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September 1, 2017

VIA ELECTRONIC FILING

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*

Ms. Stauffer:

On behalf of Duke Energy Florida, LLC's (DEF), please find enclosed for electronic filing in the above referenced docket:

- Rebuttal Testimony of Joseph McCallister and redacted Exhibit No. ____ (JM-3) and Exhibit No. ____ (JM-4).

Thank you for your assistance in this matter. If you have any questions, please feel free to contact me at (850) 521-1428.

Sincerely,

s/Matthew R. Bernier
Matthew R. Bernier

MRB/mw
Attachments

Duke Energy Florida, LLC
Docket No.: 20170057-EI
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via electronic mail this 1st day of September, 2017 to all parties of record as indicated below.

s/Matthew R. Bernier

Attorney

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DUKE ENERGY FLORIDA

DOCKET No. 20170057-EI

ANALYSIS OF IOUS' HEDGING PRACTICES

**REBUTTAL TESTIMONY OF
JOSEPH MCCALLISTER**

September 1, 2017

1

INTRODUCTION AND QUALIFICATIONS

2 **Q. Please state your name and business address.**

3 **A.** My name is Joseph McCallister. My business address is 526 South Church Street,
4 Charlotte, North Carolina 28202.

5

6 **Q. Have you previously filed testimony in this docket?**

7 **A.** Yes, I filed direct testimony on July 3, 2017.

8

9 **Q. Have your duties and responsibilities remained the same since you last testified in**
10 **this proceeding?**

11 **A.** Yes.

12

13

PURPOSE AND SUMMARY OF TESTIMONY

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my testimony is to address certain items discussed in the August 10, 2017
3 testimonies of Staff witnesses Gettings and Cicchetti. My testimony is intended to
4 provide clarity regarding some of Mr. Gettings' factual assumptions, opinions and
5 presumptions, and to correct them where necessary.

6 While I will provide comments regarding his approach and address certain factual
7 assertions, observations and opinions expressed by Mr. Gettings, Dr. Hallerman will be
8 addressing specific observations and issues with his proposed model. The fact that I have
9 not specifically addressed testimony put forth by any witness should not be taken as
10 acceptance of his/her testimony.

11

12 **Q. DEF has recently petitioned the Commission to approve a 2017 Settlement**
13 **Agreement. Does that 2017 Settlement Agreement effect either your testimony**
14 **provided today or your testimony provided on July 3, 2017 in this docket?**

15 A. No, it does not. As part of its recently filed 2017 Second Revised and Restated
16 Stipulation and Settlement Agreement ("2017 Settlement Agreement"),¹ DEF and the
17 other signatories agreed to extend the current hedging moratorium for DEF through the
18 term of the proposed agreement. Nevertheless, because DEF would be impacted by this
19 docket beyond the term of the 2017 Settlement Agreement (if approved), DEF will
20 continue to provide its views to the Commission on the issues in this docket.

21

22 **Q. Are you sponsoring any exhibits to your testimony?**

¹Docket No. 20170183-EI, filed Aug. 29, 2017.

- 1 A. Yes. I am sponsoring two exhibits.
- 2 • Exhibit No. ____ (JM-3) and
 - 3 • Exhibit No. ____ (JM-4)
- 4
- 5

6 **OBSERVATIONS REGARDING OTHER UTILITIES IDENTIFIED AS**

7 **EMPLOYING RISK RESPONSIVE HEDGING PRACTICES**

8

9 **Q. Do you have any observations regarding the companies or jurisdictions that Mr.**

10 **Cicchetti indicated are using risk responsive hedging strategies and execution?**

11 A. Yes. Mr. Cicchetti indicated PacifiCorp, and its affiliate, Rocky Mountain Power

12 (collectively “PacifiCorp”) engage in risk responsive hedging. DEF performed a

13 summary review of the 2013 testimony of Mr. Bird² (cited by Mr. Cicchetti) as well as

