



Matthew R. Bernier
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July 11, 2017

VIA ELECTRONIC DELIVERY

Ms. Carlotta Stauffer, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: *Analysis of IOUs' Hedging Practices; Docket No. 20170057-EI*

Dear Ms. Stauffer:

On behalf of Duke Energy Florida, LLC ("DEF"), please find attached for electronic filing in the above-referenced docket an unredacted Exhibit No. ____ (JM-2), the redacted version of which was filed on July 3, 2017, as part of the Direct Testimony of Joseph McCallister (Document No. 05684-2017) and the confidential version (Document No. 05682-207) also filed on July 3, 2017, along with a Notice of Intent to Request Confidential Classification.

Mr. Michael Gettings has confirmed that there is no confidential information in the exhibit, therefore by way of this letter, DEF is withdrawing the Notice of Intent to Request Confidential Classification (Document No. 05683-2017) filed in this docket on July 3, 2017, and hereby asks the clerk to return the confidential version of the exhibit filed with that Notice.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this filing.

Respectfully,

s/ Matthew R. Bernier

Matthew R. Bernier

MRB/db
Attachment

cc: Parties of Record

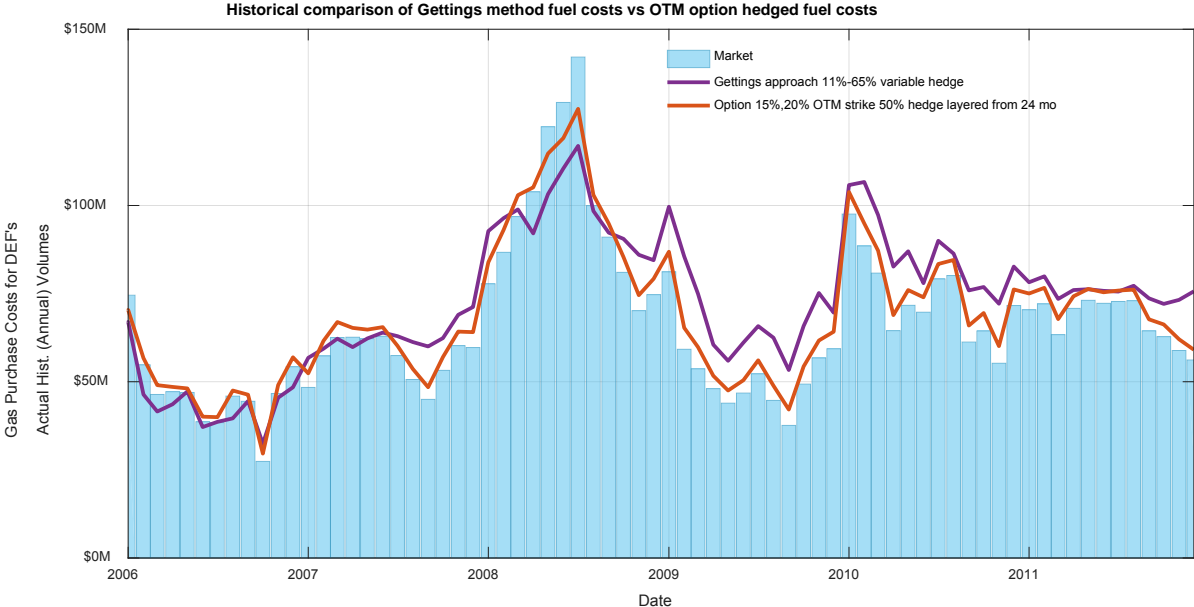
Comparison of Gettings Swap Hedging with OTM Option Hedging

In order to compare the performance of the Gettings strategy and the option strategy, we overlaid the results of Mr. Gettings' backtest from his supplied Excel spreadsheet on the results of the OTM option backtest for a common time period (2006-2011). Please note that the analysis is intended to be indicative of the broad features of the two methods. The parameters in Mr. Gettings' spreadsheet were used as provided except for an adjustment of the gas volume consumed assumption to match that used in the OTM options backtest. In addition, the parameters of the option strategy were not optimized (specifically chosen to improve backtest performance) over this historical period in any way; i.e. the hedge percentages, hedge periods and strike percentages were not selected to improve the results of the backtest.

The highlights of the comparison are summarized here. More details are presented below:

- The OTM options strategy provided a similar risk responsive behavior to the Gettings strategy (protection during price run-ups, higher participation in price downturns);
- The OTM options strategy resulted in lower overall estimated costs over the study period;
- The OTM option strategy has far fewer parameters and discretionary variables resulting in much lower implementation risk and operational discretion.

