MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

SEVENTH PRUDENCE REVIEW OF COSTS RELATED TO THE FUEL ADJUSTMENT CLAUSE FOR THE ELECTRIC OPERATIONS OF THE EMPIRE DISTRICT ELECTRIC COMPANY

FILE NO. EO-2018-0244

September 1, 2016 through February 28, 2018

Jefferson City, Missouri
September 5, 2018

** Denotes Confidential Information **

Appendix A

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STAFF REPORT

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OF

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OF

THE EMPIRE DISTRICT ELECTRIC COMPANY
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I. Executive Summary

The Missouri Public Service Commission ("Commission") first authorized a Fuel Adjustment Clause ("FAC") for The Empire district Electric Company ("Empire" or "Company") in the Company's 2008 general rate case (Case No. ER-2008-0093). Since then, the Commission has approved continuation of Empire's FAC with modifications in its orders in Empire's subsequent general rate cases, Case Nos. ER-2010-0130, ER-2011-0004, ER-2012-0345, ER-2014-0351 and ER-2016-0023.

Commission Rule 4 CSR 240-20.090(7) and Missouri Revised Statute § 386.266.4 (2005) require that the Commission's Staff ("Staff") conduct prudence reviews of an electric utility's FAC no less frequently than every 18 months. In this seventh prudence review of Empire's FAC for the period September 1, 2016 through February 28, 2018, Staff analyzed items affecting Empire's total fuel costs, purchased power costs, net emission costs, transmission costs, off-system sales revenues, and interest for the seventeenth, eighteenth, and nineteenth six-month accumulation periods of Empire's FAC. Staff's previous Empire FAC prudence reviews are listed in Table 1:

Table 1

Prudence Review	File Number	Review Period
First	EO-2010-0084	September 1, 2008 through August 31, 2009
Second	EO-2011-0285	September 1, 2009 through February 28, 2011
Third	EO-2013-0114	March 1, 2011 through August 31, 2012
Fourth	EO-2014-0057	September 1, 2012 through February 28, 2013
Fifth	EO-2015-0214	March 1, 2013 through February 28, 2015
Sixth	EO-2017-0065	March 1, 2015 through August 31, 2016

In evaluating prudence, Staff reviews whether a reasonable person making the same decision

would find both the information the decision-maker relied on and the process the decision-maker employed was reasonable based on the circumstances at the time the decision was made, *i.e.*, without the benefit of hindsight. The decision actually made is disregarded and the review is instead an evaluation of the reasonableness of the information the decision-maker relied on and the decision-making process the decision-maker employed. If either the information relied on or the decision-making process employed was imprudent, then Staff examines whether the imprudent decision caused any harm to customers. Only if an imprudent decision resulted in harm to Empire's customers will Staff recommend a disallowance.

Staff analyzed a variety of items in examining whether Empire prudently incurred the fuel and purchased power costs associated with its FAC tariff sheets. Based on its review, Staff identified no incidence or evidence of imprudence by Empire in the items it examined for the period of September 1, 2016 through February 28, 2018.

Table 2 identifies Empire's Commission-approved FAC tariff sheets which were applicable for service provided by Empire to its customers during the period of September 1, 2016 through February 28, 2018 including the tariff sheets applicable to calculation of the Fuel Adjustment Rates[1] ("FAR") for the seventeenth accumulation period ("AP")[2] covered by the Fuel and Purchase Power Adjustment Clause Rider FAC for the same period:

Table 2

September 1, 2016, through September 13, 2016	**September 14, 2016 through February 28, 2018**
1st Revised Sheet No. 17l	Original Sheet No. 17u
1st Revised Sheet No. 17m	Original Sheet No. 17v
1st Revised Sheet No. 17n	Original Sheet No. 17w
1st Revised Sheet No. 17o	Original Sheet No. 17x
1st Revised Sheet No. 17p	Original Sheet No. 17y
1st Revised Sheet No. 17q	Original Sheet No. 17z
1st Revised Sheet No. 17r	Original Sheet No. 17aa
1st Revised Sheet No. 17s	Original Sheet No. 17ab
3rd Revised Sheet No. 17t	4th Revised Sheet No. 17ac

Staff Expert/Witness: Dana E. Eaves

[1] Fuel Adjustment Rate Filing, File No. ER-2017-0254.
[2] Accumulation periods: AP 17; September 2016 – February 2017, AP 18; March 2017 – August 2017, and AP 19; September 2017 – February 2018.

II. Introduction

A. Prudence Standard

In *State ex rel. Associated Natural Gas Co. v. Public Service Com'n of State of Mo.*, the Western District Court of Appeals stated the Commission defined its prudence standard as follows:

> [A] utility's costs are presumed to be prudently incurred.... However, the presumption does not survive "a showing of inefficiency or improvidence... [W]here some other participant in the proceeding creates a serious doubt as to the prudence of expenditure, then the applicant has the burden of dispelling these doubts and proving the questioned expenditure to have been prudent.
>
> In the same case, the PSC noted that this test of prudence should not be based upon hindsight, but upon a reasonableness standard: [T]he company's conduct should be judged by asking whether the conduct was reasonable at the time, under all the circumstances, considering that the company had to solve its problem prospectively rather than in reliance on hindsight. In effect, our responsibility is to determine how reasonable people would have performed the tasks that confronted the company.
>
> 954 S.W.2d 520, 528-29 (Mo. App. W.D., 1997) (citations omitted).

In reversing the Commission decision in that case, the Court did not criticize the Commission's definition of prudence, but held, in part, that to disallow a utility's recovery of costs from its customers based on imprudence, the Commission must determine the detrimental impact of that imprudence on the utility's customers, *Id*. at 529-30. This is the prudence standard Staff has followed in this review.

Staff Expert/Witness: Dana E. Eaves

B. General Description of Empire's FAC

Empire's FAC requires that it accumulate its Total Energy Cost (TEC)[3]; defined generally as variable fuel, purchased power, transmission and net emissions costs less off-system sales revenue during the six-month accumulation periods. Each six-month

[3] Total Energy Costs are equal to fuel costs (FC) plus costs of purchased power (PP) plus net emissions allowances (E) minus off-system sales revenue (OSSR) as defined on Empire's 1st Revised Sheet No. 17r (For service on and after July 26, 2015 and prior to December 1, 2016) and 4th Revised Sheet No. 17aa (For service on and after September 14, 2016).

accumulation period is followed by a six-month recovery period ("RP")[4] during which ninety-five percent (95%) of the over- or under-recovery of Total Energy Cost during the previous six-month accumulation period relative to the Base Energy Cost ("B") amount[5] is returned to or collected from customers as part of a decrease or an increase of the FAC Fuel and Purchased Power Adjustment ("FPA") per kWh rate, which is the FAR for each accumulation period. Because the total amount charged through the FAR rarely, if ever, will exactly match the required offset, Empire's FAC is designed to true-up[6] the difference between the revenues billed and the revenues authorized for collection during recovery periods including interest at the Empire's short-term interest rate. Any disallowance the Commission orders as a result of a FAC prudence review shall include interest at Empire's short-term interest rate and will be accounted for as an adjustment[7] item when calculating the FPA for a future recovery period.

