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April 3, 2017

**VIA: ELECTRONIC FILING**

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

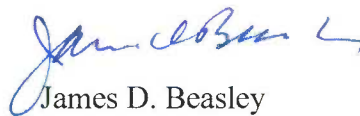
Re: Fuel and Purchased Power Cost Recovery Clause with Generating  
Performance Incentive Factor; FPSC Docket No. 170001-EI

Dear Ms. Stauffer:

Attached for filing in the above docket on behalf of Tampa Electric Company is the Prepared Direct Testimony of J. Brent Caldwell and accompanying Exhibit No. \_\_\_\_ (JBC-1), identified as 2016 Hedging Activity True-Up.

Thank you for your assistance in connection with this matter.

Sincerely,

  
James D. Beasley

JDB/pp  
Attachment

cc: All parties of record (w/attachment)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Testimony and Exhibit JBC-1 of Brent Caldwell has been furnished by electronic mail on this 3<sup>rd</sup> day of April 2017 to the following:

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\_\_\_\_\_  
ATTORNEY



BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 170001-EI  
IN RE: FUEL & PURCHASED POWER COST RECOVERY  
AND  
CAPACITY COST RECOVERY

2016 HEDGING ACTIVITY TRUE-UP

TESTIMONY AND EXHIBIT

J. BRENT CALDWELL

FILED: APRIL 3, 2017

1                   **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2                                   **PREPARED DIRECT TESTIMONY**

3   **OF**

4   **J. BRENT CALDWELL**

5  
6   **Q.**   Please state your name, address, occupation and employer.  
7

8   **A.**   My name is J. Brent Caldwell. My business address is 702  
9           N. Franklin Street, Tampa, Florida 33602. I am employed  
10          by Tampa Electric Company ("Tampa Electric" or "company")  
11          as Director Fuels Planning & Services.  
12

13   **Q.**   Please provide a brief outline of your educational  
14          background and business experience.  
15

16   **A.**   I received a Bachelor's degree in Electrical Engineering  
17          from Georgia Institute of Technology in 1985 and a Master  
18          of Science degree in Electrical Engineering in 1988 from  
19          the University of South Florida. I have over 20 years of  
20          utility experience with an emphasis in state and federal  
21          regulatory matters, fuel procurement and transportation,  
22          fuel logistics and cost reporting, and business systems  
23          analysis. In October 2010, I assumed responsibility for  
24          long term fuel supply planning and procurement for Tampa  
25          Electric's generating stations.

1 Q. Have you previously testified before the Florida Public  
2 Service Commission ("FPSC" or "Commission")?

3

4 A. Yes. I have submitted written testimony in the annual  
5 fuel docket since 2011. In 2015, I testified in Docket  
6 No. 150001-EI on the subject of natural gas hedging. I  
7 have also testified before the Commission in Docket No.  
8 120234-EI regarding the company's fuel procurement for  
9 the Polk 2-5 Combined Cycle Conversion project.

10

11 Q. Please state the purpose of your testimony.

12

13 A. The purpose of my testimony is to present, for the  
14 Commission's review, information regarding the 2016  
15 results of Tampa Electric's risk management activities,  
16 as required by the terms of the stipulation entered into  
17 by the parties to Docket No. 011605-EI and approved by  
18 the Commission in Order No. PSC-02-1484-FOF-EI.

19

20 Q. Do you wish to sponsor an exhibit in support of your  
21 testimony?

22

23 A. Yes. Exhibit No. \_\_\_\_ (JBC-1), entitled Tampa Electric's  
24 2016 Hedging Activity True-up, was prepared under my  
25 direction and supervision. This report explains the

1 company's risk management activities and results for the  
2 calendar year 2016.

3  
4 **Q.** What is the source of the data you present in your  
5 testimony in this proceeding?

6  
7 **A.** Unless otherwise indicated, the source of the data is the  
8 books and records of Tampa Electric. The books and  
9 records are kept in the regular course of business in  
10 accordance with generally accepted accounting principles  
11 and practices, and provisions of the Uniform System of  
12 Accounts as prescribed by this Commission.