14 PacifiCorp’s April 1, 2017 Integrated Resource Plan (“IRP”).³ Based on this review,

15 DEF believes PacifiCorp is not engaging in the type of risk responsive hedging that Mr.

16 Gettings advocates, and in fact, the PacifiCorp hedging activities appear to be similar to

17 DEF’s hedging goals and approach.

18 From a summary review of Mr. Bird’s 2013 testimony and the applicable portions of the

19 IRP, DEF acknowledges that value-at-risk (VaR) limits and time to expiry VaR (TEVaR)

20 limits may be or may have been used by PacifiCorp. But, without a detailed

21 understanding of their practices, it appears they are being used for reporting and

22

² Redacted Direct Testimony of Stefan A. Bird, Docket No. 13-035-32, In the Matter of: the application of Rocky Mountain Power to Increase the Deferred EBA Rate through the Energy Balancing Account Mechanism, filed March 15, 2013 (“Bird Testimony”).

³ Available at: https://www.rockymountainpower.net/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/2017_IRP_VolumeI_IRP_Final.pdf (last visited Aug. 28, 2017).

1 monitoring as opposed to driving hedging decisions. It further appears the actual hedging
2 activities follow a dollar cost averaging approach that does not involve price speculation
3 and that is executed over a 36-month time frame to achieve higher hedging ratios in the
4 front 12 months and lower percentage hedge ratios for the second and third 12-month
5 periods.⁴

6

7 **Q. Why does DEF believe PacifiCorp’s hedging program, execution approach, and**
8 **goals are similar to DEF’s previously articulated goals and not representative of**
9 **Mr. Gettings’ proposed risk responsive hedging?**

10 A. As cited by Mr. Cicchetti, Mr. Bird states “The main components [of the hedging
11 program] are natural gas percent hedged volume limits, value-at-risk (VaR) limits and
12 time to expiry VaR (TEVaR) limits. These limits force the Company to monitor the open
13 positions it holds in power and natural gas on behalf of its customers on a daily basis and
14 limit the size of these open positions by prescribed time frames in order to reduce
15 customer exposure to price concentration and price volatility.”⁵

16 However, it should be noted that immediately following this quotation, Mr. Bird
17 continues: “The hedge program requires purchases of natural gas at fixed prices in
18 gradual stages in advance of when it is required to reduce the size of this short position
19 and associated customer risk. Likewise, on the power side, the Company either
20 purchases or sells power in gradual stages in advance of anticipated open short or long
21 positions to manage price volatility on behalf of customers.”⁶ With regard to hedging

⁴ See Bird Testimony, p. 18, ll. 337-46; IRP, p. 286.

⁵ Cicchetti, p. 22, ll. 4-10.

⁶ Bird Testimony, p. 7, ll. 150-60.

1 protocols in general, Mr. Bird also stated “The purpose is solely to reduce customer
2 exposure to net power cost volatility and adverse price movements[,]”⁷ and “[t]he
3 purpose of hedging is not to reduce or minimize net power costs.”⁸

4 Further, Mr. Bird defines PacifiCorp’s program structure of “dollar cost averaging” as
5 “gradually hedging over a period of time rather than all at once” and states “[t]his method
6 of hedging, which is widely used by many utilities, captures time diversification and
7 eliminates speculative bursts of market timing activity. . . . While doing so, the Company
8 steadily and adaptively meets its hedge goals through the use of this technique while
9 staying within VaR and TEVaR and natural gas percent hedge volume limits.”⁹ As of
10 2013, PacifiCorp had experienced “no conflict . . . between the new volume limits and
11 the Company’s VaR and TEVaR limits, although the volume limits would supersede in
12 such conflict, consistent with the guidelines from the hedging collaborative.”^{10,11}

13 Finally, other areas of Mr. Bird’s testimony seem to contradict elements of Mr.
14 Gettings’ proposed risk responsive hedging approach. For example, Mr. Bird explains
15 the company did not liquidate hedges when the forward market showed a decline in
16 prices (i.e., unwind hedges) because it would not be consistent with “standard industry
17 practice” and “[i]t would be speculative to liquidate hedges, lock in a loss for
18 customers, and then hope to transact at a lower price in the future while incurring the

⁷*Id.* at p. 4, ll. 88-90.

