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August 4, 2016

VIA: ELECTRONIC FILING

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

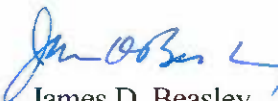
Re: Fuel and Purchased Power Cost Recovery Clause with Generating
Performance Incentive Factor; FPSC Docket No. 160001-EI

Dear Ms. Stauffer:

Attached for filing in the above docket on behalf of Tampa Electric Company is the Prepared Direct Testimony and Exhibit No. (JBC-2) of J. Brent Caldwell regarding Tampa Electric Company's Fuel Procurement and Wholesale Power Purchase Risk Management Plan 2017.

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 of J. Brent Caldwell, filed on behalf of Tampa Electric Company, has been furnished by electronic mail on this 4th day of August, 2016 to the following:

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ATTORNEY



BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 160001-EI
IN RE: TAMPA ELECTRIC'S
FUEL & PURCHASED POWER COST RECOVERY
AND CAPACITY COST RECOVERY

FUEL PROCUREMENT AND WHOLESALE POWER PURCHASES
RISK MANAGEMENT PLAN

JANUARY 2017 THROUGH DECEMBER 2017

TESTIMONY AND EXHIBIT
OF
J. BRENT CALDWELL

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **PREPARED DIRECT TESTIMONY**

3 **OF**

4 **J. BRENT CALDWELL**

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

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

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

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

1 for long term fuel supply planning and procurement for
2 Tampa Electric's generating stations.

3
4 **Q.** What is the purpose of your testimony?

5
6 **A.** The purpose of my testimony is to sponsor and describe
7 Exhibit No. JBC-2, entitled Tampa Electric Company's
8 Fuel Procurement and Wholesale Power Purchases Risk
9 Management Plan 2017.

10
11 **Q.** Was this exhibit prepared by you or under your
12 direction and supervision?

13
14 **A.** Yes, it was.

15
16 **Q.** Please describe your exhibit.

17
18 **A.** My Exhibit No. JBC-2 provides Tampa Electric's overall
19 plan for mitigating risk in the company's procurement
20 of fuel and purchased power during 2017.

21
22 **Q.** Did Tampa Electric make changes to its 2017 risk
23 management plan pursuant to Order No. PSC-16-0247-PAA-
24 EI, issued June 27, 2016?

1 **A.** No. Office of Public Counsel ("OPC") filed a protest of
2 Order No. PSC-16-0247-PAA-EI within the protest period.
3 Therefore, the company did not update its risk
4 management plan in accordance with the order, pending
5 resolution of the protest.

6
7 **Q.** Since Order No. PSC-16-0247-PAA-EI was issued, has the
8 company changed its position on reducing the percentage
9 of projected natural gas usage to be hedged?

10
11 **A.** No, the company has not changed its position. Tampa
12 Electric remains willing to reduce the duration of
13 hedges and percentage of natural gas hedged by the
14 amount that the Commission deems beneficial for
15 consumers. The sole reason that the company has not
16 modified its 2017 risk management plan in response to
17 Order No. PSC-16-0247-PAA-EI is that it is the
18 company's understanding that the protest filed by OPC
19 prevents the order from taking effect at this time.

20
21 **Q.** Does this conclude your testimony?

22
23 **A.** Yes, it does.
24
25

**TAMPA ELECTRIC COMPANY
FUEL PROCUREMENT AND WHOLESALE POWER PURCHASES
RISK MANAGEMENT PLAN
2017**

Introduction

Tampa Electric serves its retail customers' electricity needs through a portfolio of generation and wholesale purchases. Tampa Electric's generation fuel mix is primarily a blend of coal and natural gas. While fuel mix diversity enhances long-term reliability, the reliance on natural gas can potentially increase variation in fuel prices. The company's risk management activities reduce the impact of price uncertainty and volatility to the Fuel and Purchased Power Cost Recovery Clause.

I. Qualitative and Quantitative Risk Management Objectives

A. Qualitative objectives

Tampa Electric's goals in managing risks associated with fuel or power purchases are focused on minimizing supply risk to ensure reliability of electric service to its customers at a reasonable price. To the extent price risk can be reduced without compromising supply reliability or imposing unnecessary costs on customers, Tampa Electric is committed to executing strategies to accomplish its risk management goals.

B. 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.

II. Oversight & Reporting of Fuel Procurement Activities

The company provides fuel and wholesale energy procurement activities with independent and unavoidable oversight.

