry Hub natural gas price increased from $3.38 MCF -- or $3.38 cents to $5.48 -- or 47 cents?

A From 2002 to 2003, yes. I agree with the spot price, yes.

Q All right. Now, if you would, look at 2003 in your Exhibit 6.

A Uh-huh.

Q You would agree it shows a loss of about $16 million?

A That is correct.

Q Okay. Please look at years 2006 and 2007 in the EIA data. You would agree that the price of natural gas increased a little bit from $6.73 to $6.97?

A Yes.

Q And if you look at your Exhibit 6, for 2007, for natural gas losses -- or natural gas gains or losses, you show an almost $800 million loss?

A Yes, that is correct.

Q Okay. Similarly, if you look from 2009 to 2010, on the EIA historical price sheet, prices rose from 394 to 437. Do you agree with that?

A I agree that's what's on the paper here, yes.

Q And if you look at 2010, on your Exhibit 6, it shows about a $500 million loss?

A Correct.

Q So, you would agree that savings do not always occur in times of rising prices; is that correct?

A No, I would not. And I just -- we need to clarify. We're not comparing apples to apples. You're -- you're showing me the average Henry Hub natural gas spot price.

Q Okay.

A Our hedges -- the gains and losses of our hedges are settled on the NYMEX monthly settlement. So, we're not -- we're not settling hedges based on these spot prices at Henry Hub.

Q Okay.

A We settle on NYMEX.

Q All right. Would you turn to your next exhibit, GJY-7?

A Yes.

Q And this is a chart similar to the one -- this is essentially the chart that Mr. Butler passed out yesterday during his opening arguments, correct?

A Correct.

Q And this is in response to an OPC

interrogatory where we asked you to tell us essentially how many mid-course corrections were avoided as a result of hedging versus not hedging, correct?

A Correct.

Q And according to your testimony and according to this chart, there appears to be nine instances -- excuse me -- nine times where mid-course correction was avoided by hedging; is that correct?

A Yes, correct.

Q All right. If you look at 2005 for -- with hedging, you had a 26-percent variance, and without hedging, you would have had a 42-percent variance; is that correct?

A Correct.

Q So, you would agree that in that year, with or without hedging, there would have been a mid-course correction of some sort.

A Correct.

Q So, if you look at the remaining eight, you would agree that four of those show negative variances, meaning it was an under-recovery, correct?

A Correct.

Q Those under-recoveries are about 10 percent, 13 percent, 10 percent, and 11 percent, correct?

A Could you repeat that, please?

Q Yes, I'm sorry. 2003 and 2004 show a 10-percent variance, a negative 10 percent, and negative 13 percent.

A Correct.

Q Those would have been under-recoveries.

A Right.

Q 2008 also was negative 10.51 percent, correct?

A Yes.

Q And the same thing for 2014, negative 11 percent.

A Correct.

Q All right. And if you look at the periods where there were over-recoveries, starting in 2006, 11 percent, then 12 percent --

A Uh-huh.

Q And then you show 37 percent in 2009 and 20 percent in 2012, correct?

A Correct.

Q So, even without hedging, there would have been under-recoveries and over-recoveries, but the over-recoveries appear to be a larger percentage; is that correct?

A According to this data in those two years, yes, the over-recoveries would have been a higher percentage than the average of the other years.

Q And without hedging, the cost to customers would have been about -- or the savings to customers would have been about 3 billion, $3.5 billion through 2014, correct?

A For natural gas, yes.

Q Yes. All right. Thank you.

Let's flip to GJY-8.

A Okay.

Q And you would agree that that is the same chart that is behind you, correct?

A Yes, that's correct.

Q All right. You would agree that there are different ways to calculate volatility metrics; is that correct?

A Different ways to calculate volatility -- I'm not sure I agree with that. There are certainly -- you can calculate volatility based on different price series. The methodology of calculating volatility, though, is standard, but -- but certainly, on different price series, yes.

Q And for this chart, you followed the way that the EIA report cited Mr. Lawton's testimony and calculated it, correct?

A I didn't hear the middle piece of that.

Q Oh. The way that you show percentage

volatility was the way -- was similar to the way that the EIA did it in their report referenced in Mr. Lawton's testimony?

A Yes, it's the way it should be done. It should be the standard deviation of the daily percentage price changes times the square root of the number of trading days.

In this case, we're looking on an annualized basis. So, we use the number of trading days as 252. That's exactly the methodology that the EIA had used in their report that Witness Lawton referenced in his testimony.

MR. SAYLER: Earlier when I asked you there are different ways to calculate volatility -- I have an exhibit I would like to pass out.

Mr. Chairman, I would believe this one is going to be Exhibit 129 and would be -- "Different ways to calculate volatility" is the short title.

CHAIRMAN GRAHAM: Okay. Exhibit 129.

(Exhibit No. 129 marked for identification.)

BY MR. SAYLER:

Q Mr. Yupp, were you aware that when Mr. Lawton calculated volatility, he followed the way that Morningstar Investing recommended how to calculate historical volatility?

A No, I was not. And I thought his testimony referenced that he followed the EIA methodology. In fact, his testimony referenced that the EIA methodology, I think, spoke to multiplying times the square -- or the square root of the number of trading days, the ratio of the number of trading days by the number of days in the period. That was not in the EIA studies. So, it was confusing.

Q Yes. If you had looked at Footnote, I believe, 32 in his testimony, it referenced this Morningstar --

A Okay.

Q -- methodology for calculating volatility.

But the take-away from it, if you compare your -- the way your percentage of volatility with his percentage of volatility in his Exhibit 2, you would agree that the volatility percentages are different by the square root of 252, which is the number of trading days in a year.

A Correct, which is the way you annualize the volatility.

Q Okay.

A So, my numbers reflect the annualized volatility.

Q And if you look at the next page in the

exhibit I passed out -- it's Motley Fool -- they have a methodology also for calculating annualized volatility?

A Okay.

Q All right. Now, when -- you would agree that when using a different constant, this being the square root of 52 or the square root of 52 over the number of trading days, whichever constant you use really doesn't affect the relative relationship in the price-volatility metrics, does it?

A I'm not sure I follow that. Can you repeat that?

Q Yes, I'll try again. If you compare your chart to his chart, his Exhibit 2, the relative ups and downs of the volatility, the curve, the Henry Hub natural gas average price, they all look the same. It's just the percentages are different.

A The relative shape of the curve --

Q Yes. The --

A -- of the bars? Yes.

Q Okay.

A I agree with that and I referenced that in my testimony.

Q Thank you.

My last exhibit --

A Just -- just to clarify this -- you asked me

about this second exhibit, how to calculate annualized volatility. And this clearly states that you multiply times the square root of the number of trading days in a given year, which is 252.