Staff Expert/Witness: Dana E. Eaves

C. Regulatory Accounting for Empire's FAC

As a public utility Empire is required to maintain its books and records in accordance with the Federal Energy Regulatory Commission's ("FERC") Uniform System of Accounts ("USoA"). The major account numbering plan as used in the USoA is as follows:

100-199 Assets and other debits.
200-299 Liabilities and other credits
300-399 Plant accounts
400-432, 464-435 Income accounts
433, 436-439 Retained earnings accounts.
440-459 Revenue accounts
500-599 Production, transmission and distribution expenses
900-949 Customer accounts, customer service and informational, sales and general and administrative expenses

[4] Recovery periods are: June through November for each immediately preceding September through February accumulation period; and December through May for each immediately preceding March through August accumulation period.
[5] "Base Energy Cost" (B) as defined on Empire's Sheet Nos.17l (For service on and after July 26, 2015 and prior to September 14, 2016) and 17u (For service on and after September 14, 2016).
[6] True-up of FAC is defined on Empire's Sheet Nos. 17c (For service on and after July 26, 2015 and prior to September 14, 2016) and 17aa (For service on and after September 14, 2016).
[7] See line item 10 on Empire's Sheet Nos. 17e (For service on and after July 26, 2015 and prior to September 14, 2016) and 17t (For service on and after September 14, 2016).

Staff has reviewed all FERC accounts related to Empire's FAC for this review period. FERC accounts subject to this FAC review are: 411.8 Gains from Disposition of Allowances, 411.9 Losses from Disposition of Allowances, 447 Sales for Resale, 456 Other Electric Revenues, 501 Fuel, 506 Air Quality Control Systems ("AQCS"), 509 Allowances, 547 Fuel, and 555 Purchased Power.

Staff Expert/Witness: Dana E. Eaves

D. Staff Review and Reconciliation of FERC Accounts

Staff created three independent workpapers, TEC General Ledger, TEC Monthly Reports, TEC FAR Reports, which are based on three separate sources provided by Empire. These workpapers were created to review and reconcile the FERC Accounts in Table 3 below and included in the calculation of the components of the TEC presented in Table 4 below.

Empire provided its monthly General Ledger[8] and General Journal[9] to the Staff through its responses to Staff Data Request Nos. 0029 and 0057, which provided the detail of all accounting transactions for the expenses and revenues encompassed in the TEC in Table 4. Staff sorted the General Ledger by each account reflected in the FERC Accounts listed in Table 3.

Table 3

Account Name	FERC Account Number
Fuel used for Steam	501
AQCS Consumables	506
Fuel/Natural Gas	547
Short-Term Purchased Power Contracts	555
Long-Term Purchased Power Contracts	555
Transmission Expense	565
Net Emission Allowances	411 and 509
Transmission Revenue	456
Off System Sales Revenue	447

[8] *See* **Addendum A** of this report for full description of General Ledger.
[9] *See* **Addendum A** of this report for full description of General Journal.

Staff sorted these transactions in ascending order by the corresponding Minor[10] account number assigned to each Major account number listed in Table 3.

The transactions and totals for each FERC account by month and year from the General Ledger were compared to the accounts included in the TEC Monthly Reports and FAC FAR filings. In addition to verifying that the total dollar amounts from these three accounting sources are equal, Staff reviewed expense and revenue transactions to identify any unusual dollar amounts, improperly categorized amounts, or categories of cost or revenue which are not allowed in the FAC's definition of TEC.

Staff found two entries recorded in the General Ledger FERC Account 411800, Net Emissions Allowance Costs, for the entire review period as follows:

Date of Entry	Journal ID	Line Description	Amount	Accumulation Period	FAR – Case #	Filed in EFIS
4/25/17	AR00036737	[Left Blank by Empire]	($10.86)	AP18	ER-2018-0086	9/27/17
2/21/18	BI00043055	CSAPR Sox Group 1 Allowances	($10,500.00)	AP19	ER-2018-0270	4/2/18

The second entry in the amount of ($10,500.00) was not included as an Emission Allowance in the FAC FAR filing worksheet[11] tabs "Data", "Report", and "Period Totals" which contained the allowable costs for the FAC during Accumulation Period 19 as provided by Empire. As a result of this omission the Total Energy Cost and Net Base Energy Cost was overstated by $10,500.00 on the Tariff Sheet but is not an amount large enough to impact the Current Period FAR.

Staff understands the omission of the ($10,500.00) was an oversight by Empire. It has been included in the month of April 2018 and will be reflected in Accumulation Period 20[12].

Staff Expert/Witness: Catherine F. Lucia

E. Staff Regulatory Accounting Summary

Staff analyzed the TEC based on the transactions in the FERC accounts related to the calculation of the TEC from three different sources; the General Ledger, the Monthly Reports, and the FAR workpapers provided by Empire. Staff analyzed, reviewed and was able to reconcile these three individual sources to each other based on the individual line items

[10] *See* **Addendum B** of this report for Empire FERC Account Major, Minor, Department, and Product.
[11] *See* Staff Catherine F. Lucia FAC FAR workpapers.
[12] Teleconference on August 22, 2018 with PSC Staff Catherine F. Lucia, Dana E. Eaves, Lisa Wildhaber and Empire Staff Leslie Forest and Charlotte North.

categorized by FERC Accounts that captured Fuel Costs, Costs of Purchased Power, Off-System Sales Revenues for the TEC.

Staff Expert/Witness: Dana E. Eaves

F. Participation with Regional Transmission Organizations

As part of this review Staff reviewed Empire's participation in Regional Transmission Organizations (RTOs). Empire participates in Southwest Power Pool[13] ("SPP") and Mid-Continent Independent System Operator ("MISO"). The Staff reviewed a wide variety of Empire's practices and procedures related to the RTOs, specifically SPP. Empire directly participates in SPP's Day Ahead Market and Real-time Market. At a high level these markets allow Empire to offer-in and - if cleared in the market - to sell the energy it generates to SPP. In turn Empire must purchase back from SPP the energy needed to serve its native load. The practices and procedures related to these transactions are highly technical and complex. Empire was required to develop specialized front and back office[14] practices and procedures to manage the large amounts of data associated with its market participation. Empire utilizes specialized software[15] to manage key components of the bid-to-settlement trading cycle and analysis modes for the Day-Ahead Market and Real-time Market bidding. These processes and software include robust capabilities for settling and disputing a wide range of market transactions. Empire uses this software to verify and shadow complex RTO charge codes and invoices and to customize contract settlements.

As a result of Staff's understanding and experience with these practices and processes, Staff is reasonably assured that Empire is managing its participation in these markets effectively and maintains appropriate procedures and processes to account for the results of participation in SPP.

Staff Expert/Witness: Dana E. Eaves

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[13] SPP is a regional transmission organization that provides electric power across all or parts of 14 U.S. states. SPP assures consumers have an unbiased regional grid management and open access to the transmission facilities under SPP's functional supervision.

[14] Front Office: A blanket term that refers to the portion of a company that deals with outside entities in its daily functions of buying, selling and trading of energy. Back Office: A blanket term that refers to the portion of a company made up of administration, accounting and settlement functions in support of the selling, buying and trading of energy.

[15] Power Cost, Inc. (PCI), PCI GenManager®.

III. TOTAL ENERGY COSTS

The Empire FAC definition of Total Energy Costs includes three components of costs – fuel costs ("FC"), costs of purchased power ("PP") and net emissions allowance costs ("E"), and two components of revenue – off-system sales revenues ("OSSR") and Renewable Energy Credit Revenues ("REC"). Table 4 is a breakdown of Empire's fuel costs, costs of purchased power, net emissions allowance costs, off-system sales revenues and renewable energy credit revenues for the period of September 1, 2016 through February 28, 2018:

Table 4

Component		Summary
Generation	(FC)	$ 223,817,137
Fuel - AQCS	(FC)	$ 2,977,878
Native Load Costs	(PP)	$ 238,676,181
Transmission Costs	(PP)	$ 8,416,672
Net of Emission Allowances	(E')	$ (11)
EMPIRE Sales	(OSSR)	$ (253,835,621)
Renewable Energy Credit Revenues	(REC)	$ (326,514)
Total Energy Cost		$ 219,722,720

Staff Expert/Witness: Dana E. Eaves

A. Risk Management

1. Description

Empire's *Energy Risk Management Policy* ("RMP")[16] identifies the approach and internal rules Empire utilizes to manage its natural gas commodity and energy risk.

