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April 3, 2018

VIA: ELECTRONIC FILING

Ms. Carlotta S. Stauffer
Commission Clerk
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. 20190001-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 2018 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 3rd day of April 2019 to the following:

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ATTORNEY

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 20190001-EI

IN RE: FUEL & PURCHASED POWER COST RECOVERY

AND

CAPACITY COST RECOVERY

2018 HEDGING ACTIVITY TRUE-UP

TESTIMONY AND EXHIBIT

J. BRENT CALDWELL

FILED: APRIL 3, 2019

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

J. BRENT CALDWELL

Q. Please state your name, address, occupation and employer.

A. My name is J. Brent Caldwell. My business address is 702 N. Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Director, Resource Planning.

Q. Please provide a brief outline of your educational background and business experience.

A. I received a Bachelor's degree in Electrical Engineering from Georgia Institute of Technology in 1985 and a Master of Science degree in Electrical Engineering in 1988 from the University of South Florida. I have over 20 years of utility experience with an emphasis in state and federal regulatory matters, fuel procurement and transportation, fuel logistics and cost reporting, and business systems analysis. In 2017, I assumed responsibility for Portfolio Optimization which includes unit commitment, near-term maintenance planning, and natural gas and wholesale power

trading. In December 2018, I assumed the role of Director Resource Planning.

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

A. Yes. I have submitted written testimony in the annual fuel docket since 2011. In 2015, I testified in Docket No. 20150001-EI regarding natural gas hedging. I have also testified before the Commission in Docket No. 20120234-EI regarding the company's fuel procurement for the Polk 2-5 Combined Cycle Conversion project.

Q. Please state the purpose of your testimony.

A. The purpose of my testimony is to present, for the Commission's review, information regarding the 2018 results of Tampa Electric's risk management activities, as required by the terms of the stipulation entered into by the parties to Docket No. 20011605-EI and approved by the Commission in Order No. PSC-2002-1484-FOF-EI.

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

A. Yes. Exhibit No. JBC-1, entitled Tampa Electric's 2018 Hedging Activity True-up, was prepared under my direction and supervision. This report describes the company's risk management activities and results for the calendar year 2018.

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

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

Natural Gas Financial Hedging

Q. Please describe the natural gas financial hedging moratorium that began in 2016 and its effects on 2018 risk management activities.

A. On October 24, 2016, electric investor-owned utilities DEF, Gulf and Tampa Electric, collectively the IOUs, Office of Public Counsel, the Florida Industrial Power Users Group, and the Florida Retail Federation jointly

entered into a Stipulation and Agreement ("Agreement"). Under the terms of the Agreement, the IOUs agreed to put in place a 100 percent moratorium on any new hedges, effective immediately upon the Commission's approval of the Agreement, with that moratorium extending through calendar year 2017. The Agreement was approved by the Commission on December 5, 2016, with the issuance of Order No. PSC-2016-0547-FOF-EI. By Commission vote memorialized in Order No. PSC-2017-0134-PCO-EI issued April 13, 2017, Tampa Electric was not required to file a 2018 Risk Management Plan, effectively extending the hedging moratorium.

Tampa Electric prudently followed its 2016 Risk Management Plan, Commission Order No. PSC-2016-0547-FOF-EI, and Commission Order No. PSC-2017-0134-PCO-EI in utilizing financial hedges already in place prior to the moratorium to mitigate volatility of natural gas prices during the period January 2018 through December 2018.

Q. What does Tampa Electric plan to do when the hedging moratorium ends?

A. In accordance with the company's 2017 Amended and Restated Stipulation and Settlement Agreement approved by

Commission Order No. PSC-2017-0456-S-EI, issued on November 27, 2017 in Docket No. 20170210-EI, Tampa Electric will not enter into any new natural gas financial hedging contracts for fuel from January 1, 2018 through December 31, 2022.

Q. Did Tampa Electric have any natural gas financial hedging contracts that were entered prior to the start of the hedging moratorium and effective during 2018?

A. Yes. Tampa Electric has reported on the natural gas financial hedging contracts entered prior to Commission approval of the hedging moratorium, and the company has not entered any new financial hedging contracts since the moratorium began. All such hedging contracts have been settled as of the end of November 2018.

Risk Management Activities

Q. What were the results of Tampa Electric's risk management activities in 2018?

A. As outlined in Tampa Electric's 2018 Hedging Activity True-up, filed as an exhibit to this testimony, the company followed a non-speculative risk management strategy to reduce fuel price volatility while

maintaining a reliable supply of fuel. The company's 2018 risk management activities include financial hedges established prior to the moratorium. Tampa Electric's 2018 natural gas hedging activities resulted in a net settlement loss of approximately $232,000. These results are due to the market conditions experienced in the past two years as Tampa Electric has not placed any new financial hedges on its natural gas purchases since the moratorium began. The 2018 financial hedges were successful in achieving the risk management plan objective of reducing price volatility while maintaining a reliable fuel supply.

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

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

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

Q. Does Tampa Electric use a hedging information system?

A. Yes, Tampa Electric uses the Allegro System ("Allegro"). Allegro supports sound hedging practices with its contract management, separation of duties, credit tracking, transaction limits, deal confirmation, risk exposure analysis and business report generation functions. Allegro tracks all existing financial natural gas hedging transactions, and the system produces risk management reports.