⁸*Id.* at p. 5, ll. 94-95.

⁹*Id.* at p. 15, ll. 283-92.

¹⁰*Id.* at p. 9, ll. 173-76.

¹¹ For clarification, potential future exposure (PFE) is calculated and reported for DEF’s non-marginable financial hedge transactions for credit monitoring. Although DEF is not measuring or reporting VAR metrics on its portfolio gas and power positions, DEF’s net position and corresponding hedge ratios are updated, monitored, and reported regularly based on changes to, for example, market prices for coal, gas, and power, and changes to generation maintenance schedules and any load updates.

1 risk that prices might actually escalate further, not to mention incur additional
2 transaction costs.”¹²

3 DEF agrees with this position and notes that it directly conflicts with the contingent
4 element of Mr. Gettings’ proposed approach (which is the component intended to
5 minimize costs) and the very idea that a hedging program’s objective is, in part, to
6 minimize losses.

7

8 **Q. Are there any other observations regarding the companies or jurisdictions that**
9 **Messrs. Gettings and Cicchetti have indicated are using or have used a risk**
10 **responsive execution approach?**

11 A. Yes. After reviewing Staff’s Exhibit No. __ (MAC-5) and Staff’s responses to FPL’s
12 second set of interrogatories, it is unclear what elements of the risk responsive approach
13 are actually being executed as part of a formal hedging program at many of the identified
14 companies. And, as discussed above in relation to PacifiCorp activities, it is unclear
15 where certain risk measurement terms may be used out of context or what components of
16 Mr. Gettings’ proposed risk responsive hedging execution approach these companies
17 may or may not be using. To wit, Duke Energy Indiana (“DEI”)¹³ was also referenced in
18 Exhibit No. __ (MAC-5) but DEI is not engaging in any form of risk responsive hedging.

19 DEI executes short-term hedges to economically hedge a portion of its economic short
20 or long position, as applicable. For example, DEI buys power from the market when the
21 market price for power is lower than its generation cost (economically short), or sells

¹² *Id.* at pp. 32, ll. 646-49.

¹³ DEI generation units are dispatched and committed in the Midcontinent Independent System Operator (MISO). DEF determines unit commitment and dispatch based on economic and reliability considerations to meet its requirements.

1 power and buys gas when the market price for power is higher than the cost of its
2 generation (economic long position).

3

4

ANALYSIS OF MR. GETTINGS' MODEL

5

**Q. What are your general impressions of Mr. Gettings' risk-responsive hedging
6 model?**

6

7

A. First, it is needlessly complex. Second, it provides no assurance of lower costs to
8 customers than the out of the money ("OTM") call option approach. Third, it will be
9 more expensive for utilities to implement. Finally, it will be more complicated for the
10 Commission to review.

10

11

DEF is following Commission policy and supports the Commission's current review of
12 hedging practices. DEF believes the Commission should periodically review the
13 approved hedging practices with input from companies, interveners and staff, as it has
14 done in the past. DEF also believes the Commission should not adopt Mr. Gettings'
15 overly complicated hedging protocol that cannot guarantee better results than
16 purchasing gas at market¹⁴ and was shown by the companies' historical analyses to be
17 more costly to implement than the OTM call option approach.

17

18

19

**Q. Does the use of VAR or other risk metrics guarantee improved execution, improve
20 hedging results, or improve insights on the ultimate settlement of prices for any
21 given period?**

21

22

A. No. VAR does not provide any actual directional view of market price, does not provide

¹⁴ See Gettings, p. 24, ll. 1-5.

1 the actual timing of any potential market price movements, and does not provide where
2 actual prices will settle. VAR is a tool to calculate potential outcomes based on
3 parameters such the holding period and the confidence desired.