Empire's risk management strategies are directly controlled by the guidelines contained in its RMP. The policy objectives are given in the RMP as follows:

OBJECTIVES

** _____
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[16] The Empire District Electric Company; Energy Risk Management Policy, Versions: February 1, 2017, December 1, 2017and April 29.

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OBJECTIVE #1

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OBJECTIVE #3

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Fuel Adjustment Clause

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Empire's FAC acts as a risk mitigation tool. Although perhaps not intended to be its primary purpose, the FAC does mitigate fuel price volatility for customers, as well as allow Empire a timelier and more complete recovery of its fuel costs.

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2. Summary of Cost Implications

If Empire does not manage its risk management strategies prudently, fuel costs that are collected from customers through Empire's FAC could be increased.

3. Conclusion

Staff did not find any imprudent actions on the part of Empire in the administration of its risk management strategies during the review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request No. 0047.

Staff Expert/Witness: Dana E. Eaves

[17] Appendix X, Article 7, SPP Credit Policy.

B. FERC Acct 501

1. Description

Empire is required to account for fuel costs used in the production of steam for the generation of electricity in FERC account 501. For the review period, $69,612,339 or 40.02% of Empire's total fuel costs are booked to FERC Account 501; *see* Table 5 for disaggregation of this account.

Table 5

FERC Acct 501 Disaggregation	For the Period Sept 2016 through February 2018	Percentage of Total
Fuel - Coal	68,363,183	39.31%
Fuel - Oil	995,349	0.57%
Sales Of Ash	(103,862)	-0.06%
Fuel - Tires	77,715	0.04%
Ops Mtls-Fuel Handling	279,955	0.16%
FERC Account 501	$ 69,612,339	40.02%
FERC Acct 506 Disaggregation		
Limestone Expense	1,272,342	0.73%
Ammonia Expense	779,995	0.45%
Powdered Activated Carbon	231,060	0.13%
Lime Expense	352,306	0.20%
Ammonia Expense	342,175	0.20%
Total Acct 506	$ 2,977,878	1.71%
FERC 547 Disaggregation		
Fuel Natural Gas	87,952,925	50.57%
Natural Gas Transportation	9,023,099	5.19%
Fuel - No 2 Oil Fuel	2,999,842	1.72%
NonFAS133 Deriv (Gain)/Loss	1,303,582	0.75%
Fuel Adm E Traders Commission	56,868	0.03%
	$ 101,336,316	58.26%
Total Fuel	**$ 173,926,533**	100%

During the review period Empire generated 40% of its electricity with its coal-fired generation facilities. During the review period Empire burned ** _____ ** tons of coal which translates to an average $** __ ** per ton including transportation/freight and other rail charges. Staff reviews public sources as well as subscription services in an effort to determine the reasonableness of prices paid by Empire for its coal supply. Staff monitors

U.S. Energy Information Administration (EIA) and SNL Energy for past and future market prices, supply forecasts and other market trends.[18]

Also, contained within FERC account 501 and reviewed during this review are fuel oil costs of $995,349 and Tire Derived Fuel (tires) costs of $77,715, these fuels are included in FERC account 501 as they are used as support fuels (startup and/or burn stabilization) in the production of steam with the coal fired generation facilities.

The other components of FERC account 501 included in this review are the cost and revenues associated with the disposal of fly ash and fuel handling expense. Sale of the fly ash for the period was $103,862 and fuel handling expense associated with the burning of coal in the amount of $279,955.

Empire maintains ** _ ** short and long-term coal purchase contracts, ** _ ** rail transportation contracts, ** _ ** rail lease contracts. The counterparties for the contracts are shown below in Table 6:

Table 6 - Confidential

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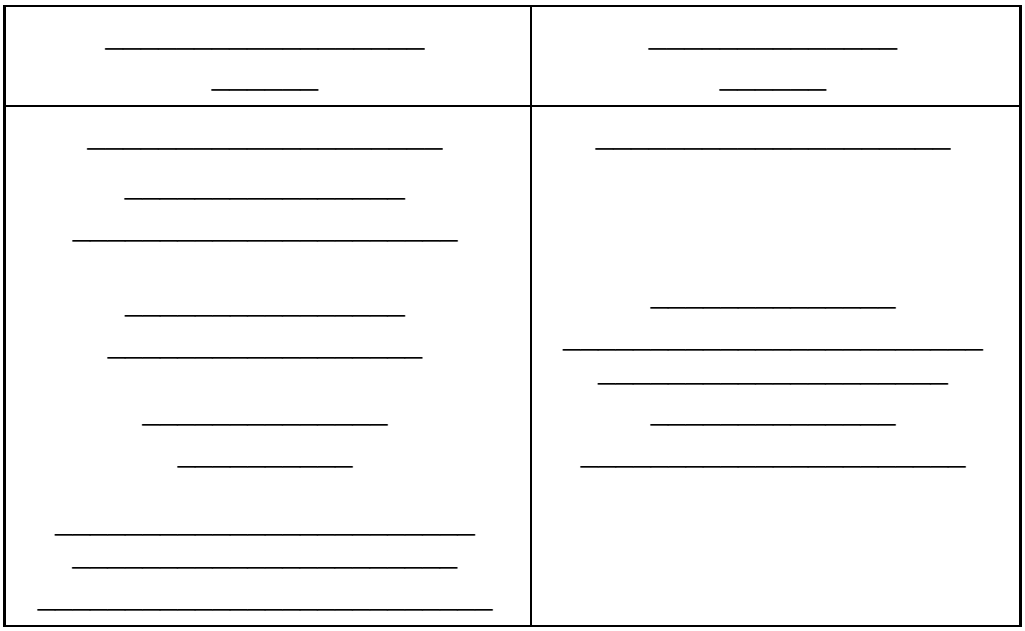

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Powder River Basin (PRB) coal is classified as "sub-bituminous" and contains low Sulfur emission characteristics. PRB coal is mined from above ground mines located in southeast Montana and northeast Wyoming and transported via railcar.

[18] *See* Staff workpapers for forecast reports and other reference materials; 2016 EIA Coal Price Report, CME Natural Gas Futures forecast pricing, SNL Coal Mine Production Summary, Average price of coal delivered to end user, EIA short-term forecasts and EIA real prices.

Staff reviewed the 3 revised versions[19] of Empire 2016 Risk Management Policy that were in effect during the review period. Empire's coal procurement strategy was not changed during the review period.

Staff has reviewed the various components of Empire's coal supply strategy, and concludes that Empire has complied with its stated parameters.

2. Summary of Cost Implications

If Empire was imprudent in its purchasing decisions relating to the purchase of coal, transportation and the handling of the rail fuel surcharge hedging policy, customer harm could result from such imprudence through an increase in Empire customer FAC charges.

3. Conclusion

Staff identified no imprudence by Empire in its purchase of coal, transportation or other component contained in FERC account 501 for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0002, 0007, 0009, 0014, 0016, 0018, 0023, 0024, 0025, 0026, 0027, 0035, 0036, 0037,0038, 0041, 0045, 0046, 0047 and 0049.

b. Market research: https://www.eia.gov and http://www.cmegroup.com.

Staff Expert/Witness: Dana E. Eaves

C. FERC Account 506

1. Description

For the review period, $2,977,878 or 1.71% of Empire's total fuel costs is associated with FERC Account 506. This account includes expenses associated with AQCS materials used to reduce emissions as a result of burning fossil fuels in Empire's generation facilities.

2. Summary of Cost Implications

If Staff determined that Empire was imprudent in its purchasing decisions relating to AQCS materials costs, customer harm could result from that imprudence by an increase in FAC charges.

[19] Energy Risk Management Policy dated: 04-29-2016, 01-18-2017 and 12-1-2017.