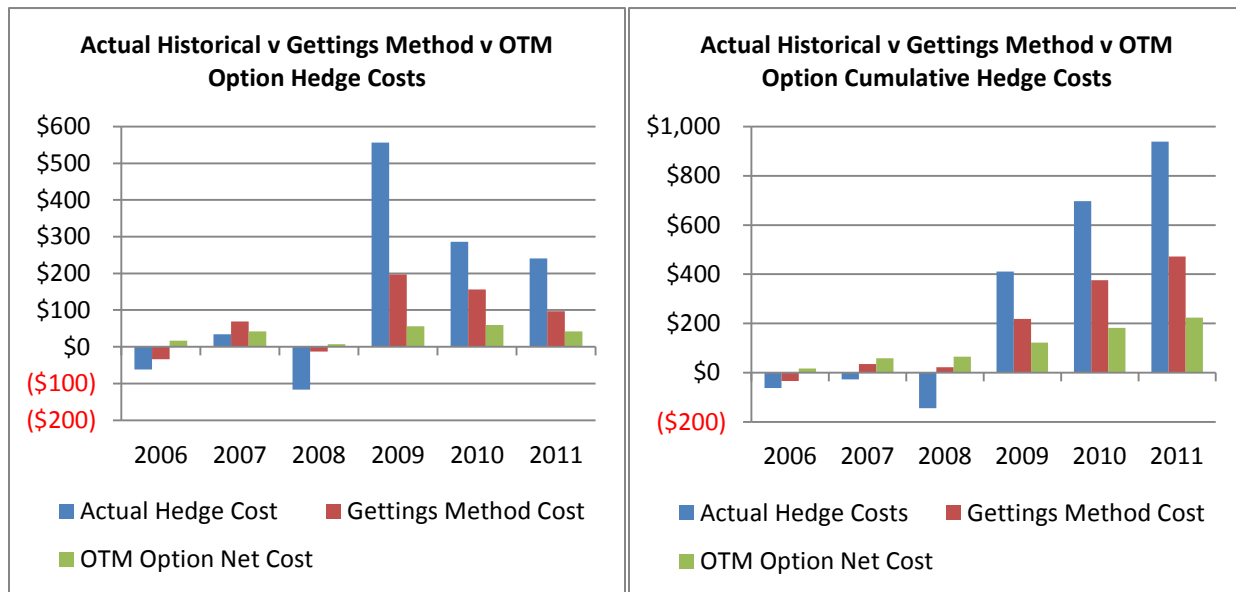
The following chart shows the monthly estimated cost of gas for the two hedging methodologies compared to the unhedged market estimated cost of gas. The estimated \$/MMBtu costs for the two methods were multiplied by DEF historical actual volumes for the period 2006-2011.



The OTM option strategy provided a similar price protection/hedge loss mitigation profile to the Gettings approach. In fact, the monthly backtest results show the option strategy provides greater participation in downside market moves (2009-2010) without sacrificing protection on the upside. Furthermore, the number of option contracts can easily be increased or decreased to provide the desired level of participation/protection as defined in any risk management plan approved by the Florida Public Service Commission. In this backtest, the size of the option hedge position was set to 50% of the notional gas volume for each month; the hedge percentages at contract expiration for the Gettings approach varied between 11% and 65% with an average of a 40% hedge level which were a result of the parameters chosen by Mr. Gettings in his historical analysis.

The following table and charts show the estimated annual costs of the two hedging methodologies compared to historical DEF hedge costs for DEF actual historical burns for the 2006-2011 period. The illustrative results show lower estimated costs with the OTM option strategy over the Gettings approach for the study period.

Year Hedged	NYMEX Price	Historical Volume Consumed	Historical Actual Costs		Gettings Approach Costs		Option Hedge Costs	
			Hedge Cost	Cumul. Hedge Costs	Gettings Hedge Cost	Gettings Cumul. Cost	Option Net Cost	Cumul. Option Cost
	\$/MMBtu	BCF	MM\$	MM\$	MM\$	MM\$	MM\$	MM\$
2006	\$ 7.23	78	(\$62)	(\$62)	(\$34)	(\$34)	\$17	\$17
2007	\$ 6.86	99	\$34	(\$28)	\$69	\$35	\$42	\$58
2008	\$ 9.03	130	(\$117)	(\$145)	(\$13)	\$22	\$7	\$66
2009	\$ 3.99	159	\$556	\$412	\$197	\$219	\$56	\$122
2010	\$ 4.39	201	\$286	\$697	\$157	\$376	\$60	\$182
2011	\$ 4.04	200	\$241	\$938	\$97	\$473	\$42	\$224
Total	\$ 5.92	868	\$938	\$938	\$473	\$473	\$224	\$224



Finally, in comparison of the two approaches, one feature of note is the large difference in the number of parameters and discretionary variables that one has to select with each strategy. An indicative list of these parameters is shown in the following table. This list is not meant to be exhaustive but indicative of the relative difference in complexity between the two approaches. The larger number of parameters of the Gettings approach can lead to a larger risk of potential operational errors and discretion decision points in selecting the appropriate values for each parameter to achieve the desired results. The larger number of parameters can also lead to larger variability in performance between seen (historical) and unseen (future) time periods of market data. In essence, even if a hedging strategy, in theory, had the potential to achieve a perfect performance, a large number of discretionary parameters whose selection required applying more judgment could make it difficult to achieve that performance in practice.

Gettings Approach Parameters	OTM Option Strategy Parameters
Hedging period for each contract (1)	Hedging period for each contract (1)
Defensive price boundaries for 1 and 2 years out (6+)	Out-of-the-money strike percentages (2)
Defensive VaR multiples for each price boundary (6+)	Hedge levels for each year in hedging period (2)
Defensive VaR confidence level & time horizon (2)	
Defensive maximum monthly increment (1)	
Contingent monitoring period (1)	
Contingent VaR confidence level & time horizon (2)	
Contingent hedge suspension % MtM & duration (2)	
Contingent hedge unwinding % MtM & duration (2)	
Programmatic hedge percentages and duration (3)	

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via electronic mail to the following this 11th day of July, 2017.

/s/ Matthew R. Bernier

Attorney

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