Q Yes.

A I'm confused by -- did you want to ask me something on this or --

Q No. It's just representative that there are different ways to calculate volatility.

A Okay.

MR. SAYLER: Mr. Chairman, for the last exhibit, identified No. 130, it's OPC's sensitivity analysis on FPL Exhibit GJY-8.

CHAIRMAN GRAHAM: We'll give this Exhibit No. 130.

(Exhibit No. 130 marked for identification.)

BY MR. SAYLER:

Q Mr. Yupp, if you and -- I'll give you time to look at it and also time for your counsel to look at it.

MR. BUTLER: Mr. Sayler, to try to speed this along, at least for me, is what is different that you have added this trend line in Exhibit 130?

MR. SAYLER: Yes, sir.

MR. BUTLER: Is there any other difference that you want to point us to?

MR. SAYLER: Other than the header at the top where I added "OPC sensitivity linear line trend" -- that's the only difference.

MR. BUTLER: Okay.

MR. SAYLER: If you want to compare his relevant percentage numbers on his Exhibit 8 and my Exhibit 8 modified, you will see that they are all identical.

MR. BUTLER: Okay.

MR. SAYLER: And I just have one question and then I'll be done.

THE WITNESS: I'm -- I'm good.

BY MR. SAYLER:

Q Okay. Mr. Yupp, you would agree that your chart with the linear trend line for annualized volatility added still shows a downward trend in volatility of the price of natural gas for the period 1997 to 2015?

A Yes, I would agree with that. And I would make this comment: I --

Q All right.

A I know you've added the trend line to the graph, and I did the same thing on my graph. I'm wondering, though, what is the -- what is the correlation of this trend line to the actual data?

In other words, when I added a trend line and -- and I am not a math major. But when I added the trend line, the R-squared value was almost zero, meaning that the trend line is really not a good fit to this data. It's not a good predictor of the next data point.

And that being said, I think, in my testimony, I -- I acknowledge that if you take --

Q Mr. Yupp, you've gone way beyond -- my simple question is: You would agree that the trend line on this chart shows it's a downward trend, correct?

MR. BUTLER: I think Mr. Yupp should be entitled to explain. He's seeing an exhibit that OPC has taken, modified for its purposes from one of his and shown it to him and said, what do you think of this. I think he should be entitled to explain what he thinks of it.

CHAIRMAN GRAHAM: I'll let you handle that in redirect.

MR. BUTLER: All right.

MR. SAYLER: Mr. Chairman, no further questions. Thank you.

CHAIRMAN GRAHAM: Sure.

Mr. Wright?

MR. WRIGHT: No questions, Mr. Chairman.

CHAIRMAN GRAHAM: Mr. Moyle.

MR. MOYLE: I have a few.

CROSS EXAMINATION

BY MR. MOYLE:

Q You said you added trend line to this exhibit, 130. Was that in your testimony?

A No, I had done it when I was creating the exhibit. I -- it -- no, it was not -- it did not go on the exhibit that I put in my testimony. I just did it to do it.

Q So, you're just referencing something you did, but it's not part of what you filed?

A That is correct.

Q All right. So, I want to follow up on a few points. First, I made some notes of your summary. And I'm unclear whether you are just using this figure because it was in your prefiled testimony. But the updated number for -- I think we established this the other day. It wasn't 3.1 billion in loss, it was 4 billion in losses, right, cumulatively for FPL's customers?

A Yes. 2015 is not over yet. So, that does have a component of estimation to it. The other thing I know we've been using --

Q So, why did you say 3.1 in your summary?

A 3.1 is the result of our total hedging program

since inception. I know we've been discounting the oil piece of it for some reason in this hearing -- and I guess because we're only speaking about natural gas -- but we did hedge oil in the early years. There were gains associated with those. And so, that all nets together.

That's why I've been using 3.1. That is the data that we provided to OPC in response to their interrogatory.

Q All right. The issue related to oil is really not at issue in this case, correct?

A Correct.

Q You guys don't even hedge oil anymore, do you?

A No, we do not.

Q Help me understand volatility and how it's viewed. Okay. So, let me -- let me -- you're an expert. Let me give you this hypothetical.

Gas is currently around $2. I think we've established that, right, on today's spot market?

A I haven't looked at the spot market today, but I can take you at your word. It was there on Friday.

Q Okay. Well, we'll just use the hypo. I hadn't looked today either.

A Okay.

Q So, if you assume a 20-percent move in $2

gas -- and like you, I'm not that great in math -- but my math takes that to $2.40. Would you agree?

A I would.

Q And that's a 20 -- 20-percent move, right?

A Correct.

Q All right. So, if you assume gas is at five bucks and you have a 10-percent move in gas from five bucks to 5.50, okay, which -- which move is more volatile, in your opinion?

A Which move is more volatile.

Q I mean, one -- one is a 20-percent move, one is a 10-percent move, one relates to a price disparity of 40 cents, the other relates to a price disparity of 50 cents. Can you characterize and say, you know, in my opinion, I think one or the other is more volatile?

A I mean, I think the 20-percent move, by definition, would be -- would be more volatile. Obviously, the impact would be lower. From a sheer magnitude standpoint, it's 40 cents versus 50 cents in your other hypothetical.

From an impact on a 600-BCF-a-year portfolio, 40 cents to 50 cents, both are significant impacts on an unhedged portfolio of that magnitude.

Q Right. But the five -- the 10-percent move on the $5 gas would mean more in terms of economic --

economics to ratepayers, correct?

A In your scenario, on our portfolio, it would mean anywhere from 240 million to a $300 million increase in fuel costs for a 40- to 50-cent move, assuming a 600 BCF-a-year portfolio, which ours is slightly above that.

Q A one-penny move on your portfolio translates into how much?

A It should be $6 million, if I did the math correctly.

Q You're -- you're -- the Commission requires you to report whether the hedges were gains or losses on an annual basis, correct?

A Correct.

Q Okay. And they do that for a reason. I mean, they want to see that information. They believe it's valuable to them, correct?

A I would assume so, yes.

Q Right. So, you, in your opening comments, you said that it's inappropriate to consider the financial results. This Commission is free to consider the financial results in making their decision, aren't they?

A Correct. This Commission is free to make their decision based on whatever information they want to. I think I was making a statement, though, to say

that the hedging --

Q I'll let you --

A -- programs should be discontinued because of the financial impact is not appropriate. And the Commission has been clear in the guidelines that there are reasonable tradeoffs for mitigating volatility. I think that speaks to the financial impact not being a driver, but --

Q Do you think that the hedging program, since it's been implemented by FP&L with $4 billion in cumulative losses meets the expectation as set forth in a Commission order that the gains and losses should offset one another?