3. Conclusion

Staff observed or found no evidence of imprudence associated with Empire's AQCS purchases for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001 and 0002.

Staff Expert/Witness: Dana E. Eaves

D. FERC Account 547

1. Description

For the review period, $101,336,316 or 58.23% of Empire's total fuel costs is associated with FERC Account 547. Empire accounts for the natural gas and natural gas transportation capacity costs used in its generation facilities in FERC account 547. The total natural gas cost recorded in FERC account 547 is comprised of several components. The natural gas commodity cost is $87,952,925 with transportation costs of $9,023,099 for a total of $96,976,027 or 55.76% directly related to natural gas. Other expenses related to Empire's natural gas generation facilities are fuel oil at a cost of $2,999,842, natural gas hedging expense (gains)/losses of $1,303,582, and trader's commission cost of $56,868.

Empire's natural gas generation facilities are combustion turbines generators ("CTGs") and combined cycle ("CC") units see Table 7. Empire's CTGs are used for peaking units which mean they are used generally when demand for electricity increases to a point other baseload units can't meet that demand. Empire's Stateline CC by nature is more efficient than its CTG units in Empire's generation fleet, and, therefore, less expensive to operate. During the review period, Empire's CTGs burned ** _____ ** Dkths of natural gas which translates to an average of $** __ ** per Dkth and its CC units burned ** _____ ** Dkths of natural gas which translates to an average of $** __ ** per Dkth.

Southwest Power Pool (SPP) dispatches Empire's generation fleet, which in effect decreases Empire's dispatching control over these facilities other than insuring the units are operational. Even if SPP did not dispatch these units Empire still must insure these combustion turbines have adequate fuel to operate.

The following table identifies Empire's peaking generating units that burn natural gas:

Table 7

Energy Center 1, 2, 3, and 4; Combustion Turbine
Riverton 10, 11, and 12; Combustion Turbine
State Line Unit 1;
State Line Combined Cycle ("CC")

Staff reviewed the Empire Commodity Risk Management Policy(s) that were in effect during the review period. Empire's natural gas procurement strategy is summarized in the February 1, 2017, Commodity Risk Management Policy, page 11, as part of Data Request No. 0047:

** [redacted]

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Empire employs hedging activities in an attempt to mitigate the impacts of market volatility in natural gas prices and aid in providing a reliable fuel commodity.

Financial hedges can be described as:

> Making an investment to reduce the risk of adverse price movements in an asset. Normally, a hedge consists of taking an offsetting position in a related security, such as a futures contract. An example of a hedge would be if you owned a stock, then sold a futures contract stating that you will sell your stock at a set price, therefore avoiding market fluctuations. Investors use this strategy when they are unsure of what the market will do. A perfect hedge reduces your risk to nothing (except for the cost of the hedge).[20]

The Staff specifically reviewed Empire's natural gas hedging activities and the results during this review period. Staff reviewed results in context of Staff last prudence review when Empire experience greater than normal losses. Empire experienced a loss on its natural gas hedging activities in the amount of $** _____ ** for the review period. Although Empire's natural gas hedging activities experienced a loss for the review period it is

[20] www.investopedia.com.

substantially less compared to the prior FAC Prudence review period. Natural gas prices are driven by a wide array of market forces and future natural gas prices remain uncertain and unknown. Empire uses its natural gas procurement strategies in an effort to mitigate price risk. Due to the vagaries of the natural gas market, Empire's hedging activities sometimes provides gains and sometimes provides losses. Staff will continue to monitor Empire's fuel hedging activities.

2. Summary of Cost Implications

If Staff determined that Empire was imprudent in its purchasing decisions relating to natural gas commodity, reservation, transportation, storage, and hedging costs, customer harm could result from that imprudence by an increase in FAC charges.

3. Conclusion

Staff observed no indication of imprudence associated with Empire's natural gas commodity purchases for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0002, 0007, 0014, 0016, 0017, 0018, 0021, 0023, 0024, 0026, 0027, 0041, 0045, 0046, 0047, 0049, 0050, 0054, 0057, 0058, 0060 and 0062.

b. Market research: https://www.eia.gov, http://www.cmegroup.com and https://platform.mi.spglobal.com.

Staff Expert/Witness: Dana E. Eaves

E. FERC Account 555 - Purchased Power – Long Term Variable Contracts

1. Description

For the period September 1, 2016, through February 28, 2018, Staff reviewed the Renewable Resource Energy Purchase Agreement by and between Elk River Windfarm, LLC, and Empire ("Elk River PPA") and Cloud County Wind Farm, LLC ("Cloud County PPA"). The Elk River PPA is a ** _____ ** that expires ** _____ ** and provides a capacity of ** __ ** MW and energy purchases for the review period of ** _____ ** MWhs at a contract price of $** __ ** per MWh with a total cost of $** _____ ** and revenue associated with sales of $** _____ ** which resulted

in a net loss of $** _____ ** for the review period. The Cloud County PPA is a ** _____ ** that expires ** _____ ** and provides a capacity of ** __ ** MW and energy purchases for the review period of ** _____ ** MWhs at a contract price of $** __ ** per MWh with a total cost of $** _____ ** and revenue associated with sales of $** _____ ** which resulted in a net loss of $** _____ ** for the review period.

Staff also reviewed for the review period the purchased power agreement between Plum Point Energy Associates, LLC ("Plum Point PPA") and Empire. The Plum Point PPA represents Empire's ownership interest in the generation facility with the delivery date of August 1, 2010. The Plum Point provides a capacity of ** __ ** MW and energy purchases for the review period of ** _____ ** MWhs at a contract price of $** __ ** per MWh with a total cost of $** _____ ** and revenue associated with sales of $** _____ ** which resulted in a net loss of $** _____ ** for the review period.

When Staff reviews PPA's for prudency it reviews transactions that occurred during the review period. Staff also considers the circumstances at the time these contracts are entered into between the parties. In the Direct Testimony of William L. Gipson in Case No. ER-2008-0093, he describes the reasons securing long-term purchase power contracts attempts to mitigate energy and fuel price risk;

> Q. WITH REGARD TO THE FAC, IS EMPIRE UNDERTAKING ANY STEPS TO MITIGATE THE INCREASES IN FUEL COSTS, ESPECIALLY NATURAL GAS?
>
> A. Yes. Empire is working to control the volatility associated with fuel costs through the use of a natural gas hedging program which has been in place since 2001. In addition, Empire began receiving wind energy from the Elk River Wind Farm in October 2005, and Empire has recently signed a contract with Horizon Wind Energy to purchase 100 percent of the output from a new wind farm, Meridian Way Wind Farm, located near Concordia, Kansas. The new wind form is expected to come on line in January 2009. These tools aid in mitigating price volatility, mitigate our natural gas exposure and provide price stability for Empire and our customers. As indicated, however, Empire and our customers. As indicated, however, Empire is still exposed to increased fuel cost risk and thus has requested an FAC.

Since the time these contracts were entered into natural gas prices have lowered and stabilized. SPP has developed a complete integrated market place which has positively

influenced market energy price and additional low cost wind resources have entered the market. Staff encourages Empire to actively investigate its options – if any – under the long-term wind contracts which have experienced significant negative financial results in the short-term and have many years left to go until the contracts expire.

2. Summary of Cost Implication

If Empire was imprudent by purchasing energy to meet its demand at a cost that exceeded Empire's cost to generate that energy itself, customer harm could result from that imprudence through an increase in FAC charges.

3. Conclusion

Staff identified no evidence of imprudence related to Empire's long-term variable purchased power agreements during the prudence review period. Staff encourages Empire to actively investigate any available options as it relates to these PPAs. The Staff will continue to monitor Empire's actions to address the long-term variable PPA's pricing issues and actions taken my Empire subsequent to this report and Staff will evaluate those actions in the next FAC Prudence review.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0001, 002, 0011, 0021, 0023, 0029, 0045, 0049,0057, 0058 and 0063.