13  
14 **Q.** What were the results of Tampa Electric's risk management  
15 activities in 2016?

16  
17 **A.** As outlined in Tampa Electric's 2016 Hedging Activity  
18 True-up, filed as an exhibit to this testimony, the  
19 company follows a non-speculative risk management  
20 strategy to reduce fuel price volatility while  
21 maintaining a reliable supply of fuel. The company's 2016  
22 Risk Management Plan includes a financial hedging program  
23 to reduce price volatility and limit customers' exposure  
24 to spikes in the price of natural gas. The Commission  
25 reviews and approves the Risk Management Plan each year.

1 Tampa Electric's 2016 hedging activities resulted in a  
2 net settlement loss of approximately \$19.3 million. These  
3 results are due to the market conditions experienced in  
4 the past year. Natural gas prices decreased significantly  
5 in late 2015 and throughout 2016 due to mild weather and  
6 abundant natural gas production which resulted in a  
7 settlement loss. However, the hedges were successful in  
8 achieving the plan objective of reducing price volatility  
9 while maintaining a reliable fuel supply.

10  
11 **Q.** Please describe the hedging moratorium that was approved  
12 by the Commission in 2016, and the effect of that  
13 moratorium on a going forward basis?

14  
15 **A.** On October 24, 2016, electric investor-owned utilities  
16 DEF, Gulf and Tampa Electric, collectively the IOUs, OPC,  
17 the Florida Industrial Power Users Group ("FIPUG") and  
18 the Florida Retail Federation ("FRF") jointly entered  
19 into a Stipulation and Agreement ("Agreement"). Under  
20 the terms of the Agreement, the IOUs agreed to put in  
21 place a 100 percent moratorium on any new hedges,  
22 effective immediately upon the Commission's approval of  
23 the Agreement with that moratorium extending through  
24 calendar year 2017. The Agreement further called for a  
25 workshop or workshops, as soon as practicable to consider



1 all alternatives to prospectively resolving the hedging  
2 issues, including but not limited to a risk-responsive  
3 approach, a reduction in the current levels of hedging  
4 and hedging durations, use of different financial  
5 products, or the termination of financial hedging  
6 altogether. The stated goal was either establishing a  
7 basis for the IOUs to present risk management plans for  
8 2018 that all stakeholders could agree upon or not object  
9 to, or reaching some other mutually agreeable resolution  
10 of the hedging issues identified in Docket No. 160001-EI.  
11 The Agreement was approved by the Commission on December  
12 5, 2016, with the issuance of Order No. PSC-16-0547-FOF-  
13 EI.

14  
15 On January 10, 2017 representatives from the IOUs, Staff  
16 and intervenors attended an informal workshop at the  
17 Commission. The subject of the workshop was a  
18 presentation about the hedging proposal recommended by  
19 Staff witness Gettings in his testimony filed in the 2016  
20 fuel docket. Mr. Gettings described his model, analysis  
21 results, and details of his proposal and answered  
22 questions from the companies and intervenors. The purpose  
23 of Mr. Gettings' four-stage hedging proposal is to  
24 mitigate price volatility while limiting hedging losses.  
25 This workshop was followed by individual meetings with

1 the utilities and intervenors having opportunities to  
2 explore Mr. Gettings' model through questions and  
3 interaction.

4  
5 A further workshop was scheduled for February 21, 2017 to  
6 allow the parties to provide feedback on the Staff  
7 proposal as well as alternative hedging proposals. The  
8 utilities presented a joint hedging proposal to use out-  
9 of-the-money ("OTM") call options instead of the  
10 previously employed swaps, as an effective method of  
11 achieving price volatility mitigation that is  
12 significantly less complex than the Gettings risk-  
13 responsive proposal and at the same time allowing customers  
14 to participate in downward market price movements during  
15 periods of declining natural gas prices as opposed to  
16 sustaining settlement losses. Each of the IOUs provided  
17 an analysis of the costs and potential effectiveness of  
18 the OTM call option hedging strategy and answered  
19 questions about their analyses and the proposed  
20 implementation of this strategy.