A Yes, I --

MR. BUTLER: I would like to -- excuse me. Mr. Moyle, can you show Mr. Yupp the Commission order that you're referring to?

MR. MOYLE: I'll cite it to him.

BY MR. MOYLE:

Q It's a January 8th, 2008, order, 07001. You know, if you're not familiar with that --

A I'm -- I'm very familiar with it. And I think that sentence ends with the phrase "over time." So, I would -- I would clarify maybe what you're saying; that we believe that, over time, hedging gains and losses

would equal each other out and there would be a minimal impact to customers over time.

If you look at our hedge program, I think from 2002 to 2008, that was the case. We are certainly in a period of declining prices right now, but I -- I don't think that the ending phrase "over time" is -- was meant to be concluded at the end of 2014 or 2015.

Q So, you don't think 13 years -- you think, hey, you know, what, you're down 4 billion, but give it some more time, you know, it will get there.

A Well -- but I was saying it hasn't been 13 years. In 2008, the program was essentially flat with high gains in the early years, which came back down with opportunity costs or losses to -- it was relatively flat. We have been in a period of declining prices right now. So, it hasn't been 13 years.

But to answer your, question, I would say, no, that's not -- that's -- I'm not sure that was what was envisioned when that was written. A period of time would be a long period of time.

Q And so, I just want to follow up on that 13 years. When did the hedging program start?

A In -- officially in 2002.

Q Okay. And what year is it now?

A 2015.

Q So, if you take 2015 and add the difference into years -- my math was 13 years. Did I get that wrong? Maybe I did.

A No, it's 13 years.

Q But you're --

A But I was trying to quantify the difference between the earlier years and the later years in this declining trend. We did say, and everybody's expectations were that, over time, gains and losses would cancel each other out because of the cyclical nature of the gas market. That, in fact, happened in the first six years. In the last seven years, we've been in a downward trend.

Is where we're at in 2014, on a cumulative basis -- does that mean that we should discontinue because that statement has proven to be wrong? I think answer to that is no. That statement hasn't been proven to be wrong yet because we haven't -- we have not gone over an extensively long period of time.

Q So, to take your -- your testimony would be, you know what, even if we lose 500 million this year and another 500 next year, we keep losing money, you could be right because you can always extend time to the equation and say, yeah, it's been 30 years, but year 31, 32, 33, I think it's going to turn and it's going to

start evening up. Is that essentially what you're saying?

A I -- I don't know what's going to happen in the future, Mr. Moyle. I don't. And that's why we continue to hedge.

Q But your -- have you ever heard of the phrase stop the bleeding?

A I have heard of that phrase.

Q What does that mean to you?

A When something is going wrong, to put an end to it.

Q Okay. And do you understand that consumers are asking -- asking you and the Commission to stop the bleeding?

A I understand that there are concerns from the consumers, but I -- I don't view that as really any different than -- we -- we don't stand on common ground on issues at times during the course of these proceedings. And the Commission takes the information and makes the best judgment that it can with everybody's interests in mind.

I would -- I would go back, Mr. Moyle, to -- to the incentive mechanism. Not everybody agreed with that. And there was an outcry of not to do that. That has proven to be a very effective program that customers

have benefited from.

So, I understand that there are concerns from customers, but we are on different ground on this. We believe that hedging is beneficial.

Q Do you have -- you brought up the incentive mechanism. That's scheduled for review, right?

A I would assume at some point it is scheduled for review, yes.

Q Do you have plans to come in and present that?

A I don't know of any plans at this time.

Q Okay. Let me -- let me try to focus a little bit more on the metrics that are being used. The metric that you're suggesting be used -- and you talked about it with Mr. Sayler, is this square-root analysis.

I mean, do you -- do you think that the customers understand a square-root analysis better than, you know, how much they gained or lost over a period of time?

MR. BUTLER: I'm going to object to his question. I don't believe there was any square-root analysis discussed with Mr. Sayler.

BY MR. MOYLE:

Q You took 252 and days and squared it, didn't you?

A Yes, which is the proper way to annualize

volatility.

Q Okay. Do you think the average ratepayer understands that or we lost $500 million last year? Which do you think is a better metric for a customer understanding whether this program is working or not?

A I think the two are a little bit unrelated. When we're talking about volatility, we're trying to demonstrate that, aside from or different from what has been presented in testimony, that volatility still exists in the natural gas market; that it has not reached a level -- whatever level that may be to warrant terminating hedging.

That's a different -- volatility -- you're talking about volatility and then, in the next sentence, talking about losses. Again, the program is to mitigate volatility.

Q Okay.

A Either gains or opportunity costs are an outcome of achieving that objective.

Q Is there any scenario that you would -- you could see where you would say to this Commission, you know, I think this hedging program probably should not continue along?

A Well, I think we referenced it in our discovery responses. If -- if the volatility in the

market was suddenly zero, meaning that prices could not move up or down, certainly, you would not hedge. There would be no reason to hedge.

Q So, can you name any market where prices don't move?

A No. And that is why we're -- we are saying that volatility exists in the gas market. And on a portfolio that is the size of Florida Power & Light's -- we talked about it. A penny move in the gas market is $6 million.

Q No, I understand. I --

A A portfolio that large, it makes sense to hedge.

Q I just want to press you little bit, and respectfully -- but you know, there is no scenario, as I understand it, where you would say to the Commission we think the hedging program should cease because you said it should only cease if there is no possible moves in markets and you're not aware of any markets where price is static over time, correct?

A Well, maybe to clarify what I'm saying is at least in Florida Power & Light's case is that 72 percent of our portfolio moves is generated with natural gas. Electricity is generated with natural gas. 60 percent of our bill is swinging on the commodity price of

natural gas.

In reality, it's 80 percent, but there are some fixed costs in there. So, 60 percent of our bill will move as the price of natural gas moves. We believe that hedging is an effective tool to mitigate the risk of that piece of our fuel bill swinging due to price spikes or volatility in the market.

Q Okay. And a couple of other points, you would also agree that mid-course corrections are an effective tool to deal with volatility and to prevent regulatory lag?

A An effective tool -- mid-course corrections being an effective tool to mitigate volatility -- I'm not sure I --

Q To mitigate volatility with respect to daily or even monthly price --

A They are an effective tool for the utility to come in and get itself back on track depending on what it's over- or under-recovery balance is, yes.

Q Right. And you're aware that the Commission -- like the Texas Commission previously had Fuel Clause hearings twice a year before moving to once a year, correct?

A I believe I heard that today, yes.