Staff Expert/Witness: Dana E. Eaves

F. FERC Account 447 – Off-System Sales Revenue ("OSSR") and FERC Account 555 - Purchased Power Costs ("PP")

1. Description

For the period September 1, 2016, through February 28, 2018, Empire received $** _____ ** in total OSSR. Since Empire participates in SPP offers in all of its generation and everything that clears the market is sold and produces revenue. In turn Empire must purchase back from the market its electricity needs to serve its retail customers. Empire records those PP transactions in FERC account 555, and for the review period the PP costs were $** _____ **. Empire's OSSRs and PP once netted for the review period showed OSSR to be $** _____ . **

2. Summary of Cost Implications

Empire's revenues from off-system sales and ancillary services are offset against total fuel, purchased power and net emissions allowance costs. If Empire was imprudent, either because it did not maximize or did not make off-system sales and ancillary services, customers could be harmed by that imprudence through an increase in FAC charges.

3. Conclusion

Staff identified no indication of imprudence related to off-system sales revenue or purchased power costs for the prudence review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0001, 0020 and 0026.

b. Empire's FAR filings during the review period.

Staff Expert/Witness: Dana E. Eaves

G. Emission Allowances

1. Description

The Cross-State Air Pollution Rule ("CSAPR") is a ruling by the Unites States Environmental Protection Agency ("EPA") that requires a number of states, including Missouri, to reduce power plant emissions that contribute to ozone and/or fine particle pollution in other states. The CSAPR requires Missouri to reduce its annual emissions of sulfur dioxide (SO_2) and nitrous oxides (NO_X) to help downwind states attain the 24-hour National Ambient Air Quality Standards ("NAAQS"). The CSAPR also requires Missouri to reduce ozone season emissions of NO_x to help downwind states attain the 8-hour NAAQS.

On September 7, 2016, the EPA revised the CSAPR ozone season NO_X program by finalizing an update to CSAPR for the 2008 ozone NAAQS, known as the CSAPR Update. The CSAPR Update ozone season NO_X Program largely replaced the original CSAPR ozone season NO_X program starting May 1, 2017. The CSAPR Update will further reduce summertime NOx emissions from power plants in the eastern U.S.

The requirements of CSAPR and the CSAPR Update were in effect for the entire review period from September 1, 2016 through February 28, 2018.

The primary mechanism of CSAPR is a cap-and-trade program that allows a major source of NOx and/or SO_2 to trade excess allowances when its emissions of a specific pollutant fall below its cap for that pollutant. Originally, the EPA issued a model cap-and-trade program for power plants, which could have been used by states as the primary control mechanism under Clean Air Interstate Rule ("CAIR"). This model, with modifications, had continued under CSAPR.

The Cross State Air Pollution Rule (CSAPR) was finalized on July 6, 2011, replacing CAIR. CSAPR established new allowances for the annual NO_X and SO_2 programs and the seasonal NOx program. CSAPR uses newly created allowances and thus there is no bank to rely on for any potential shortfall. CSAPR was slated to become effective January 1, 2012, but the rule was stayed by a federal court decision on December 30, 2011, in response to several legal challenges. On June 26, 2014, the EPA filed a motion with the U.S. Court of Appeals for the D.C. Circuit to (1) remove the stay of CSPAR and (2) delay for three years all of the compliance deadlines that had not already passed when the stay was enacted. On October 23, 2014, the D.C. Circuit court lifted the stay. On December 3, 2014, the EPA implemented a 3 year delay that moved the starting date for Phase 1 of CSAPR to January 1, 2015 and January 1, 2017, for Phase 2. Empire units are in compliance with the CSAPR limits for both SO_2 and NO_X.

The Acid Rain Program (ARP), was established under the 1990 Clean Air Act (CAA), and requires major emission reductions of SO_2 and NO_X. Acid rain results when SO_2 and NO_X are released into the atmosphere and transported by wind and air currents. The SO_2 and NO_X react with water, oxygen and other chemicals to form sulfuric and nitric acids. These then mix with water and other materials before falling to the ground. Most of the SO_2 and NO_X come from the burning of fossil fuels. Winds can blow SO_2 and NO_X over long distances and across borders making acid rain a problem for everyone.

The SO2 program sets a permanent cap on the total amount of SO_2 that may be emitted by electric generating units (EGUs) in the United States. NO_X reductions under the ARP are achieved through a program that applies to a subcategory of coal-fired EGUs and is closer to a traditional, rate-based regulatory system. Since the program began in 1995, the ARP has achieved significant emission reductions.

The ARP was the first national cap and trade program in the country and it introduced a system of allowance trading that uses market-based incentives to reduce pollution. Reducing emissions using a market-based system provides regulated sources with the flexibility to select the most cost-effective approach to reduce emissions, and has proven to be a highly effective way to achieve emission reductions, meet environmental goals, and improve human health.

Empire currently uses both the ARP and CSAPR programs for SO_2. They receive CSAPR and ARP allowance allocations. Currently one ton of SO_2 emissions require one SO_2 allowance to be retired under both programs. Empire receives its emission allowances from the EPA on a yearly basis. Empire's Asbury, Riverton, and Iatan I and II coal generating units collectively receive, on average, 11,426 SO2 allowances per year. These allowances have no cost and are booked at zero cost. Gains from disposition of emission allowances are recorded to FERC account 254, and credited to FERC account 411.

The cost associated with the SO_2 premiums, net of discounts, and the revenues from gains on the sale of SO_2 emission allowances have been included in Empire's Fuel Adjustment Clause for the review period. During the review period, Empire found itself in a position where there was a surplus of CSAPR SO_2 allowance allocations. Empire sold this surplus allowances to NextEra Energy for a gain of $10,500 in February 2018, which was recorded in account 411800[21].

Empire does not currently need to purchase emission allowances. Staff verified the sale of emissions in accumulation periods 17, 18 and 19. Staff reviewed the workpapers supporting the fuel and purchase power costs for load and off-system sales for accumulation periods 17-19 and also the FAC monthly reports as required by 4 CSR 240-3.161(5).

The management of emission allowances is described in Empire's response to Staff's Data Request Nos. 0040, 0042, 0043, 0044 and 0048. Staff found that Empire has appropriate practices and processes in place to effectively manage its emission allowances for this review period.

[21] Found in Staff workpapers Brooke Mastrogiannis, Emissions.

2. Summary of Cost Implications

If Empire imprudently used, purchased, sold or banked its SO2 and NOx allowances, customer harm could result from an increase in Empire's FAC charges.

3. Conclusion

Staff observed no indication of imprudence associated with Empire's management of its emission allowances during the prudence review period.

4. Documents Reviewed

a. Empire response to Staff Data Request Nos. 0040, 0042, 0043, 0044 and 0048;

b. Workpapers for Empire FAR filings in File Nos. ER-2017-0254, ER-2018-0086, and ER-2018-0270.

Staff Expert/Witness: Brooke Mastrogiannis

III Renewable Energy Credit Revenue

1. Description

The Missouri Renewable Energy Standard ("RES")[22] requires all investor-owned electric utilities in Missouri to provide at least two percent (2%) of their retail electricity sales using renewable energy resources in each calendar year 2011 through 2013, and to increase that percentage over time to at least fifteen percent (15%) by 2021.[23] Commission rule 4 CSR 240-20.100 Electric Utility Renewable Energy Standard Requirements, which first became effective September 30, 2010, contains the definitions, structure, operations, and procedures for implementing the RES.

The RES rule creates two categories of energy-generating resources: non-renewable energy resources (including purchased power from non-renewable energy sources) and

[22] § 393.1020 RSMo. Supp. 2013 and § 393.1030.1(1), RSMo. Supp. 2013.