21  
22 Interested parties presented post-workshop comments  
23 following the February 21, 2017 workshop, and the  
24 Commission is scheduled to address the hedging issues at  
25 its April 4, 2017 Agenda Conference in Docket No. 170057-

1 EI. Future activities relative to hedging will depend on  
2 the outcome of that docket.

3

4 **Q.** Does Tampa Electric implement physical hedges for natural  
5 gas?

6

7 **A.** No, Tampa Electric does not hedge natural gas pricing  
8 through physical gas supply contracts. Tampa Electric  
9 does hedge its natural gas supply through  
10 diversification. Tampa Electric physically hedges its  
11 supply through the use of a variety of sources, delivery  
12 methods, inventory locations and contractual terms to  
13 enhance the company's supply reliability and flexibility  
14 to cost-effectively meet changing operational needs.

15

16 Tampa Electric continually pursues new creditworthy  
17 counterparties and maintains contracts for gas supplies  
18 from various regions and on different pipelines. The  
19 company also contracts for pipeline capacity to access  
20 non-conventional shale gas production which is less  
21 sensitive to interruption by hurricanes. Additionally,  
22 Tampa Electric has storage capacity with Bay Gas Storage  
23 near Mobile, Alabama. All of these actions enhance the  
24 effectiveness of Tampa Electric's gas supply portfolio.

25

1 **Q.** Does Tampa Electric use a hedging information system?

2

3 **A.** Yes, Tampa Electric previously used Sungard's Nucleus  
4 Risk Management System ("Nucleus"). In 2013, Tampa  
5 Electric initiated a project to replace Nucleus with  
6 Allegro. The natural gas portion of the Allegro Energy  
7 Trading and Risk Management (ETRM) project replaced  
8 Nucleus for all natural gas financial and physical  
9 transactions effective November 1, 2014. The wholesale  
10 power portion of the Allegro ETRM project replaced the  
11 in-house system on October 1, 2015. The final phase of  
12 the Allegro ETRM project went into production for solid  
13 and liquid fuels on August 1, 2016. Allegro supports  
14 sound hedging practices with its contract management,  
15 separation of duties, credit tracking, transaction  
16 limits, deal confirmation, risk exposure analysis and  
17 business report generation functions. The Allegro system  
18 records all financial natural gas hedging transactions,  
19 and the system produces risk management reports.

20

21 **Q.** Did the company use financial hedges for commodities other  
22 than natural gas in 2016?

23

24 **A.** No. Tampa Electric did not use financial hedges for  
25 commodities other than natural gas in 2016.

1 Tampa Electric's generation units are fueled primarily by  
2 coal and natural gas. The price of coal has historically  
3 been stable compared to the prices of oil and natural gas.  
4 In addition, there is not an organized, liquid, market  
5 for financial hedging instruments for the high-sulfur  
6 Illinois Basin coal that Tampa Electric uses at Big Bend  
7 Station, its largest coal-fired generation facility.

8  
9 Tampa Electric consumes a small amount of oil; however,  
10 its low and erratic usage pattern makes price hedging  
11 impractical.

12  
13 Similarly, Tampa Electric did not use financial hedges  
14 for wholesale power transactions because a liquid,  
15 published market does not exist for power in Florida.

16  
17 **Q.** How does Tampa Electric assure physical supply of other  
18 commodities?

19  
20 **A.** Tampa Electric assures sufficient physical supply of coal  
21 and oil through supply diversification, inventory  
22 sufficiency, and delivery flexibility. For coal, the  
23 company enters into a portfolio of contracts with  
24 differing terms and various suppliers to obtain the types  
25 of coal used in its electric generation system. Through

1 a competitive bid process, supplier diversity and  
2 transportation flexibility, Tampa Electric is able to  
3 obtain competitive prices with valuable quality and  
4 transportation flexibility by selecting from a wide range  
5 of purchase options.