4
5 **Q. Can you please explain the recent modifications to Mr. Gettings' model?**

6 A. No, unfortunately I cannot. Mr. Gettings announced in his August 10th testimony that he
7 has made substantial revisions to his model but DEF has had insufficient time to
8 understand his changes and would need additional time to review and potentially ask
9 questions in a workshop setting as with the previous iteration of the model to fully
10 understand the rationale and ramifications of the modifications. However, it seems odd
11 that after many months of advocating this method to Staff and the Florida IOUs he has
12 altered the model's parameters at the eleventh hour.

13
14 **Q. Do you have any other general observations regarding statements made in Mr.
15 Gettings' testimony, the complexity of his approach, and the illustrations utilized to
16 demonstrate the purported effectiveness of his proposed risk responsive approach?**

17 A. Yes. Mr. Gettings outlines a hedging strategy that consists of a basket of hedge rules and
18 parameters that include components of programmatic, defensive and contingent protocols
19 with defensive and contingent action boundaries that are triggered by VAR metrics and
20 include multiple execution parameters. The program may utilize some limited
21 programmatic hedges and virtually no discretionary hedges. Mr. Gettings makes various
22 statements in his testimony that are noteworthy about his approach and deserve further
23 discussion.

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For instance, Mr. Gettings states that since 2000 “contingent strategies have rarely been necessary.”¹⁵ As a reminder, contingent strategies driven by VAR metrics could involve suspending hedging, exiting previously executed positions, and/or buying puts to reduce hedge ratios in an attempt to minimize costs. A simple review of the hedge ratios in Mr. Gettings’ original risk responsive model contradicts the assertion that contingent strategies were used rarely. To illustrate, using information provided by Mr. Gettings’ model,¹⁶ DEF has prepared Exhibit No. __ (JM-3) which includes two graphs showing the change in the prompt-year and prompt +1 year portfolio hedged percentages over time, and the monthly volume of gas (gross) that would have been hedged in each month to realize those percentages. This exhibit also shows how often and the extent to which Mr. Gettings’ model directed executing the contingent protocols.

While I agree with Mr. Gettings’ assertion that swaps can be both bought and sold,¹⁷ however he appears to ignore the costs of churning positions and the costs involved with exiting previously executed hedges, as well as the fact that after unwinding one is left with exposure to the same market prices and factors previously thought prudent to hedge. Exhibit No. __ (JM-3) demonstrates that executing the model would require significant rebalancing of DEF’s portfolio (resembling more of a market trading regime of buying and selling at unknown costs than a hedging protocol). Indeed, Mr. Gettings calls for a

¹⁵ *Id.* at 21, ll. 8-9.
¹⁶ Please note the inputs came from the model before Mr. Gettings announced in his testimony that he “substantially revised the model for this testimony.” *See* Gettings, p. 27, l. 14. Mr. Gettings has not explained what those substantial revisions entail and DEF has not had an opportunity to either perform a detailed analysis of his revised model or to ask questions regarding those revisions.
¹⁷ *See id.* at p. 28, l. 13.

1 weekly rebalancing of the hedge ratio.¹⁸ This exhibit also depicts the gross amount of
2 gas that would need to be hedged (and then potentially unhedged) on a monthly basis in
3 order to rebalance the portfolio pursuant to Mr. Gettings' model – in some months
4 greater than 30% of DEF's projected annual natural gas burn. Of course, unwinding
5 hedges subjects customers to the same market exposures the original hedges were
6 intended to protect against.

7 I also question Mr. Gettings' contention that he is not relying on hindsight to demonstrate
8 the alleged benefits of his approach.¹⁹ His reliance on hindsight is apparent from two
9 facts. First, Mr. Gettings has yet to produce a working model that shows how his model
10 would work with decision points defined prospectively, or without access to actual
11 historical price data; rather, he has provided back-tests where he is able to select the
12 action thresholds with the benefit of historical knowledge to show that his model
13 outperformed the legacy hedging program (he has provided no analysis to contradict the
14 companies' contention that the OTM call option approach accomplished his hedging
15 goals at a lower cost than his approach over the period tested). And second, when
16 confronted with the more cost-effective OTM call option approach (over the historical
17 period tested), Mr. Gettings "substantially revised the model" by, presumably, adjusting
18 the parameters or action thresholds to produce better outcomes; of course, a company
19 implementing the approach in real-time would not have that luxury.