[23] However, the annual level of required renewable energy resources may be considered due to 4 CSR 240-20.100(5)(A) Retail Rate Impact. (A) The retail rate impact, as calculated in subsection (5)(B), may not exceed one percent (1%) for prudent costs of renewable energy resources directly attributable to RES compliance. The retail rate impact shall be calculated on an incremental basis for each planning year that includes the addition of renewable generation directly attributable to RES compliance through procurement or development of renewable energy resources, averaged over the succeeding ten (10)-year period, and shall exclude renewable energy resources owned or under contract prior to the effective date of this rule.

renewable energy resources (including purchased power from renewable energy sources).[24] Renewable energy resources produce electrical energy and are wind, solar sources, thermal sources, hydroelectric sources, photovoltaic cells and panels, fuel cells using hydrogen produced by one of the above named electrical energy sources, and other sources of energy that become available after August 28, 2007. Renewable energy resources are certified as renewable by the Missouri Division of Energy (MODED). Once an energy resource is certified, it begins producing RECs, with one (1) REC representing one (1) megawatt-hour of electricity that has been generated from the renewable energy resource. These credits can be sold and/or traded in the marketplace bundled with or without the energy that generated the REC.[25] The cost of a REC (as a RES compliance cost) cannot be recovered through the FAC.[26] Revenues from the sale of RECs are recovered through the FAC as an off-set to fuel costs.

Empire receives renewable energy from three sources: ownership of the Ozark Beach Hydroelectric Project and two purchased power agreements, one from Elk River Wind Farm and one from Meridian Way Cloud County Wind Farm. During the review period, Empire also sold RECs that will not be used for RES compliance. These sales generated $326,515 of REC revenue during the revue period.

Empire began receiving wind energy from the Elk River Wind Farm in 2005. Additionally, Empire contracted to begin receiving wind energy from the Meridian Way Cloud County Wind Farm in 2008. As part of these contracts, Empire receives RECs, which are credits issued under the Center for Resource Solutions' "green-e" program that certify that one MWh of electricity has been generated by a facility engaged in the production of renewable energy, such as wind, solar or biomass. Empire did not retire any of these wind RECs to meet the RES requirements during the review period. Instead, it sold some of these RECs and kept some of them for future use for compliance or sale. Empire is certified to sell its RECs through the Center for Resource Solutions. The Stipulation and Agreement in File No. ER-2010-0130 requires Empire to use revenues from selling RECs as an offset to its fuel and purchased power costs that flow through its FAC. From the time period

[24] 4 CSR 240-20.100(5)(B).
[25] 4 CSR 240-20.100(6)(B)(5)(J).
[26] 4 CSR 240-20.100(6)(A)(16).

September 1, 2016 through February 28, 2018, Empire used $** _____ **of REC revenue to offset its fuel and purchased power costs that flow through its FAC.

2. Summary of Cost Implications

If the Commission found Empire was imprudent by not selling RECs when it had the opportunity to do so, ratepayer harm could result from decreased revenues in the FAC.

3. Conclusion

Staff did not find evidence of imprudence in Empire's management of its RECs during the review period.

4. Documents Reviewed

a. Staff COS Report from Case No. ER-2014-0351;

b. Staff COS Report from Case No. ER-2016-0023;

c. Empire FAC workpapers;

d. Empire FAR workpapers from Case Nos. ER-2017-0254, ER-2018-0086 and ER-2018-0270;

e. Empire's response to Staff Data Request Nos. 0001 and 0053; and,

f. Empire District Electric Company 2017 Annual Renewable Energy Standard Compliance Report and Plan.

Staff Expert/Witness: Kory J. Boustead

IV. Interest

1. Description

For its FAC, based on Empire's short-term debt borrowing rate, Empire is required to calculate the monthly interest rate that is applied to the monthly amount of its under-recovered, or over-recovered, net base energy costs. The monthly short-term debt borrowing rate for the review period is the interest rate for Empire's $200 million revolving credit facility that had a Commercial Paper credit rating of A-2 by Standard and Poor's[27] during the review period. Empire's short-term borrowing rate averaged for the review period was 1.10 percent (1.10%). The interest amount is component "I" of the FAC.

[27] Standard and Poor's Research, Empire District Electric Co., February 28 , 2018

2. Summary of Interest Implications

If Empire imprudently calculated the monthly interest amounts or imprudently used a short-term debt borrowing rate that did not fairly represent the actual cost of Empire's short-term debt, ratepayer harm could result from understated or overstated monthly interest amounts.

3. Conclusion

Staff found no evidence Empire acted imprudently with regard to its monthly interest rates and calculation of monthly interest amounts during the review period.

4. Documents Reviewed

a. Empire's response to Staff Data Request Nos. 0055 and 0056;

b. Empire's interest calculation workpapers in support of the interest calculation amount on the under-recovered or over-recovered balance; and,

c. Empire's Standard and Poor's credit rating report.

Staff Expert/Witness: Kory J. Boustead

VII. Utilization of Generation Capacity

1. Description

Empire's generation consists of a mixture of Coal, and Natural Gas generating stations as indicated in Table 8. Table 9 contains the net-generation and reported nameplate capacity rating for Empire's fleet. Table 10 contains the net-generation broken down by unit type for the Empire's fleet. These tables illustrate how Empire's generation fleet is being called upon by SPP in actual operation throughout the period from September 1, 2016 through February 28, 2018.

continued on next page

Table 8[28] - Confidential

**

**

Table 9 - Confidential

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[28] Empire's response to Staff Data Request No. 0016.

Table 10 - Confidential

Unit Type	Net Generation (MWh)	Percentage of Total Net Generation
Coal	** _____ **	** _____ **
Combined Cycle	** _____ **	** _____ **
Combustion Turbine	** _____ **	** _____ **
Total Natural Gas	** _____ **	** _____ **
Hydro/Pump Storage	** _____ **	** __ **
Purchased Power PPA	** _____ **	** _____ **
Total MWh	** _____ **	** __ **

2. Summary of Cost Implications

Empire's electricity generating units are dispatched in the SPP's day-ahead market as a function of each generating unit's offered cost per kWh relative to the SPP Locational Marginal Price ("LMP") at the unit node and subject to the unit's operating characteristics and commitment status as provided by Empire. Empire's role in the dispatch decisions is to provide SPP with the necessary economic and operating parameters for each generation unit for inclusion in SPP's Security Constrained Economic Dispatch (SCED) algorithm. The algorithm is capable of clearing, dispatching, and pricing Energy, Operating Reserve, Up Ramp Capability, and Down Ramp Capability in a simultaneously co-optimized basis that minimizes Production Costs and Operating Reserve Costs while enforcing multiple security constraints. In order to perform proper optimization of commitment and dispatch calculations, SPP requires production cost data for generators to be provided in a three-part offer format: startup cost, no-load cost, and incremental energy cost.

Units which are must run in normal operations, may be offered into the SPP market as economic when returning from an outage, (and before the unit has been restarted) by the

Trade Floor[29], based upon their knowledge and experience, and upon review of next day market conditions. By doing so, the SPP day-ahead market process is used to determine when it is economical to return the unit to service. This mitigates the risk of restarting the unit in a non-profitable period without incurring additional stress on the units such as that which would be expected to occur with unit cycling (as the unit was already off line for the outage).[30]

The units are must run during periods of expected profitable operation, and allowed to cycle off as a function of the SPP day-ahead market when market prices are expected to be below incremental operating costs for an extended period. Given that the SPP markets do not optimize unit operations beyond the next day in their day-ahead algorithms, not "must running" the units in actual operations would result in frequent cycling of the unit, in excess of those levels identified by plant operating management as reasonable for a facility of its age. The methodology employed by the Trade Floor balances concerns with additional costs arising from frequent cycling with the economic impact of operating the unit in low price periods.[31]

3. Conclusion

Staff did not observe any evidence of imprudent utilization of generation resources during this prudence review.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0004, 0005, 0006, 0030, 0043, 0047, 0071, 0072, 0073 and 0081.

