

## **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.