20

21 **Q. On pages 37-38 of his testimony, Mr. Gettings has expressed the concern that the**
22 **options market does not have sufficient liquidity or transparency for the companies**

¹⁸ See Gettings, at p. 22, ll. 17-19.

¹⁹ See *id.* at p. 29, ll. 17-23.

1 **to cost-effectively implement the OTM approach. Does DEF agree with this**
2 **concern?**

3 A. No, DEF disagrees with this view for several reasons. For background, industry
4 participants can transact financial option natural gas transactions via exchanges, such as
5 the Chicago Mercantile Exchange (“CME”) and the Intercontinental Exchange (“ICE”),
6 and/or directly with counterparties in the over-the-counter (“OTC”) market. As
7 discussed below, liquidity is available across both the exchanges and OTC markets to
8 transact in both natural gas swaps and options.

9 Major swap dealers can transact across both the exchange and OTC markets with
10 counterparties. The exchange markets primarily deal in standardized transaction volumes
11 and tenors. Commercial end users (such as DEF) hedging their exposure to natural gas
12 price volatility generally transact in the OTC market so they can customize their hedges
13 (volume, size, tenor) to their specific underlying needs and exposure and so they can
14 utilize their credit under bilateral financial agreements with counterparties. DEF has
15 executed all of its financial swaps and collars under these agreements after obtaining
16 multiple offers. DEF has faced no liquidity constraints for any instruments within its
17 hedging parameters.

18 Further, with respect to his observations about general liquidity, transparency and
19 theoretical option prices, Mr. Gettings states that he viewed the CME quote page for
20 August 2018 options as of July 14, 2017, and it showed traded volumes as zero; because
21 no transactions closed on that day, he concluded the option quotes were theoretical.²⁰ He
22 also states most options transactions take place between counterparties rather than

²⁰ See *id.* at p. 37, ll. 11-13.

1 exchanges.²¹ It is unclear how the apparent lack of closed options transactions on the
2 CME for one day could lead Mr. Gettings to the conclusion that option quotes were
3 theoretical or there is limited liquidity, especially given his statement that most
4 transactions occur on the OTC market and not on exchanges.

5 Notwithstanding this apparent contradiction, Exhibit No. __ (JM-4) demonstrates that the
6 markets are sufficiently liquid to permit execution of options for DEF to implement the
7 OTM call option approach. Exhibit No. __ (JM-4) shows that, as of August 22, 2017, the
8 equivalent open interest for gas options contracts on CME and ICE was approximately
9 809,000 contracts for September 2017 and 778,000 contracts for October 2017. This
10 represents approximately 8,000 BCF (or 8 TCF) of notional open interest gas options
11 contracts for these months alone. This volume represents a significant open option
12 interest (which does not include the volume that occurs over-the-counter which Mr.
13 Getting acknowledges is where most of the options trading occurs) and also represents
14 the open interest and not positions that have may have been closed. So it is likely the
15 number of options contracts traded for these months was potentially significantly higher.

16
17 To put the exchange-based open options interest in some perspective, assume the IOU's
18 combined Florida annual burn was approximately 900 BCF/year. For illustrative
19 purposes, if that number is divided by 12 months, that equates to average burn of roughly
20 75 BCF/month. Assume further that each IOU hedges 50% of its projected burns over
21 time, that would equate to roughly 37.5 BCF/month. That 37.5 BCF/month equates to
22 less than 0.5% of the total options open interest on just the CME and ICE.

²¹ See *id.* at p. 37, ll. 14-15.