6

7 **Q.** What is the basis for your request to recover the  
8 commodity and transaction costs described above?

9

10 **A.** Tampa Electric requests cost recovery pursuant to the  
11 Commission Order No. PSC-02-1484-FOF-EI, in Docket No.  
12 011605-EI:

13 Each investor-owned electric utility shall be  
14 authorized to charge/credit to the fuel and  
15 purchased power cost recovery  
16 clause its non-speculative, prudently-  
17 incurred commodity costs and gains and losses  
18 associated with financial and/or physical  
19 hedging transactions for natural gas, residual  
20 oil, and purchased power contracts tied to the  
21 price of natural gas.

22

23 **Q.** Does this conclude your testimony?

24

25 **A.** Yes, it does.

## **Tampa Electric 2016 Hedging Activity True-up**

Tampa Electric's Risk Management Plan identified the following objectives:

- **Qualitative Objectives**  
Tampa Electric's primary goal in managing risk associated with fuel or power purchases focuses on minimizing supply risk to ensure reliability of electric service to its customers at a reasonable price. To the extent that price risk can be mitigated without compromising supply reliability or imposing unreasonable costs on its customers, Tampa Electric is committed to executing strategies to accomplish its risk management goal.
  
- **Quantitative Objectives**  
Tampa Electric's quantitative objective is to prudently manage its fuel and wholesale energy procurement activities so as to minimize the variance from projected expenditures while taking advantage of cost-saving opportunities that do not result in increased supply risk. Tampa Electric has established a portfolio of fuel and purchased power products with creditworthy counterparties for known volumes and prices.

### **2016 Risk Management Activities**

The company's activities in 2016 that supported the objectives listed above are described in the following section.

- **Coal Purchases**  
Tampa Electric maintains a portfolio of short-term (also called spot market), medium-term and long-term coal contracts with the goal of minimizing fuel costs and price risk while maintaining reliability of supply. The company procured all of its 2016 coal needs from suppliers with known, established pricing. Thus, the cost for the commodity was known. Tampa Electric continued to monitor deliveries and volume commitments in contracts as the pricing in the coal market changed. Tampa Electric takes advantage of favorable spot market pricing when the coal supply is needed. Coal was used to produce approximately 44 percent of the electricity the company generated in 2016.
  
- **Coal Risk Management Activities**  
Tampa Electric's long-established policy of using physical hedges within its portfolio of different term coal supply contracts continued to help protect ratepayers from coal price volatility.

➤ **Natural Gas Purchases**

In 2016, approximately 56 percent of the electricity Tampa Electric generated was produced using natural gas. Tampa Electric's risk management strategy continues to focus on supply reliability and price volatility reduction. The components critical to the success of the natural gas purchasing strategy are as follows:

- Execution of the natural gas hedge plan approved by the Risk Authorizing Committee;
- Maintaining liquidity by contracting with numerous qualified counterparties;
- Time horizon for natural gas hedging activity that allows the company to hedge natural gas prices into the future;
- Maintaining a minimum and maximum hedge volume percentage by month into the future;
- Maintaining physical natural gas storage capacity near Mobile Bay, Alabama;
- Diversifying interstate pipeline receipt points;
- Expanding access to additional interstate pipelines;
- Maintaining databases and reports to monitor activity;
- Maintaining coordination between power plant operations and natural gas scheduling;
- Maintaining separation of duties and installation of controls consistent with current industry practices.

➤ **Natural Gas Hedging Activities**

Natural gas prices historically have been more volatile than coal prices. Natural gas prices are more volatile due to the significant variations in natural gas consumption by natural gas fired power plants that increase and decrease generation to follow changes in demand. Additionally, hurricane activity and other weather-related production reductions or demand increases have a significant impact on the natural gas market. Therefore, Tampa Electric continued to use financial instruments to hedge the price of a portion of the natural gas consumed in 2016 to reduce customers' exposure to the volatility of natural gas prices until approval of the agreement to cease hedging through December 31, 2017, approved in Order PSC-16-0547-FOF-EI.