Q. Did the company use financial hedges for commodities other than natural gas in 2018?

A. No. Tampa Electric did not use financial hedges for

commodities other than natural gas in 2018. Tampa Electric's generation units are fueled primarily by coal and natural gas. The price of coal has historically been stable compared to the prices of oil and natural gas. In addition, there is not an organized, liquid, market for financial hedging instruments for the high-sulfur Illinois Basin coal that Tampa Electric uses at Big Bend Station, its largest coal-fired generation facility. Tampa Electric consumes a small amount of oil; however, its low and erratic usage pattern makes price hedging impractical. Similarly, Tampa Electric did not use financial hedges for wholesale power transactions because a liquid, published market does not exist for power in Florida.

Q. How does Tampa Electric assure physical supply of other commodities?

A. Tampa Electric assures sufficient physical supply of coal and oil through supply diversification, inventory sufficiency, and delivery flexibility. For coal, the company enters into a portfolio of contracts with differing terms and various suppliers to obtain the types of coal used in its electric generation system. Through a competitive bid process, supplier diversity and

transportation flexibility, Tampa Electric obtains competitive prices with valuable quality and transportation flexibility by selecting from a wide range of purchase options.

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

A. Tampa Electric requests cost recovery pursuant to Commission Order No. PSC-2002-1484-FOF-EI, in Docket No. 20011605-EI:

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

Q. Does this conclude your testimony?

A. Yes, it does.

Tampa Electric
2018 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 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.

2018 Risk Management Activities
The company's activities in 2018 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 and inventory with the goal of minimizing fuel costs and price risk while maintaining reliability of supply. The company procured its 2018 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 18 percent of the electricity the company generated in 2018.

- 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 2018, approximately 82 percent of the electricity Tampa Electric generated was produced using natural gas. Tampa Electric's risk management strategy focuses on supply reliability. The components critical to the success of the natural gas purchasing strategy are as follows:

  - Maintaining liquidity by contracting with numerous qualified counterparties;
  - 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 Risk Management 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.

  As approved by the Commission in prior years' Risk Management Plans, Tampa Electric used financial floating-price-to-fixed-price swaps to hedge natural gas prices for a portion of its expected gas consumption until the hedging moratorium approved by the Commission in Order No. PSC-16-0547-FOF-EI. The company had hedges that were entered prior to the moratorium and settled during 2018. The costs associated with floating-price-to-fixed-price swaps are embedded in the price of the instruments and are included in the fuel commodity costs reported by the company. These hedges are described in the following table.

Tampa Electric
Natural Gas Hedging Activities
January 1, 2018 through December 31, 2018

	Type of Hedge	Settlement Saving/(Loss)	Hedged Volume (MMBTU)	Consumption (MMBTU)	Percent Hedged	Budget Price	Hedge Price	Settle Price
Jan-18	Swaps	($268,000)		8,829,903				$2.738
Feb-18	Swaps	$310,180		8,618,729				$3.631
Mar-18	Swaps	($314,780)		9,138,801				$2.639
Apr-18	Swaps	($125,945)		8,326,287				$2.691
May-18	Swaps	$15,360		8,901,622				$2.821
Jun-18	Swaps	($600)		11,427,304				$2.875
Jul-18	Swaps	$45,440		12,097,762				$2.996
Aug-18	Swaps	$18,990		12,278,919				$2.822
Sep-18	Swaps	$14,290		12,514,965				$2.895
Oct-18	Swaps	$37,560		11,991,072				$3.021
Nov-18	Swaps	$73,250		10,948,303				$3.185
Dec-18	Swaps	$0		N/A				N/A
Total		($232,235)		115,073,667				

For 2018, the calendar year net position for natural gas hedges was higher than the closing price of natural gas, resulting in settlement loss of $232,235. Natural gas price volatility increased in 2018 due primarily to reduced drilling caused by lower prices, increased demand from new liquified natural gas facilities, and low natural gas storage levels.

Tampa Electric increased and diversified its natural gas storage capacity between two storage facilities totaling 2,000,000 MMBtu 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 net settlement loss of $232,235 in 2018; more importantly, Tampa Electric was successful in reducing price uncertainty and maintaining fuel supply reliability for customers through its physical and financial fuel risk management activities.

2018 Market Pricing

Tampa Electric provides a comparison of 2018 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 2018 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 ($/MMBtu)	Market Indicator Source	Note
Knight Hawk Coal LLC	[redacted]	$3.39	[redacted]	Gen 2014-01 (RFP issued 11/5/13)	1
Alliance Coal LLC.	[redacted]	$3.39	[redacted]	Gen 2014-01 (RFP issued 11/5/13)	1
Valero Marketing and Supply Company	[redacted]	$3.09	[redacted]	Gen 2018-PC (RFP issued 10/17/17)	2
Koch Carbon	[redacted]	$2.89	[redacted]	Gen 2018-PC (RFP issued 10/17/17)	3
Trafigura AG Branch Office Stamford	[redacted]	$3.24	[redacted]	Sale/Purchase buyback for cost mitigation	4
CMC - Coal Marketing Company LTD.	[redacted]	$3.82	[redacted]	Gen-2018-SALS (RFP issued 10.19.17)	1
Western Kentucky Resources	[redacted]	$3.05	[redacted]	Gen 2018-02	1

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. Index based purchase, pricing based on High posting of the Pace Petroleum Coke Index +$2.00.
3. Index based purchase, pricing based on Avg posting of Pace Petroleum Coke Index + $3.00.
4. Price reflects the delivered cost of coal including transportation to, and storage for over a year at, a different terminal on the lower Mississippi at both UBT and Big Bend. [redacted]

- 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, Transco, Zone 4, 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.