1 Finally, to address the notion of the potential lack of available transparent, competitive
2 pricing and depth of the market, DEF gathered multiple indicative market quotes for 15%
3 OTM call options for a given day based on prices for two (2) contracts per day (20,000
4 MMBtu/day) and five (5) contracts per day (50,000 MMBtu/day) for differing tenors
5 (November 2017 through March 2018, April 2018 through October 2018, and calendar
6 year 2018) to understand the availability and pricing differences for different sizes of
7 trades as of the same closing date. The observations were 1) the OTM option price
8 indications for 2 contracts per day were similar between the counterparties and the most
9 competitive pricing were within approximately \$.0005 and \$.0025 per MMBtu of each
10 other.; 2) the estimated pricing for 5 contracts per day versus 2 contracts per day was
11 slightly higher cost of approximately \$0.0025 to \$0.003 cents per MMBtu; and 3) the
12 current option market indicates that estimated annual costs would be lower than DEF
13 illustrated during the hedging workshop. The trade sizes were selected for comparison
14 only and are larger than DEF's typical hedge transaction trade volume as part of its
15 previous structured hedging approach and the counterparties all stated they could transact
16 on any given day for the volumes and terms outlined above.²²

17 In summary, the options market is sufficiently transparent and liquid for DEF to execute
18 hedges in a cost competitive manner consistent with the contemplated OTM call hedging
19 approach.

20
21 **Q. On page 37, lines 19-25, Mr. Gettings states his concern that large counterparties**
22 **could extract large premiums from the Florida utilities given his belief that each**

²² This would appear to contradict Mr. Gettings' hypothetical environment based on widely different perceptions in implied volatility. See Gettings, pp. 34-35.

1 **company would employ the same hedging strategy on the same timeline. Do you**
2 **agree with this assessment and share his concerns?**

3 A. No, DEF does not share his concerns for multiple reasons. First, DEF has no intention of
4 hedging under the OTM call option approach using the parameters Mr. Gettings has
5 assumed. Therefore, DEF would not be “coming to market for the same one-year, 15%
6 OTM options every month.”²³ For that reason alone, Mr. Gettings’ concerns are
7 unfounded.

8 Second, I disagree with his contention that large counterparties would or could extract
9 “large premiums” from DEF or the other Florida IOUs because it is based on faulty
10 premises. To accept his conclusion, one would have to assume that either a) the large
11 trading desks would collude to drive prices higher, b) that all utilities would be required
12 to buy from one counterparty regardless of price, or c) that the utilities would choose to
13 solicit offers from only one market maker without referring to where underlying prices
14 were trading, historical settlement information, or having any ability to calibrate option
15 pricing via other offers and an option pricing tool. Thus, one would need to presume that
16 DEF would simply accept any offer and pay any price offered. This is simply not the
17 case nor a market reality.

18 For further background, standard option pricing tools have been utilized for decades and
19 provide the ability to calculate the market value of a particular option at any given time
20 based on the underlying market price of the commodity, the time to expiry, the strike
21 price, volatility and the interest rate. A large energy desk could not simply make any
22 arbitrary offer and expect a buyer to accept it. In addition, as part of price discovery and

²³ See *id.* at p. 37, ll. 24-25.

1 execution of any options, DEF would solicit multiple offers for the respective product to
2 ensure competitive pricing. Further, DEF can also calibrate the offers using an option
3 pricing model to determine the reasonableness of offers.

4 Thus, his notions of market liquidity for options, theoretical pricing presumptions, and
5 the underlying theme that counterparties would be able to extract large premiums from
6 the Florida IOUs are without merit.

7

8 **Q. On pages 34-36, Mr. Gettings summarizes some hypothetical market**
9 **environments about option pricing and market behavior, volatility being driven**
10 **by “transient perceptions” and then explains how these would impact option**
11 **pricing. Do you have any observations?**

12 A. Yes. “Transient perceptions”²⁴ is a term used by Mr. Gettings to illustrate issues with
13 implied volatility, presumably in a hypothetical environment. Mr. Gettings uses an
14 illustration of the spike in short-term prices and volatility in early 2014 as an example of
15 the effect driven by “transient perceptions.”²⁵ His explanation that the jump in volatility
16 in early 2014 was driven by “transient perceptions” disregards the fundamental factors
17 (e.g., the historic Polar Vortex, extended cold weather events across broad regions of the
18 U.S. throughout January 2014, gas usage that far exceeded average burns, the high
19 natural gas spot prices that occurred in some locations during January and February 2014,
20 and the lingering fundamental impacts of these factors) that drive volatility and market
21 pricing.²⁶

²⁴ *Id.* at p. 35, l. 22.