A. The TECO Energy Board of Directors established an Energy Risk Management Policy ("Risk Policy"). This policy governs all energy commodities transacting activities at each of TECO Energy's operating units. The scope of this policy includes:

- Roles and responsibilities of various persons and functions with respect to risk management
 - Authorized transacting activity
 - Risk limits
 - Valuation and data management
 - Credit risk management
 - Reporting
 - Compliance and enforcement
- B.** The Risk Policy established the Risk Advisory Committee (“RAC”). The responsibilities of the RAC include the following activities:
- Reviewing the Risk Management Policy periodically and recommending changes and enhancements for approval by the Board of Directors (“Board”).
 - Reviewing corporate risk limits for recommendation to the Board.
 - Establishing the quantitative limits for operating companies within Board approved corporate risk limits. The RAC may, at its discretion, delegate approval of sub-limits to operating company management.
 - Approving parameters for counterparty credit limits and the allocation of limits among the operating companies.
 - Establishing guidelines for risk management and measurement.
 - Overseeing and reviewing the risk management process and infrastructure.
 - Reviewing and approving transacting strategies proposed by the operating companies.
 - Understanding and approving methodologies used for valuation and risk measurement.
 - Reviewing and approving corporate and operating company risk limits.
 - Establishing credit underwriting standards, and monitoring credit risk-taking activities and related exposures.
 - Reviewing risk reports, including portfolio risk summaries and profitability and performance summaries.
 - Enacting, maintaining, and enforcing limit violation and trader misconduct policies.
 - Taking appropriate courses of action when the risk position of a transacting group has exceeded or is approaching the established limits.
 - Reviewing and approving new risk management products.
 - Presenting periodic reports to the Board or its committees.
- C.** TECO Energy established a corporate risk management function (“middle office”), which is overseen by the Director of Independent Risk Oversight.
- D.** Tampa Electric established additional oversight or control mechanisms to ensure compliance with policies and procedures. The following practices provide checks and balances on fuel and purchased power procurement activities.

- Fuel and wholesale energy procurement activities are conducted in accordance with company guidelines, including review by the operating stations and other management.
 - All agreements are formalized in a written contract that is reviewed by legal counsel.
 - The contracts are reviewed by the Director, Independent Risk Oversight of TECO Energy’s Energy Risk Management Department for potential credit risks and incorporation of appropriate credit protection.
 - The company maintains approval authority restrictions based on term and value of the transaction.
 - Payments of invoices under each contract are settled and approved by an independent department.
 - Each transaction is eligible for review by outside, internal and regulatory auditors.
 - Information systems provide transaction authority control, credit monitoring, mark-to-market and value-at-risk analysis and other key controls.
- E.** In accordance with the Risk Policy, Tampa Electric established commodity specific transaction limits for commodity transactions.
- The Risk Authorizing Committee reviews and approves commodity transaction limits on an individual basis.
 - The limits include commodity, physical or financial, tenor (time limit), and dollar amount.
 - Only a few individuals are authorized to execute financial hedging transactions.
- F.** Tampa Electric’s Fuels Management Department has updated and formalized its policies and procedures. The key elements of its policies and procedures are:
- Financial hedging of fuel commodities are for mitigation of risk to fuel price uncertainty and volatility.
 - Hedging will be conducted in a manner consistent with the Risk Management Plan approved by the RAC.
 - Execution of hedges under the Risk Management Plan will be consistent with approved transaction limits for authorized transactors.
 - Duties will be separated to assure sufficient control over hedging transactions.
 - Hedging activity will be monitored regularly and reported at least once a month to ensure consistency with the Risk Management Plan.
- G.** Reports are generated that summarize the fuel procurement activities of the company. These include monthly financial reports produced by Regulatory Accounting, FERC Electric Quarterly Reports, FERC Form 1, FERC Form 580, FERC Form 923, FERC Form 552, FPSC Form 423, FPSC A schedules and FPSC E schedules. In addition, position and mark-to-market

reports are produced and reviewed by the Director of Independent Risk Oversight. The appropriate entries and related disclosures are made in the company's books and records as required by accounting standards.

III. Risk Assessment

In its Risk Policy, TECO Energy has identified the following types of risks for its commodity portfolio.

A. Market Risk

Market risk is the potential change in value of a commodity contract caused by adverse changes in market factors (price and volatility). The following are types of market risk.

- 1. Price Risk:** Price risk refers to the uncertainty associated with changes in the price of an underlying asset. For instance, if a company has a short position in the market (*e.g.*, needs to meet load requirements by purchasing electricity or natural gas), it will be susceptible to price increases. Conversely, if a company is in a long position (*e.g.*, excess generation or natural gas supply), it is exposed to decreases in market prices. Tampa Electric manages its price risk using physical and financial hedges.

In 2017, Tampa Electric is subject to limited price risk related to variation in coal prices. That price risk is mitigated in part because the company has already contracted for much of its expected coal needs at known prices. Expected market conditions do not currently require further price risk mitigation, for the reasons described in Section IV of this plan.