Q And the mid-course -- I'm sorry -- the annual

clause proceeding -- has that worked pretty well from FPL's perspective as a regulatory tool?

A Can you quantify what "pretty well" --

Q With respect to regulatory lag?

A With respect to regulatory lag. Yes, I believe it has worked effectively.

Q Okay. I want to ask you a couple of questions about an exhibit your lawyer handed out to another witness. It's in the record, 126.

A Okay.

MR. MOYLE: If I could get that passed out, Mr. Chairman. And Mr. Chairman, just maybe for the record, you had said that 126 was an excerpt and that the completed document would come in. So, what's being handed out is the completed document.

CHAIRMAN GRAHAM: Okay.

BY MR. MOYLE:

Q Are you familiar with EIA?

A Yes.

Q Tell me what you know about them.

A It's the Energy Information -- or Energy Information Administration of the Government. They do a lot of work in forecasting, lot of work in the commodities, natural gas, oil, coal. Generally a very good source of information on fuels.

Q Okay. I want to reference you to Page 11.

A Okay.

MR. WRIGHT: Mr. Chairman, I have a question. Is this larger document that includes what was previously handed out marked and admitted 126? This seems to be a document that's been furnished pursuant to the wonderful policy of optional completeness. Is this the new 126?

CHAIRMAN GRAHAM: This is now the new 126.

MR. WRIGHT: Thank you, sir.

MR. BUTLER: It is, yes.

MR. MOYLE: And Mr. Butler, I don't care whether -- you want to substitute 126 or make this an additional exhibit? Your preference.

MR. BUTLER: I understood that this complete version was what was being admitted as 126. I think we'll just leave that with that number.

CHAIRMAN GRAHAM: That's correct.

MR. MOYLE: Okay. Thank you.

BY MR. MOYLE:

Q So, let me refer you to Page 11 of this document.

A Okay.

Q You see 11 -- there are two lines on 11?

A Yes, I do see two lines.

Q One says "Henry Hub spot price," and the other says "residential price"?

A Yes.

Q What's your understanding of those two lines? If you have one.

A My understanding? I'm not sure I follow you.

Q What's the -- why is the residential price higher? Do you have any information related to that? Is there anything in here that's meaningful to you?

A I'm not sure what you mean by "meaningful." It's the Henry Hub spot price and residential prices forecasted basically for 2016. I -- I don't get any more information out of it than that, I guess.

Q Okay. Well, I'm going to ask you a couple of questions. I look at this, and it goes from January of 2011 to January of 2017, right?

A Yes, that's correct.

Q Okay. And one of the points, I think that Mr. Lawton was making is he's telling this Commission, hey, y'all should do away with hedging because I think the experts, EIA and others, are suggesting that the price for natural gas is going to remain relatively stable and consistent going forward in the future.

And I look at this line that says Henry Hub spot price, when you compare it back historically from

January 2015 to January 2017 to be relatively flat. Do you agree with that assessment?

A No. I think it looks fairly flat just because of the -- the scale on the Y-axis. I see prices that range, I guess, from a little bit over four down to two up above six. I wouldn't call that necessarily flat. Those are $2 per MMBTU moves in the gas market. I think that's fairly significant.

Q But from January 2015 to January 2017, you would agree that reflects a range between two and four, right?

A Yes, I would agree with that.

MR. MOYLE: Can I just have a second?

CHAIRMAN GRAHAM: Yeah.

BY MR. MOYLE:

Q Are you aware of any jurisdiction that, when looking at the hedging program, has allowed for an opt-out of hedging program for customers who say we would rather pay at the pump or we're not really worried about the peaks and valleys of prices?

A No, I'm -- I'm not familiar with any jurisdiction that has said that.

Q Okay. And you would agree that -- I mean, this Commission has to make a call as to whether to continue hedging or not, correct? That's the issue that

we've been spending two days talking about?

A Correct.

Q And if -- if hedging continues, you would agree that it's something that should be reviewed on a regular basis.

A Yes, I -- I wouldn't have any issues with that.

Q Right.

A Hedging can be reviewed. And in fact, it is audited on an annual basis.

MR. MOYLE: And -- that's it. Thank you. I have no further questions.

CHAIRMAN GRAHAM: Okay.

Staff?

CROSS EXAMINATION

BY MS. BROWNLESS:

Q Hey, again.

A Hello.

Q How are you?

A Good. How are you?

Q I'm hanging in there.

I wanted to ask some follow-up questions on -- you were here for the testimony of all the previous witnesses; is that correct?

A That is correct.

Q Okay. And I think there were some questions asked to, I believe, the Duke witness regarding the following; if the Commission were to decide that FP&L should bear a percentage of any of the hedging losses, would FP&L continue its natural gas hedging program?

A I -- that -- I don't know the answer to that question. I think that's a very difficult question, but I don't think I'm in a position to answer that today, no.

Q Okay. So, y'all have never considered that as a possibility or discussed that?

A No, we have not.

Q Mr. Lawton made -- in his testimony referenced a 2008 suggestion by Florida Power & Light with regard to a volatility mitigation mechanism. Are you familiar with that?

A Yes, I am.

Q And just so I can understand what that is, is the basic idea there that if you had a significant under-recovery, that you would spread that under-recovery out over a two-year period and not simply recover that in the next year?

A That was the basic premise, yes.

Q Okay. And the carrying cost associated with that -- would that -- what were the carrying costs?

Were they the commercial paper rate or was it the return on equity for the utility?

A As I recall, it was the commercial paper rate.

Q Okay. If the Commission were to, as policy matter, discontinue hedging, is this volatility mitigation mechanism that you thought about in 2008 be something that you would consider in the future?

A I don't know the answer to that. I will -- I think, though, it probably warrants a little bit of clarification. When we submitted the volatility mitigation mechanism, we were in a pretty significant period of uncertainty, regulatory uncertainty regarding hedging. We had had the prudency review of hedges in a prior year pushed off until the following year. So, there was a lot of uncertainty surrounding hedging.

We submitted the VMM, I'll call it, as well as another alternative, which were the hedging guidelines. And what we were really looking for was some certainty and some support from the Commission or some guidance that, yes, we support hedging.

There was not a lot -- I hate to say any, but there was not a lot of support for the VMM. And there were various reasons that staff proposed for why the VMM was not as effective as hedging and why it was not a good idea.

Long story short, we ended up with the hedging guidelines. And that was a good position for all of us. We -- the hedging guidelines are good. We've operated under them since 2008. And -- and so, you know, to answer the question, if hedging were to go away, would we bring the VMM back, I think, you know -- first of all, there is that backdrop as to why it was proposed.