²⁵ *See id.* at p. 35, ll. 17-24 & Table 10.

²⁶ In response to OPC’s second set of interrogatories, number 14, DEF explained how the factors noted above caused the 2014 price spike and attached a FERC presentation discussing the same.

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Q. Do you have any other thoughts about the theoretical option pricing and the conclusions reached by Mr. Gettings?

A. Yes. After describing periods of high volatility and higher prices, Mr. Gettings states “Consider how resolutely a company might follow a calendar-driven OTM strategy when options trade at these multiple[s] of ‘normal’ pricing.”²⁷ Mr. Gettings’ concern about purchasing options during these short-term high-stress/high-volatility periods fails to consider that following a strategy of layering in OTM call options over time to achieve the desired hedge ratio would avoid the theoretical higher short-term option prices for the front forward months because the hedges for these periods would effectively be in place prior to the increase in prices and volatility. To the contrary, under his proposed “risk responsive” hedging approach the price spikes would trigger defensive hedging activity as swap prices are rising, only to position a company under the contingent strategies to potentially unwind these hedges as prices dropped to constrain potential hedge losses.

In addition, Mr. Gettings uses broad ranges to outline the cost of call option expenditures and states they are “likely to range from at least 5% to 14% of the market cost of the underlying gas volumes.”²⁸ This statement is misleading as it ignores that the cost of the option represents the value of an option when its purchased. Said differently, the value of the option is equal to the cost of the option at the time of the transaction based on market pricing. All else being equal, the value of the option in a stressful time where market prices and volatility increased would increase.

²⁷ *Id.* at p. 36, ll. 8-9.
²⁸ *See id.* at p. 33, ll. 8-9.

1

2 **Q. Is the proposed OTM call option approach outlined by DEF risk responsive?**

3 A. Yes. To explain more fully, we need to start at the end. A call option at the moment of its
4 expiry is either exactly like having purchased the underlying gas at a location at a point in
5 time at a fixed price (the underlying asset) or it is nothing because it is out of the money
6 and it is better to purchase the underlying asset at market price. At any time prior to
7 expiry it is like a probability-weighted combination of those two possible outcomes. The
8 higher the price of the underlying commodity the higher the probability of an in-the-
9 money finish, and the more it is like a forward. The lower the price of the underlying
10 commodity the higher the probability it will expire out-of-the-money. Similarly, the more
11 uncertainty (volatility) the more it is like a forward purchase (likely to expire in-the-
12 money) and the less uncertainty (lower volatility) the more likely it is to expire out-of-
13 the-money. So as OTM call options are executed over time, the executed OTC call
14 options' values and underlying positions will change as market prices and volatility move
15 and therefore behave in a "risk responsive" manner continuously and automatically.

16

17 **Q. If the Commission was to approve the use of the OTM call option approach, has**
18 **DEF recommended using "calls that are 15% out of the money and cover 60% of**
19 **planned volumes" as stated by Mr. Gettings on page 33, lines 22-23 of his**
20 **testimony?**

21 A. No. DEF has stated in response to discovery that it has not yet developed an actionable
22 risk management plan to implement the DEF-preferred OTM call option approach.
23 However, DEF did perform back-testing of a theoretical OTM call option approach in

1 order to provide a representative comparison of the OTM approach versus Mr. Gettings’
2 approach, the results of which were included in Exhibit No. __ (JM-2). The parameters
3 of that back test included hedging 50% of the projected natural gas burns for the
4 applicable time period (not 60% as asserted by Mr. Gettings) and employed both 15%
5 and 20% out of the money options scenarios, which were chosen because they provided a
6 balance between option costs (premiums) and upside price protections, as explained in
7 DEF’s response to Staff’s Interrogatory number 9.
8