Tampa Electric evaluated its exposure to changes in the price for natural gas during 2017 based on the forward price and estimated uncertainty in the price of natural gas and the company's expected usage under both low and high price natural gas cases. Natural gas expenditures decrease in the low case by an estimated \$8.2 million and total fuel and purchased power costs decrease by \$4.8 million due to lower prices. In the high case, natural gas expenditures increase by an estimated \$64.8 million, and the total fuel and purchased power costs increase by \$67.8 million. This exposure estimate does not take into account any additional hedges the company may implement to limit its exposure. Tampa Electric's hedging strategy with respect to natural gas and purchased power is outlined in Section IV of this plan.

Tampa Electric requires small quantities of fuel oil and maintains a contract that eliminates its supply risk. Due to the small quantities of fuel oil needed for generation, the cost impact caused by price risk is minimal and is therefore not quantified.

2. **Time Spread Risk:** This is the risk that the relationship between two points (*i.e.*, one month versus six months) on the forward curve changes. Because the shape of the fuel or electricity forward curve changes to reflect the market's expectations of spot and future fuel or electricity prices, the relationship between any two points on the curve is not always constant. Because of the nature of its business Tampa Electric has little reason or opportunity to offset energy commodity requirements in one month with resources delivered in another month. Therefore, time spread risk is not a significant issue for Tampa Electric.
3. **Liquidity Risk:** Liquidity risk is associated with the lack of marketability of a commodity. It includes the risk of an adverse cost or return variation stemming from the lack of marketability of a financial instrument. Liquidity risk may arise because a given position is very large relative to typical trading volumes of like commodity and contract tenor, or because market conditions are unsettled. Liquidity risk is usually reflected in a wide bid-ask spread and large price movements in response to any attempt to buy or sell. A firm facing the need to quickly unwind a portfolio of illiquid instruments may find it necessary to sell at prices far below fair value. Tampa Electric is not exposed to liquidity risk for natural gas financial instruments since the company does not purchase instruments for resale. Tampa Electric does have some liquidity risk for wholesale power transactions since the Florida market has a limited number of participants.
4. **Basis Risk:** Basis risk is the risk exposure due to a difference in commodity value between different delivery points. Electricity markets are regional. Prices can be different at different locations because of differences in both supply costs and the cost of transmission between the two locations. These price differences are dynamic, primarily due to changes in transmission availability between the two locations. Due to the stability of the coal market, Tampa Electric's negligible use of oil, and the indexing of its natural gas contract pricing, basis risk is not a significant issue for the company.

Fundamentally, market risk is created by the existence of "open" positions. An open position is the difference between an existing requirement and the ability to meet that requirement with existing resources.

B. Volume Risk

Volume risk is the potential adverse economic impact of unanticipated changes in supply or demand. Tampa Electric faces supply risk, because there is uncertainty associated with the availability of generating units or fuel availability for those units. If a generating unit fails, Tampa Electric must replace the power with another unit's generation or with purchased power at market prices. Tampa Electric also faces demand risk since there is uncertainty associated with customer demand, and thus uncertainty in the determination of the fuel or energy purchase volumes necessary to supply such demand. Tampa Electric's volume risk for fuel and purchased power in 2017 will be managed operationally and through contract terms enforcement, including appropriate legal remedies, should a party default.

C. Credit Risk

Credit risk is the risk of financial loss due to a counterparty's failure to fulfill the terms of a contract on a timely basis. It includes both settlement risk associated with payment for fuel or energy received, as well as the potential risk that the counterparty defaults on an obligation to provide or receive fuel or energy. Credit risk depends on the probability of counterparty default, the concentration of credit exposure with a small number of counterparties, the total amount of exposure, and the volatility of markets. Tampa Electric's credit risk will vary based on the number of its trading counterparties and the mark-to-market value of its hedge transactions. Tampa Electric's existing credit risk is minimal since it uses a wide variety of counterparties, and has systems and processes in place to monitor and control credit risk.

D. Administrative Risk

Administrative risk is risk of loss associated with deficiencies in a company's internal control structure and management reporting due to human error, fraud or a system's inability to adequately capture, store and report transactions. The company has consistently maintained appropriate administrative controls for entering and administration of commodity transactions.

IV. Risk Management Strategy and Current Hedging Activity

Tampa Electric's risk management strategy is designed to limit exposure to different types of risk that are applicable to the company's operation.

A. Market Risk

Tampa Electric's potential market risk is the result of open positions in four commodities:

- Coal
- Natural Gas
- Fuel Oil
- Purchased Power

System energy requirements during 2017 are projected to be served in the proportions shown in the following table.

Commodity	Percent of System Energy
Coal	46
Natural Gas	52
Purchased Power	2

Based on Tampa Electric's assessment of market risk factors, the company has implemented the market risk management strategies described below.