Tampa Electric used financial floating-price-to-fixed-price swaps to hedge natural gas prices. The costs associated with these instruments are embedded in the price of the instruments and are included in the fuel commodity costs reported by the company. The hedges are described in the following table.



**Tampa Electric Company  
 Natural Gas Hedging Activities**

**January 1, 2016 through December 31, 2016**

	Type of Hedge	Settlement Saving/(Loss)	Hedged Volume (MMBTU)	Consumption (MMBTU)	Percent Hedged	Budget Price	Hedge Price	Settle Price
Jan-16	Swaps	(\$2,074,970)		7,131,969				\$2.37
Feb-16	Swaps	(\$2,772,810)		6,630,822				\$2.19
Mar-16	Swaps	(\$3,492,690)		7,902,554				\$1.71
Apr-16	Swaps	(\$3,262,410)		8,891,882				\$1.90
May-16	Swaps	(\$3,127,515)		6,117,238				\$2.00
Jun-16	Swaps	(\$3,403,620)		7,126,182				\$1.96
Jul-16	Swaps	\$256,280		6,601,646				\$2.92
Aug-16	Swaps	(\$380,440)		6,821,122				\$2.67
Sep-16	Swaps	(\$40,680)		6,568,368				\$2.85
Oct-16	Swaps	(\$246,310)		5,452,786				\$2.95
Nov-16	Swaps	(\$742,140)		5,436,783				\$2.76
Dec-16	Swaps	(\$46,070)		4,997,239				\$3.23
<b>Total</b>		<b>(\$19,333,375)</b>		<b>79,678,591</b>				

Consistent with Tampa Electric’s non-speculative risk management plan objective, Tampa Electric’s natural gas hedging plan provided price stability and certainty during 2016. For 2016, the calendar year net position for natural gas hedges was higher than the closing price of natural gas, resulting in a settlement net loss of \$19.3 million. Natural gas prices dropped significantly in 2016 due to an abundance of natural gas production and mild weather.

Tampa Electric maintains natural gas storage capacity of 1,500,000 MMBtu in order to enhance its physical reliability of gas supply. The storage provides Tampa Electric with improved access to “intraday” natural gas when an operational need arises, provides improved hurricane coverage, and can be used to cost-effectively manage swings in gas supply needs during extreme weather conditions, weekends, holidays and unplanned power plant outages.

Tampa Electric also continues to improve its physical access to natural gas supply by diversifying its receipt points along the Gulf Coast and other areas when opportunities arise.

In summary, financial hedging activities for natural gas resulted in a net settlement loss of approximately \$19.3 million in 2016; more importantly, Tampa Electric was successful in reducing price uncertainty and maintaining fuel supply reliability for customers for both its physical and financial hedges.

**2016 Market Pricing**

Tampa Electric provides a comparison of 2016 fuel prices to the market price for the respective commodity in the following section.

➤ **Coal**

Coal is a commodity with a great range of quality characteristics. Market indexes provide a guide to current market pricing but are not always specific enough to accurately demonstrate the market price of a particular coal. Market prices for coal are most accurately determined by competitive bid solicitations that specify the required coal quality or characteristics. With the exception of purchases for reliability reasons, short-term purchases for changing plant operation needs and spot market purchases to take advantage of favorable pricing, Tampa Electric purchases coal at prices determined by competitive bid solicitations; therefore, the company’s purchases are at market. A comparison of coal contract prices for 2016 to the average acceptable bid price or index price is provided in the following table. Unless otherwise stated, the prices represent the market at the time each contract was entered into and are not representative of today’s market. Any comparison to current market prices overlooks the market conditions that existed at the time the coal was procured.