9 **Q. Has DEF stated that it would plan to “use one-year tenor” if the Commission**
10 **approved the OTM call option approach, as asserted by Mr. Gettings on page**
11 **37, line 9?**

12 A. No. Again, DEF has not yet drafted an actionable risk-management plan to implement
13 the OTM call option approach, but DEF has also never stated it favors or supports a one-
14 year tenor. In fact, DEF’s response to Staff’s interrogatory number 9 noted that the
15 OTM call option back-test used a “two year hedging rolling period . . . to provide what
16 DEF believed was the minimal period hedges should be executed to provide some
17 layering in of price protection over multiple fuel periods.”
18

19 **Q. On page 37, lines 16-18, Mr. Gettings states “I do not know if the IOUs used**
20 **theoretical quotes to assess the OTM strategy, but unless they found a source**
21 **maintaining a database of actual transactions, I suspect that is the case.” Did**
22 **DEF’s back-testing of the OTM call option approach use theoretical option quotes**
23 **or historical market quotes?**
24

1 A. As stated in DEF's response to Staff's interrogatory number 9, DEF's back-test used
2 market closing option prices from the Intercontinental Exchange (ICE), not "theoretical"
3 quotes.

4
5 **Q. Do you agree with Mr. Gettings' representation of DEF's position regarding the**
6 **cost of purchasing options presented on page 33, lines 18-21?**

7 A. No, I do not. DEF has never asserted that the OTM call option approach can be
8 implemented at zero cost. In fact, on Exhibit No. __ (JM-2), DEF presented its back-test
9 of the call option approach and indicated the estimated costs to operate the strategy for
10 the years provided. What DEF and the other IOUs have stated is that the cost of
11 executing the approach could be estimated and established upfront and that there would
12 be no additional hedging costs above the cost of the options purchased.

13
14 **Q. Does this conclude your testimony?**

15 A. Yes.

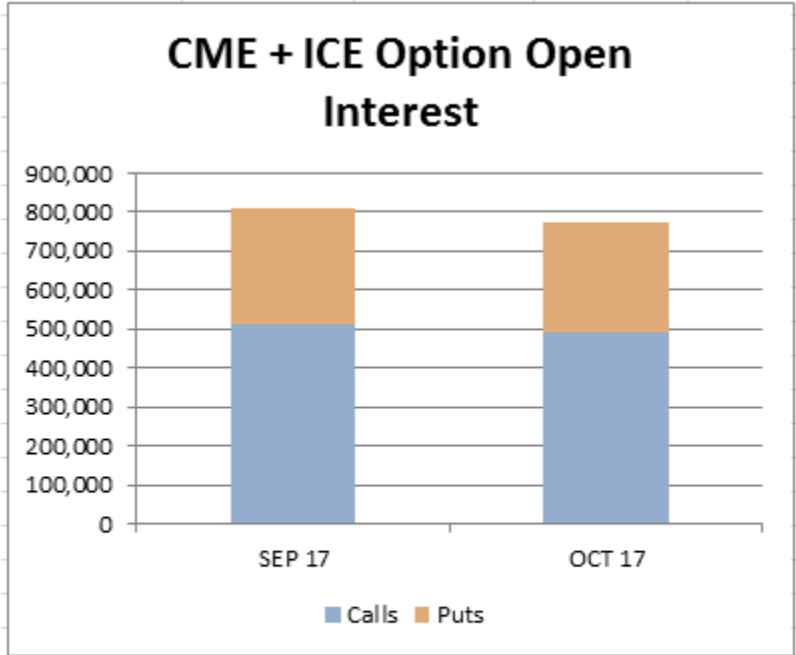
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17

18

19

REDACTED



All data as of 8/22/2017

*ICE Data onverted to 1 contract = 10,000 MMBtus

Source: CME, ICE