The second piece -- remember, the VMM did not mitigate price spikes to customers. So, in other words, if prices went up and I was not hedged, and let's say I was a billion dollars under-recovered, customers were still going to pay the billion dollars plus interest. They were just going to do it over two years.

So, from a -- from a risk-mitigation tool perspective, hedging certainly, in our opinion, is a much better tool than what the VMM was and why we were happy that we ultimately ended up with the guidelines.

Q If hedging were dropped and there was a large price spike in the price of natural gas so there was a very significant under-recovery, in terms -- I assume that the net effect of that would be you would have more customers who could not pay their bill in a timely fashion; is that correct?

A You know, I don't -- I don't know specifically that side of the business. But I guess logically, just

thinking about it, certainly, an increase in the bill could lead to that problem. I could see that as a logical outcome, yes.

Q And am I correct if I conclude that the class of customers for whom that would be a significant problem is more likely to be residential customers than large commercial customers?

A I would agree with that, yes.

MS. BROWNLESS: Those are all of the questions I have. Thank you, Mr. Yupp.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: Commissioners?

Redirect?

MR. BUTLER: Thank you, Mr. Chairman.

REDIRECT EXAMINATION

BY MR. BUTLER:

Q Mr. Yupp, would you look at the new and expanded Exhibit 126 that Mr. Moyle discussed with you. And turn to the Page 11 that he had referenced you to.

A Yes, I'm there.

Q Do you have that?

A Yes.

Q And this is the page before the one that had been included in the excerpt that we had identified as the original shorter Exhibit 126, correct?

A Excuse me one second. Let me make sure I'm getting to the right place.

Okay. Page 10 of that exhibit?

Q No, 11.

A 11, yes.

Q And then that's the page before what we had included as the excerpt; is that right?

A Correct.

Q Okay. So, is it your understanding that the Henry Hub spot price graph that shows up on Page 11, sort of a piece of that shows up on Page 12?

A Yes, I think that's the case.

Q And on Page 11, there is not a confidence interval placed around the Henry Hub spot price; is that right?

A That is correct.

Q Then on Page 12, it has those green lines. Do you see those?

A Yes, I do.

MR. MOYLE: I didn't ask him anything about Page 12. He had that document with another witness. It's beyond -- beyond my cross.

MR. BUTLER: Not at all. It's not beyond your cross at all, Mr. Moyle.

Mr. Chairman, what Mr. Moyle wanted to do is

to make a point about how stable the prices are in the 2015/2016/2017 period using Page 11.

I want to ask Mr. Yupp about the next page in the exhibit that Mr. Moyle chose to reference to discuss that topic of how stable the prices are or aren't in the following year.

CHAIRMAN GRAHAM: I'll allow it.

MR. BUTLER: Thank you.

BY MR. BUTLER:

Q So, Mr. Yupp, would you explain what the significance of the 95-percent NYMEX confidence interval lines that are shown on Page 12 that don't appear on Page 11?

A Yes, I think it shows the uncertainty around the short-term forecasts for EIA. So, in their own analysis, given what they see for implied volatility in the market -- not looking at historical volatility, but the implied volatility based on the options market today, they've run that through their model and they have laid out confidence intervals.

So, a 95 percent confidence interval that prices, while the short-term forecast is this -- is "X," that prices could move within that range throughout the year.

Q Thank you.

Mr. Yupp, would you turn to Exhibit 130 that Public Counsel had asked you about. This is your GJY-8 with the trend line added to that. Do you have a copy of that?

A Yes, I do.

Q I would like you to explain, because at the time, you were beginning to answer, but I was directed it would be better to ask you in redirect, so now I am -- would you explain what your conclusions are about the sort of statistical validity of that trend line as a representation of the volatility over time?

A Yes. And what I was going to say was in my testimony, I did recognize that in the years that Witness Lawton grouped together from -- and I don't recall specifically, but say 2000 to 2008 or nine, versus the average volatility in the subsequent years until today, yes, there has been a decline when you group those average years together.

But what I would point out to you, what's very interesting from this graph, if we start in 2008, from the time that the hedging guidelines were put in place -- so, that brings us seven years worth of volatility data -- in 2008, 2010, 2012, and 2015, volatility has been at the same level, roughly 48, 50 percent. Somewhere in there.

Within that time period, then, you have two years of extreme volatility in '09 and in '14, and you have two years of less volatility -- in fact, 2013, being the lowest historical annual volatility across this whole period of data.

So, the point that I was trying to make is if I look -- yes, I can group years together and I can look at averages, but what does the data really show us? It shows us that in four of the last seven years, volatility has been roughly the same at a fairly high level. It's shown two years of spikes and two years of lower volatility.

I don't get an average volatility declining out of that in those -- in looking at that data for those seven years. Certainly, we group years together, and it appears that way. And yes, there are some lower years in this, but there are also some extreme years in the -- in the last several years.

And that was the only point that I wanted to make on this graph.

Q Did you perform a regression analysis on the trend line that is depicted on this exhibit?

A I did when I briefly added it to my exhibit, yes.

Q And what did that show?

A I believe it was .035 or something to that effect. It was effectively zero and --

MR. MOYLE: This -- this is inappropriate. I mean, he's basically putting in new stuff on redirect on cross. I asked him, hey, did you file that -- you know, that trend-line thing that you -- he goes, no, I didn't put it out there.

Now -- now, he's backfilling with it. I mean, we've not permitted this. We're supposed to file stuff in advance. And he has more information he wants to file -- we should be seeing it in advance and talking about it. And it's inappropriate. I would object.

MR. BUTLER: The --

CHAIRMAN GRAHAM: Actually -- actually, the issue was, OPC brought the question up when they were talking about the regression line. He said this is not a good predictor. And Mr. Butler was trying to get into it at that time. I told him he could handle it on redirect. So, it wasn't your cross examination. It was Mr. Sayler's.

MR. MOYLE: I thought that related to the exhibit Mr. Sayler put in front of him. He said, oh, well, now, you know, I actually did a line on my exhibit as well, and it doesn't seem to match up

and -- you know, he started getting into his line, which was not filed, was not seen, was not part of this record. And now, he's basically -- Mr. Butler is going, well, tell me about your exhibit that you did.

CHAIRMAN GRAHAM: Well --

MR. BUTLER: That is a complete --

CHAIRMAN GRAHAM: It's not --

MR. MOYLE: That's my understanding.

CHAIRMAN GRAHAM: It's not that it doesn't match up. He was talking about it wasn't a good predictor is what I heard him getting into. And then that's what I cut him off and said he could handle that with redirect. And once again, that was Mr. Sayler's cross examination, and not yours.