Staff Expert/Witness: Dana E. Eaves

VIII. Heat Rates

1. Description

Heat rates of generating units are an indicator of each unit's performance. A heat rate is a calculation of total volume of fuel burned for electric generation multiplied by the average

[29] The Trade Floor is Empires department that is responsible for the day-to-day trading of energy and other services into the market and other third parties.
[30] Empire's Response to Staff Data Request No. 0061.
[31] *Ibid*.

heat content of that volume of fuel for a given time period divided by the total net generation of electricity in kilowatt hours (kWh) for that same time period.

2. Summary of Cost Implications

Heat rates are inversely related to the efficiency of the generating unit. Increasing heat rates of specific units over time may indicate that a specific unit's efficiency is declining. Heat rates can vary greatly depending on operating conditions, including, but not limited to, load, hours of operation, shut downs and startups, unit outages, derates, and weather conditions. Therefore, a good indication of unit performance for frequently used units is an analysis of the trend of heat rates over time. A permanent increase in monthly heat rates is commonly the result of a decrease in a generating unit's efficiency. This typically occurs when additional emissions reduction equipment is added to the exhaust of the generating unit. Continued utilization of units with sustained elevated heat rates could result in Empire incurring higher fuel costs per unit of electricity generated than it would otherwise have incurred. If Empire was imprudent in response to the ongoing trend of a unit's heat rate, ratepayer harm could result from an increase in the fuel costs that are collected through Empire's FAC charges.

3. Conclusion

In reviewing the monthly heat rates of the Empire's generating units, Staff found no indication that Empire acted imprudently during the review period.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0004, 0014 and 0022; and,

b. Monthly Outage data submitted by Empire in compliance with Rule 4 CSR 240-3.190.

Staff Expert/Witness: J. Luebbert

IX. Plant Outages

1. Description

Outages occurring at any of the generating units have an impact on how much Empire will pay for fuel and purchased power and, if planned during peak load demand times, has the

potential result of Empire paying more for fuel and purchased power cost than it would have paid if the outage were planned during forecasted low load times. Periodic planned outages are required to maintain each generating unit in peak operating condition to minimize forced or maintenance outages that could occur during peak load demand or periods of high replacement energy costs, typically in the summer months of June through August.

Empire's definition of a scheduled outage is an outage that conforms to the North American Reliability Corporation, Generating Availability Data System definition of either a Planned Outage or a Maintenance Outage. A Planned Outage is described as being scheduled well in advance, being of a predetermined duration and occurring only once or twice a year. A Maintenance Outage is an outage that can be deferred beyond the end of the next weekend, but requires that the unit be removed from service before its next Planned Outage. Empire's definition of a forced outage is an outage that cannot be deferred beyond the end of the next weekend. Empire's definition of a partial outage (derating) is a condition that exists when a unit is limited to a power level below its maximum capacity.[32]

Staff examined the planned outages and their timing to determine if they were prudent. An example of an imprudent outage would be scheduling a planned outage of a large base loaded coal unit during a time of peak load. Empire has little or no control over the timing of maintenance or forced outages of the generating stations it owns and operates when such outages are the result of unforeseen events. Such outages would cause fuel and/or purchase power costs that are collected from customers through Empire's FAC to increase. The Company has no control over the timing of planned outages for generating stations it does not operate, and, therefore, these units are excluded from Staff's review for planned outages.

2. Summary of Cost Implications

An imprudent planned outage could result in Empire unnecessarily purchasing expensive spot power or running its more expensive gas units to meet demand and having to purchase more natural gas than necessary and, consequently, having higher fuel costs.

3. Conclusion

Staff did not find any evidence of imprudent planned outages by Empire during the time period examined in this review.

[32] Empire response to Staff Data Request No. 0006.

4. Documents Reviewed

a. Empire's responses to Staff Data Request Nos. 0004, 0006, 0014, 0016, 0020, 0054 and 0059;

b. Monthly Outage data submitted by Empire in compliance with Rule 4 CSR 240-3.190;

c. Direct Testimonies of Todd W. Tarter, October 2015, Empire Rate Case No. ER-2016-0023; and,

d. The Southwest Power Pool website: http://www.spp.org.

Staff Expert/Witness: Kory J. Boustead

See attached Addendums A and B

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Seventh Prudence Review of Costs Subject to the Commission Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2018-0244

AFFIDAVIT OF KORY J. BOUSTEAD

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW KORY J. BOUSTEAD and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing **SEVENTH PRUDENCE REVIEW Report**; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Kory J Boustead

KORY J. BOUSTEAD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of September 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Seventh Prudence Review of Costs Subject to the Commission Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2018-0244

AFFIDAVIT OF DANA E. EAVES

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW DANA E. EAVES and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing **SEVENTH PRUDENCE REVIEW Report**; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Dana E. Eaves

DANA E. EAVES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of September 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Seventh Prudence Review of Costs Subject to the Commission Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2018-0244

AFFIDAVIT OF CATHERINE F. LUCIA

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW CATHERINE F. LUCIA and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing **SEVENTH PRUDENCE REVIEW Report**; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Catherine F. Lucia
CATHERINE F. LUCIA

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of September 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Seventh Prudence Review of Costs Subject to the Commission Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2018-0244

AFFIDAVIT OF J LUEBBERT

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW J LUEBBERT and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing **SEVENTH PRUDENCE REVIEW Report**; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

J LUEBBERT

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of September 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Seventh Prudence Review of Costs Subject to the Commission Approved Fuel Adjustment Clause of The Empire District Electric Company	))))	File No. EO-2018-0244

AFFIDAVIT OF BROOKE MASTROGIANNIS

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW BROOKE MASTROGIANNIS and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing **SEVENTH PRUDENCE REVIEW Report**; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Brooke Mastrogiannis

BROOKE MASTROGIANNIS

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of September 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

Empire District Electric Company
File No. EO-2018-00244

Addendum A

Description of General Ledger, Subsidiary Ledger, General Journal, and Special Journal

General Ledger is the source of the accounting information of an organization in which the summaries of all financial transactions (collected from subsidiary ledgers) during an accounting period are recorded. Also referenced to as the book of final entry, it provides the data from individual accounts needed for preparing financial statements for the organization.

Subsidiary Ledger is used because the general ledger holds all the historical journal entries, some key general ledger accounts become so complex that a separate ledger is needed to keep track of its transactions. For example, a company's general ledger might include only one accounts receivable account yet the company may have thousands of customers. Therefore, it is necessary to create a subsidiary ledger to hold each customer account and include the grand total of that ledger in the general ledger.

General Journal is a common type of journal used in keeping a chronological record of financial transactions of a firm not belonging to other (special) journals, or where no special journal exists. Types of entries recorded in the General Journal would be asset sales, depreciation, stock sales and write off of bad debts.

Special Journal is used to record specific transactions and keep organized records outside of the general journal. In other words, this system is a way to categorize transactions into different types and groups. The most common special journals include the sales, cash receipts, purchases, and cash disbursements journals.

Addendum B

This addendum was provided as an example of transactions reviewed by Staff but is not all inclusive due to the voluminous number of transactions in these accounts for the review period of September 1, 2016 through February 28, 2018.

Created by: PSC Staff - Catherine Lucia

411.008 and 509* Major - Net Emission Allowances					
Minor		Department		Product	
800	Gains-Disposition Emmiss Allow	000	Corporate	CB	Cash Back
800	Gains-Disposition Emmiss Allow	110	Energy Supply Ashbury	OT	Others
*FERC Account 509 - no transactions recorded for this review period.					