1. **Coal:** Tampa Electric has contracted for much of its expected coal needs for 2017 through bilateral agreements with coal producers. The company will provide the projected amounts in both tons and dollars in its 2017 projection filing to be submitted September 1, 2016. Coal market pricing has retreated from record high levels in 2008. In 2016, coal prices trended downward due to retiring coal units and pressure from low natural gas prices, and prices are expected to remain stable or may increase slightly in 2017. Tampa Electric has secured a majority of its coal needs for 2017, reducing exposure to price volatility and mitigating coal volume risk. Tampa Electric's contracts with suppliers also incorporate legal remedies in the event of default, which address volume risk.
2. **Fuel Oil:** In 2017, Tampa Electric will continue to purchase its fuel oil needs at indexed market prices. Oil represents less than one percent of the company's needs on a GWH basis, and therefore, associated cost impacts from price risk are minimal. Tampa Electric maintains a contract with a local supplier to deliver all of its needs, which mitigates supply risk.
3. **Natural Gas:** Tampa Electric continues to implement prudent financial hedging strategies for natural gas requirements. In 2016, the company used swap agreements—the exchange of a payment tied to the value of a natural gas index for a fixed payment—to hedge natural gas. In keeping with the company's approved risk management plan, Tampa Electric plans to hedge a percentage of its projected natural gas usage in 2017.

Tampa Electric uses the forward pricing information of the New York Mercantile Exchange (“NYMEX”) natural gas forward price curve in developing natural gas price hedging strategy. Tampa Electric also subscribes to industry publications that provide information about underlying issues affecting the availability and price of natural gas and other commodities. The purpose of Tampa Electric’s natural gas hedge plan is to reduce natural gas price volatility by utilizing financial instruments relying on three key variables: price, volume and time.

Tampa Electric projects prices during the company’s annual fuel budgeting process. The volume of natural gas that the company will hedge falls between a minimum and a maximum percentage of the expected natural gas burn. The percentages vary according to the time remaining until the contract month.

Tampa Electric’s approved Risk Management Plan describes the following key elements of the company’s natural gas hedging strategy: (1) natural gas prices can be hedged up to 24 months into the future; (2) nearer months can be hedged for a greater percentage of the expected volume than outer months; and (3) natural gas options can be used for financial hedging.

Currently, Tampa Electric estimates about ■ percent of its total 2016 natural gas purchases will be covered by financial hedges. The net effect of these hedges is estimated to be a ■ of approximately \$ ■. For 2017, Tampa Electric has approximately ■ percent hedged with a currently estimated ■ of \$ ■.

4. **Purchased Power:** Total forecasted purchased power for 2017 is 422 GWH. As of July 2016, Tampa Electric has physically hedged 25 GWH’s of its 2017 expected purchased power needs through pre-scheduled purchased power agreements. The remaining GWH’s of 2017 forecasted wholesale energy purchases will be purchased from as-available cogenerators or on the short-term, non-firm market for economy purposes, which are not hedged.

The company’s purchased power contracts include a fuel component; therefore, Tampa Electric has exposure to fuel price risk for its wholesale energy purchases, particularly for purchased power supplied from natural gas-fired generation. Tampa Electric does not currently hedge wholesale energy transactions with financial instruments due to the lack of a liquid, published wholesale energy market and appropriate available instruments.

In summary, Tampa Electric's planned operations in 2017 result in nominal market risk associated with coal and fuel oil. Non-price risks associated with natural gas and purchased power are also minimal. Therefore, while the company continues to evaluate risk for all fuel and energy commodity transactions, it is currently focused on mitigating the price risk associated with natural gas and purchased power.

5. **Volume Risk:** Hedging of volumetric risk is problematic due to a limited number of viable financial hedging instruments. Tampa Electric has identified the following hedges.
- Maintaining appropriate inventory stockpiles provides a physical hedge against volume risk.
 - “Swing” contracts enable the buyer to take variable volumes up to a predefined limit.
 - Full requirement contracts enable the buyer to take any volume up to total usage.

Tampa Electric uses inventory swing contracts and full requirements contracts where needed commodity volumes are small and in situations where commodity volumes are unpredictable in volume and/or timing. Other alternatives will continue to be identified, assessed and implemented as necessary.

6. **Credit Risk:** TECO Energy's credit risk management process is composed of the following primary steps.
- Gather counterparty information for initial evaluation.
 - Assess counterparty creditworthiness and assign credit limit.
 - Determine credit collateral requirements, as needed.
 - Request, review and monitor contractual requirements, legal covenants, collateral documents and credit provisions.
 - Quantify counterparty exposure and measure against approved limits.
 - Monitor counterparty and credit support provider qualities.
 - Prepare credit exposure reports on a daily basis that are reviewed prior to entering into transactions.
7. **Administrative Risk:** Tampa Electric maintains energy trading risk management systems and processes to efficiently track, monitor and evaluate hedging activities. Tampa Electric's administrative processes and system controls have passed repeated internal and external (Sarbanes-Oxley) audits.