MR. MOYLE: Can we just, I mean, be clear what he's being asked? Is he being asked about an exhibit that's in record or -- or not? If he's being asked about Mr. Sayler's exhibit, then that's fine. If he's being asked about something he did that's not part of the record --

CHAIRMAN GRAHAM: Well, I think what he's being asked right now -- because Mr. Sayler put it in there. And then you even chimed in saying that, well, why is it not in your graph, or you know, did

you put it into your testimony.

And I think he's trying to get into why -- and I don't want you to speak for him -- but why it was not included in your testimony. So, I'm going to allow him that flexibility.

MR. MOYLE: Okay. But all I said -- when he said it wasn't his testimony, I was done because it's not part of his testimony. I don't need to get into it and ask him any other questions. Now, if Mr. Butler is going to go, well, let's get into this thing that wasn't in your testimony --

CHAIRMAN GRAHAM: Well, I think now he's trying to say why it wasn't in his testimony and why, once again, it's not a good predictor.

MR. SAYLER: Mr. Chairman, when it came to the trend line, I asked him about that and then he was going to give an explanation. But I didn't ask him about regression analysis or -- and I didn't talk about regression analysis as beyond just the trend line.

CHAIRMAN GRAHAM: I still want to hear his answer.

Mr. Butler.

MR. BUTLER: Thank you.

BY MR. BUTLER:

Q Mr. Yupp, would you please explain what the results of your regression analysis indicated with respect to the trend line?

A It just showed that that trend line was not a good predictor of volatility. Let's say, the equation related to that trend line would not be a good predictor. There was not a lot of correlation between the trend line and then the volatility points on the graph. That's what the analysis showed.

And that's why I thought it was -- when I put the graph together, I thought it was important to just take a look at it because it was in Witness Lawton's testimony. And I looked at it and it didn't show a high correlation. And I didn't think it was relevant to put it on to my graph.

Q Thank you.

Mr. Moyle asked you, if hedging is continued now, you think it would be appropriate to have annual reviews of it. Do you recall that question?

A I do.

Q Would you explain what you were referring to, what sort of annual review you had in mind?

A Well, I think that the process that we have today is an annual review. So, our hedging results and

our adherence to our risk management plans are audited on an annual basis. And then our submission of the projection filing, accompanied by our risk management plan at the estimated actual time of the year, and then your review and our vetting of it in this forum or through discovery or interrogatories is really an annual review that does take place. I was going to say every year, but it's an annual -- an annual review. It takes place.

(Laughter.)

So, that's what I was referring to.

MR. BUTLER: Thank you.

One moment, Mr. Chairman.

CHAIRMAN GRAHAM: Sure.

MR. BUTLER: That's all the redirect I have. Thank you, Mr. Chairman.

CHAIRMAN GRAHAM: Okay. Exhibits.

MR. BUTLER: We would move into evidence Exhibits 105 through 109.

CHAIRMAN GRAHAM: 105 through 109, Mr. Butler?

MR. BUTLER: Yes, 105 through 109.

CHAIRMAN GRAHAM: We'll enter those into the record.

(Exhibit Nos. 105 through 109 admitted into

the record.)

OPC?

MR. SAYLER: We would like to move 127, 128, 129, and 130 into the record.

CHAIRMAN GRAHAM: Seeing no objections, we will enter 127 through 130 into the record.

(Exhibit Nos. 127 through 130 admitted the record.

MR. MOYLE: 126, in its completed form, is also in, right?

CHAIRMAN GRAHAM: That's already in.

MR. BUTLER: With that, may Mr. Yupp be excused?

CHAIRMAN GRAHAM: Mr. Yupp, thank you very much for your testimony today.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: Travel safe, please.

THE WITNESS: Thank you.

MR. BUTLER: Thank you, Mr. Chairman.

CHAIRMAN GRAHAM: Okay. Next witness, McCallister.

MR. BERNIER: Thank you, Mr. Chairman. Duke Energy calls Joseph McCallister.

DIRECT EXAMINATION

BY MR. BERNIER:

Q Mr. McCallister, you were sworn yesterday and understand that you are still under oath, correct?

A Yes.

Q Thank you. Can you state your name and business address for the record, please?

A Yes, my name is Joseph McCallister. My business address is 526 South Church Street, Charlotte, North Carolina 28202.

Q By whom are you employed and what is your position?

A Duke Energy Progress. And my position is the director of natural gas, fuel oil, and emissions.

Q Thank you.

Did you prepare and cause to be filed rebuttal testimony and exhibits in this docket?

A Yes, I did.

Q Do you have a copy of your rebuttal testimony and exhibits with you today?

A Yes, I do.

Q Do you have any corrections to make to your rebuttal testimony or exhibits?

A No, I do not.

Q So, if I was to ask you the same questions today, would your answers be the same as contained in

your testimony?

A Yes, they would.

MR. BERNIER: Thank you.

Mr. Chairman, we would note that Mr. McCallister's rebuttal testimony -- we would ask that his rebuttal testimony be entered into the record as though read.

CHAIRMAN GRAHAM: We will enter Mr. McCallister's rebuttal direct -- rebuttal testimony into the record as though read.

(Prefiled rebuttal testimony entered into the record as though read.)

ERRATA SHEET

Docket No. 150001-EI
Witness: Joseph McCallister
Date: October 14, 2015

Page 3

Line 7

A. No.

Should read:

A. Yes, JM-1R

Lines 16-19:

"…As of October 2, 2015, the current indications of market prices for the NYMEX Henry Hub contract for the annual periods over the next five years (2016-2020) averages $3.013 per MMBtu, a record low for this time period.[3]"

Should read:

"…As of October 1, 2015, the current indications of market prices for the NYMEX Henry Hub contract for the annual periods over the next five years (2016-2020) averages approximately $2.993 per MMBtu, a record low for this time period.[3] "

Footnote 3:

[3] As of October 2, 2015, the NYMEX Henry Hub contract prices for 2016 through 2020 are $2.805, $2.988, $3.049, $3.108 and $3.213 per MMBtu, respectively. The market price indications referenced above can be found at http://www.cmegroup.com/trading/energy/natural-gas/natural-gas_quotes_settlements_futures.html#tradeDate=10/02/2015

Should read:

[3] As of October 1, 2015, the NYMEX Henry Hub contract prices for 2016 through 2020 are $2.748, $2.938, $3.009, $3.076 and $3.194 per MMBtu, respectively. Please see Exhibit No. ___JM-1R.

STATE OF NORTH CAROLINA
COUNTY OF MECKLENBURG

10-14-15
Date

Joseph McCallister

I, the undersigned authority, certify that Joseph McCallister personally appeared before me and was duly sworn.

Witness my hand and seal this 14 day of October, 2015.