**Tampa Electric  
 Coal Contract to Market Indicator Price Comparisons**

Supplier	Contract (\$/MMBtu)	Market Indicator (\$/MMBtu)	Difference	Market Indicator Source	Note
Knight Hawk Coal LLC		\$3.39		Gen 2014-01 (RFP issued 11/5/13)	1
Consol Pennsylvania Coal Company LLC		\$3.65		Gen 2014-01 (RFP issued 11/5/13) Indices analysis	1,7
Alliance Coal LLC.		\$3.39		Gen 2014-01 (RFP issued 11/5/13)	1
Valero Marketing and Supply Company		\$2.78		Gen 2015-04-PC (phone solicitation for 2015 Petcoke supply Sept 2014) Contract extended through 2016	2
Armstrong Coal Company INC.		\$3.30		Gen 2015-02 (email issued 6/10/14)	1
Armstrong Coal Company INC.		\$3.38		Argus/Coaldesk Index purchase w/call options 7/15/16-7/24/16	6
Trafigura AG Branch Office Stamford		\$3.24		Sale/Purchase buyback for Inventory Mitigation	8
Koch Carbon LLC		\$1.98		Argus/Pace Petroleum Coke Indexes (June 2015)	3

**Tampa Electric  
 Coal Contract to Market Indicator Price Comparisons**

Supplier	Contract (\$/MMBtu)	Market Indicator (\$/MMBtu)	Difference	Market Indicator Source	Note
Koch Carbon LLC		\$1.13		Argus/Pace Petroleum Coke Indexes (November 2015)	4
Glencore Ltd.		\$2.38		GEN LS SALS Jan16 (Phone solicitation 1/11/16)	1
U.S. United Ocean Services LLC		\$1.82		Argus/Coaldesk Index purchase 5/6/16 (Coal purchased for resale)	5

Notes: The contract \$/MMBTU refers to the initial price of the contract at its inception. This price could be subject to escalation per the terms of the contract. All prices are determined on a fully delivered basis. Index values have also been calculated on a delivered basis for comparison purposes.

1. Market Indicator price is the average price submitted of all acceptable coal bids.
2. Market Indicator price is the average price submitted of all acceptable petcoke bids.
3. Index based purchase, pricing based on average of two Indices. Argus and Pace Petroleum Coke Indexes (June 2015).
4. Index based purchase, pricing based on average of two Indices. Argus and Pace Petroleum Coke Indexes (November 2015).
5. Purchase and resale made to provide additional Inventory space at United Bulk Terminal. Gain credited to fuel clause.
6. Negotiated purchase with pricing based on average of two Indices. Argus Coal Daily and Coaldesk LLC Indexes (July 2015).

7. Indicative pricing based on Argus Coal Daily and ICAP NAPP pricing 11/8/2013
8. Price reflects the delivered cost of coal including transportation to, and storage for over a year at, a different terminal on the lower Mississippi.

➤ **Natural Gas**

Tampa Electric purchases natural gas at prices that are set by published indexes that reflect the market price. Most of the monthly baseload gas is purchased at a price relative to the New York Mercantile Exchange natural gas futures last day settlement price. Tampa Electric purchases additional baseload gas at monthly index prices published in *Inside FERC, Gas Market Report*. Tampa Electric uses the indexes representing market prices for natural gas on the Gulf Coast that can be transported to Tampa Electric’s service area: Henry Hub, Mobile Bay, or Florida Gas Transmission (“FGT”) Zone 1, Zone 2 or Zone 3. For daily and short-term natural gas, Tampa Electric typically purchases natural gas based on the FGT index price published in *Gas Daily*. In rare instances, Tampa Electric also purchases small volumes of spot natural gas needed for short durations at fixed prices. Since the price of natural gas Tampa Electric purchases is based upon a published market index, the company’s natural gas purchases are at market.

- No. 2 Oil  
Tampa Electric purchases No. 2 oil for combustion turbines at Polk Station. The purchase price is based upon the daily index price published in Platt's *Oilgram* for Gulf Coast Waterborne spot purchases of ultra-low sulfur No. 2 oil. Since the price is determined by the published market index, the price paid by Tampa Electric is at market.