KATIE JAMIESON
Notary Public
Mecklenburg County
NORTH CAROLINA

Katie Jamieson
Notary Public, State of North Carolina

DUKE ENERGY FLORIDA

DOCKET NO. 150001-EI

REBUTTAL TESTIMONY OF JOSEPH MCCALLISTER

October 9, 2015

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Joseph McCallister. My business address is 526 South Church Street, Charlotte, North Carolina 28202.

Q. Have you previously filed testimony in this docket?

A. Yes, I filed direct testimony on April 7, and September 1, 2015.

Q. Have your duties and responsibilities remained the same since you last testified in this proceeding?

A. Yes.

II. PURPOSE AND SUMMARY OF TESTIMONY.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide additional context regarding the direct testimony of Office of Public Counsel's ("OPC" or "Citizens") witness, Mr. Daniel J. Lawton, filed September 23, 2015.

Q. Please summarize your rebuttal testimony.

A. In summary, Mr. Lawton makes three major points in his testimony that warrant discussion. First, Mr. Lawton outlines that current forecasts of gas markets show stable pricing and declining volatility. Second, Mr. Lawton states his opinion that the historical and potential future lost opportunity costs of fuel hedging are not worth the benefits of reducing price volatility for customers going forward. Third, Mr. Lawton concludes that the Commission should not approve the proposed financial hedging plans and that the Commission should discontinue the financial hedging of natural gas.

With respect to Mr. Lawton's contention that forecasts for natural gas indicate stable pricing and declining volatility, DEF has no basis to disagree with Mr. Lawton, but DEF notes that actual future prices and volatility levels are uncertain and with the increased reliance on natural gas in Florida, natural gas price fluctuations in the future could be more impactful to customers. As to the second point, this is a policy question that the Commission must decide considering all relevant information. Since the Commission's hedging program acts to serve customer interests and not the interests of utilities, we agree that customer views and opinions on this significant policy issue are important for the Commission to consider. As to Mr. Lawton's final point, DEF agrees that the Commission should review its hedging policy from time to time, as the Commission has appropriately done in the past, to determine whether changes to the policy should be

made. If after such a review, the Commission determines that hedging should be wound down and eliminated, reduced in scope, suspended, or replaced with something new, DEF will comply with the Commission's policy.

Q. Are you sponsoring any exhibits to your testimony?

A. No.

III. REBUTTAL TESTIMONY.

Q. Mr. Lawton indicates that current market forecasts for natural gas pricing indicate stable gas prices and that volatility is declining. Do you agree?

A: DEF is not contesting Mr. Lawton's point. Mr. Lawton indicates that the 2015 EIA natural gas estimated price forecast projects lower prices in every year from 2015 through 2030 compared to the 2011 EIA estimates for those years.[1] A simple review of the 2015 EIA reference natural gas price forecast looking at annual periods over the next five years (2016-2020) shows that the forecasted nominal Henry Hub price averages $4.64 per MMBtu.[2] As of October 2, 2015, the current indications of market prices for the NYMEX Henry Hub contract for the annual periods over the next five years (2016-2020) averages $3.013 per MMBtu, a record low for this time period.[3] This comparison shows that future natural gas prices are uncertain and price projections and natural gas market prices will vary over time. DEF is not providing this information as a prediction on

[1] Lawton Direct Testimony, Sept. 23, 2015 ("Lawton"), pp. 39-40.
[2] The 2015 EIA forecasted nominal natural gas prices for 2016 through 2020 are $3.90, $4.09, $4.61, $5.07, and $5.54 per MMBtu. *See* data 2015 EIA Annual Energy Outlook, available at http://www.eia.gov/forecasts/aeo/tables_ref.cfm, and reference Table 13.
[3] As of October 2, 2015, the NYMEX Henry Hub contract prices for 2016 through 2020 are $2.805, $2.988, $3.049, $3.108 and $3.213 per MMBtu, respectively. The market price indications referenced above can be found at http://www.cmegroup.com/trading/energy/natural-gas/natural-gas_quotes_settlements_futures.html#tradeDate=10/02/2015.

future natural gas prices, but rather to show that predicting with certainty what actual prices and volatility will be in the future is not possible.

Q. Mr. Lawton argues that historical and potential future lost opportunity costs of hedging are not worth the benefits of reducing gas price volatility that hedging provides going forward. What do you think?

A. It is for the Commission to determine whether the benefits of the hedging program outweigh the historical and potential future costs going forward. As part of effective fuel cost management, DEF believes managing fuel price volatility risk over time for a portion of its projected fuel costs is a prudent risk management practice.

As stated by this Commission, the "purpose of hedging is to reduce the impact of volatility in the fuel adjustment charges paid by an IOU's customers . . . [i]ts primary purpose is not to reduce an IOU's fuel costs paid over time, but rather to reduce the variability or volatility in fuel costs paid by customers over time."[4] Mr. Lawton acknowledges that gas prices are constantly changing, subject to some level of volatility, and that Florida companies' hedging programs have accomplished the goal of limiting natural gas volatility.[5]

By locking in fixed prices for a portion of DEF's natural gas needs, the hedging program eliminates fuel price volatility for that portion. For 2016, DEF's generation fuel mix is currently forecasted to be approximately 73% natural gas. Given the large percentage of Florida's generation mix that is reliant on natural gas and current natural gas market prices for future periods, fluctuations in the price of natural gas could have a

[4] Order No. PSC-08-0667-PAA-EI, Attachment A, p. 2 of 3, § IV a & b (Oct. 8, 2008).
[5] Lawton, pp. 20.

correspondingly larger impact on customer prices. It is for the Commission to determine, as a matter of policy, given the reliance on natural gas and the uncertainty for future gas prices and volatility levels, if a level of price certainty is desired going forward for a portion of the projected gas usage. DEF will adhere to the Commission's direction and if so desired will adjust or suspend hedging activities consistent with Commission policy.

Q. Is it proper for the Commission to review the current hedging policy, and to determine if the policy should be changed or eliminated all together?

A. Yes. It is proper for the Commission to review, and if it determines it is necessary to do so, to revise or eliminate its policies regarding financial hedging of natural gas. The Commission's hedging program acts to serve customer interests and not the interests of utilities. We agree that customer views and opinions on these policy issues are important for the Commission to consider.

Mr. Lawton also pointed out that other states' commissions have recently reviewed and changed their hedging policies. However, when looking at what other jurisdictions have concluded, such as Kentucky, it is important to consider regulated generation fuel mix differences between states. Kentucky is an instance of a state public service commission that ordered the end of financial gas hedging programs due to the current conditions and outlook for future natural gas supplies.[6] For background, the regulated electric generation fuel cost mix for Duke Energy Kentucky ("DEK") in 2014 was approximately 92% coal and 4.0% gas. Although not categorized as hedging, it is my understanding that all of the coal procured for DEK's regulated electric utility for 2014 was procured over time under fixed-price coal agreements thereby reducing fuel cost risk for

[6] Lawton, at pp. 45-47.

customers. In addition, given its fuel mix, to my knowledge DEK has never utilized financial gas hedges to lock in prices for any portion of DEK's regulated electric gas generation.

DEF agrees that the Commission should review its hedging policy from time to time, as the Commission has appropriately done in the past, to determine whether changes to the policy should be made. As noted previously, as part of effective fuel cost management, DEF believes managing fuel price volatility risk over time for a portion of its projected fuel costs is a prudent risk management practice. However, if the Commission determines that hedging should be wound down and eliminated, reduced in scope, or replaced with something new, DEF will comply with the Commission's will.

Q. Does this conclude your testimony?

A. Yes.

MR. BERNIER: Thank you. And we would note that Mr. McCallister's rebuttal exhibits have been premarked as 112 and 113 on staff's comprehensive exhibit list.

CHAIRMAN GRAHAM: Duly noted.

MR. BERNIER: Thank you. And we will waive witness summary. And we tender Mr. McCallister for cross examination.

CHAIRMAN GRAHAM: Mr. McCallister, welcome back.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: OPC?

MR. SAYLER: Good afternoon, Mr. McCallister.

THE WITNESS: Good afternoon.

MR. SAYLER: No questions.

CHAIRMAN GRAHAM: Mr. Wright.

MR. WRIGHT: No questions, Mr. Chairman. Thank you.

CHAIRMAN GRAHAM: Mr. Moyle.

MR. MOYLE: I have -- I have a few.

CROSS EXAMINATION

BY MR. MOYLE:

Q You just heard the hypothetical that I used with Mr. Yupp with respect to a 20-percent move in $2 gas to 2.40, and a 10-percent move in $5 gas to 5.50.

Would your answer be the same as his with respect to which was more volatile?

A Yes. I think Mr. Yupp indicated that the move -- the 20-percent move from $2 would be more volatile than the 10-percent move at $5, if I'm correct. So, yes, if that's -- if my memory serves correct, then yes, I would agree with that.

Q Okay. And that's measured on the metric of the volatility. With respect to the metric of dollars and sense of economics, which move would have a greater impact, negative impact on consumers?

A Well, assuming the natural gas price was $5, the 10-percent move at $5 would have a greater impact, simply because the price is higher.

Q So, the volatility metric is obviously different from the dollars-and-sense metric, correct?

A Yes, it is.

Q Okay. And you would also -- I asked Mr. Yupp and all y'all were in the room, so I'll try to short-circuit it -- you would agree that the company is required to report annually dollars, the losses or gains on hedging, right?

A Correct.

Q And that that's an important metric that the Commission at least says we like to see what your --

what your results are?

A Yeah, it's -- it's an important part of the annual review process.

Q Okay. And I think you may have touched on this, but your cumulative -- your cumulative losses on hedging over the life of the hedging program is not an insignificant sum of money, correct?

A Yes. We stated that yesterday.

Q Okay. So, let me flip you to your rebuttal. On Page 3, you were asked a question, "Mr. Lawton indicates that current market forecasts for natural gas pricing indicates stable gas prices and that volatility is declining. Do you agree?"

And then you say: Well, DEF is not contesting that point. And you say, Mr. Lawton indicates the 2015 EIA natural gas estimated price forecast projects lower prices in every year from 2015 through 2030 compared to the 2011 EIA estimates for those years; is that right?

A I think I said 2000 -- 2016 -- oh, yes, that is correct. Sorry.

Q And did you -- did you check his EIA references?

A I believe I did, yes.

Q And were they correct?

A From memory, yes, I believe they were correct.

Q All right. And so, I guess I was a little -- I found it interesting that you said you're not contesting Mr. Lawton's point. You know, sometimes lawyers -- we use double negatives on things, but can I assume you agree with Mr. Lawton --

A Well, I think --

Q -- with respect to this factual point?

A Well, to the -- to the factual forecast from EIA?

Q And to current market forecasts for natural gas indicating stable gas prices and have a volatility is declining.

A Yeah, we -- we did not contest that the forward forecasts are lower than they were in 2011 and have come down.

Q Okay.

A We did not contest that.

Q I'm assuming, if you thought that Mr. Lawton got it wrong and that current market forecast for natural gas pricing indicated unstable prices, or that volatility was increasing, you would have taken issue with that, correct?

A Well --

MR. BERNIER: I'm sorry, Mr. Chairman. I would say his testimony speaks for itself. If he

didn't contest it, he didn't contest it. I don't think that there is anything more to be read there than what exactly is on the page.

MR. MOYLE: Well, we could say about all the witnesses, that their testimony speaks for itself, but we get to ask them questions about fleshing things out, I think. So, that's all I'm trying to do.

CHAIRMAN GRAHAM: Sure. Continue.

THE WITNESS: So, am I --

BY MR. MOYLE:

Q Let me just --

A Well, I --

Q So, let me --

(Simultaneous speakers.)

Are you comfortable answering --

A Well --

Q And I can break it up into small segments.

A No, I think I can answer it without you breaking it up into small segments. But I go on to say that -- my point was we can't predict the future prices of volatility. We're not contesting that the accuracy of the statement that prices have come down. But we go on to say that predicting with any certainty what prices of volatility will be is not something we can do and

certainly not something that most forecasters are capable of doing. I understand it's a point-in-time forecast and things change, but that -- that's really all I was saying.

Q And for all of the forecasting, nobody can predict with certainty. We've agreed to that, right?

A I would assume so, yes.

Q Okay. But I'm just trying to press you and get you to admit -- I think you admit to it -- that the current market forecast, the EIA, which everyone kind of says they are experts, that for natural gas pricing, those forecasts indicate stable gas prices; is that correct or --

A They -- they indicate lower and more stable gas pricing. I can agree to that.

(Transcript continues sequence in Volume 6.)

CERTIFICATE OF REPORTER

STATE OF FLORIDA)
COUNTY OF LEON)

I, ANDREA KOMARIDIS, Court Reporter, certify that the foregoing proceedings were taken before me at the time and place therein designated; that my shorthand notes were thereafter translated under my supervision; and the foregoing pages, numbered 811 through 1017, are a true and correct record of the aforesaid proceedings.

I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 4th day of November, 2015.

ANDREA KOMARIDIS
NOTARY PUBLIC
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EXPIRES FEBRUARY 09, 2017