548 Major - Generation Expense					
Minor		Department		Product	
202	Ammonia Expense	185	SLCC Joint Venture	MA	Materials & Supplies
202	Ammonia Expense	185	SLCC Joint Venture	MA	Materials & Supplies
202	Ammonia Expense	187	SLCC Western Resources Reimbmt	OT	Others

447 Major - Off System Sales Revneue					
Minor		Department		Product	
850	SPP IM Rev	641	Electric & Water Revenues	RV	Revenue
860	Bilateral/Off Line Aux Rev	641	Electric & Water Revenues	RV	Revenue

456 Major - Transmission Revenue					
Minor		Department		Product	
075	REC Rev	641	Electric & Water Revenues	RV	Revenue

501 Major - Coal					
Minor		Department		Product	
042	Fuel - Coal	110	Energy Supply Ashbury	FS	Fuel Stock Inventory
042	Fuel - Coal	145	Energy Supply Iatan	FS	Fuel Stock Inventory
042	Fuel - Coal	146	Energy Supply Iatan 2	FS	Fuel Stock Inventory
042	Fuel - Coal	160	Plum Pt Power Pln	FS	Fuel Stock Inventory
042	Fuel - Coal	160	Plum Pt Power Pln	FS	Fuel Stock Inventory
042	Fuel - Coal	110	Energy Supply Ashbury	FU	Fuel Oil
042	Fuel - Coal	145	Energy Supply Iatan	OP	Other Payroll
042	Fuel - Coal	146	Energy Supply Iatan 2	OP	Other Payroll
042	Fuel - Coal	110	Energy Supply Ashbury	OT	Others
042	Fuel - Coal	145	Energy Supply Iatan	OT	Others
042	Fuel - Coal	146	Energy Supply Iatan 2	OT	Others
042	Fuel - Coal	147	ES Iatan Common Prop	OT	Others
045	Fuel - Oil	110	Energy Supply Ashbury	FS	Fuel Stock Inventory
045	Fuel - Oil	145	Energy Supply Iatan	FS	Fuel Stock Inventory
045	Fuel - Oil	146	Energy Supply Iatan 2	FS	Fuel Stock Inventory
045	Fuel - Oil	160	Plum Pt Power Pln	FS	Fuel Stock Inventory
183	Sales of Ash	110	Energy Supply Ashbury	OT	Others
183	Sales of Ash	160	Plum Pt Power Pln	OT	Others
300	Fuel - Tires	110	Energy Supply Ashbury	FS	Fuel Stock Inventory
401	Ops Mtls - Fuel Handling	160	Plum Pt Power Pln	MS	Materials & Supplies
401	Ops Mtls - Fuel Handling	160	Plum Pt Power Pln	OT	Others

Addendum B

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506 Major - Miscellaneous Steam Power Expenses					
Minor		Department		Product	
201	Limestone Expense	110	Energy Supply Ashbury	MS	Materials & Supplies
201	Limestone Expense	110	Energy Supply Ashbury	MA	Material Accruals
201	Limestone Expense	110	Energy Supply Ashbury	FE	Fee
201	Limestone Expense	145	Energy Supply Iatan	FS	Fuel Stock Inventory
201	Limestone Expense	145	Energy Supply Iatan	FU	Fuel Oil
201	Limestone Expense	145	Energy Supply Iatan	OT	Others
201	Limestone Expense	146	Energy Supply Iatan 2	FS	Fuel Stock Inventory
201	Limestone Expense	146	Energy Supply Iatan 2	OT	Others
202	Ammonia Expense	110	Energy Supply Ashbury	MS	
202	Ammonia Expense	110	Energy Supply Ashbury	MA	Materials & Supplies
202	Ammonia Expense	145	Energy Supply Iatan	FS	Fuel Stock Inventory
202	Ammonia Expense	145	Energy Supply Iatan	FU	Fuel Oil
202	Ammonia Expense	145	Energy Supply Iatan	OT	Others
202	Ammonia Expense	146	Energy Supply Iatan 2	FS	Fuel Stock Inventory
202	Ammonia Expense	146	Energy Supply Iatan 2	OT	Others
202	Ammonia Expense	160	Plum Pt Power Pln	OT	Others
203	Powdered Activated Carbon	145	Energy Supply Iatan	FS	Fuel Stock Inventory
203	Powdered Activated Carbon	145	Energy Supply Iatan	FU	Fuel Oil
203	Powdered Activated Carbon	145	Energy Supply Iatan	OT	Others
203	Powdered Activated Carbon	146	Energy Supply Iatan 2	FS	Fuel Stock Inventory
203	Powdered Activated Carbon	146	Energy Supply Iatan 2	OT	Others
203	Powdered Activated Carbon	160	Plum Pt Power Pln	OT	Others
204	Lime Expense	160	Plum Pt Power Pln	OT	Others

547 Major - Natural Gas					
Minor		Department		Product	
208	Com Turb Fuel Sales - Nat Gas	120	Riverton Tracker	FU	Fuel Oil
208	Com Turb Fuel Sales - Nat Gas	130	Energry Supply Larussell	FU	Fuel Oil
208	Com Turb Fuel Sales - Nat Gas	185	SLCC Joint Venture	FU	Fuel Oil
210	Combust Turb Fuel Natural Gas	120	Riverton Tracker	FU	Fuel Oil
210	Combust Turb Fuel Natural Gas	130	Energry Supply Larussell	FU	Fuel Oil
210	Combust Turb Fuel Natural Gas	185	SLCC Joint Venture	FU	Fuel Oil
213	Fuel - No 2 Oil Fuel	130	Energry Supply Larussell	FS	Fuel Stock Inventory
213	Fuel - No 2 Oil Fuel	135	Energry Supply Larussell	FS	Fuel Stock Inventory
301	NonFAS133 Deriv (Gain)/Loss	120	Riverton Tracker	OT	Others
301	NonFAS133 Deriv (Gain)/Loss	130	Energry Supply Larussell	OT	Others
301	NonFAS133 Deriv (Gain)/Loss	135	Energry Supply Larussell	OT	Others
301	NonFAS133 Deriv (Gain)/Loss	185	SLCC Joint Venture	OT	Others
607	Fuel Adm E Traders Commission	120	Riverton Tracker	OT	Others
607	Fuel Adm E Traders Commission	130	Energry Supply Larussell	OT	Others
607	Fuel Adm E Traders Commission	135	Energry Supply Larussell	OT	Others
607	Fuel Adm E Traders Commission	185	SLCC Joint Venture	OT	Others

Addendum B

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555 Major - Short-Term and Long-Term Purchased Power Contracts					
Minor		Department		Product	
430	Direct Purchases	250	Electric Purecurement	OT	Others
430	Direct Purchases	251	Purchased Power	PP	Purchased Power
430	Direct Purchases	251	Purchased Power	CB	Cash Back
430	Direct Purchases	251	Purchased Power	DP	Accr Depr Plant Ins On Equip
430	Direct Purchases	253	Elk River Wind Farm	PP	Purchased Power
800	DA Asset Energy Purchase	251	Purchased Power	PP	Purchased Power
800	DA Asset Energy Purchase	259	Integrated Mkt Activity	PP	Purchased Power
820	DA Asset Energy Purchase	251	Purchased Power	PP	Purchased Power
820	DA Asset Energy Purchase	259	Integrated Mkt Activity	PP	Purchased Power
840	DA Reg Up Cost	251	Purchased Power	PP	Purchased Power
840	DA Reg Up Cost	259	Integrated Mkt Activity	PP	Purchased Power
850	DA Reg Up Cost	251	Purchased Power	PP	Purchased Power
850	DA Reg Up Cost	259	Integrated Mkt Activity	PP	Purchased Power
860	DA Spin Reserve Cost	251	Purchased Power	PP	Purchased Power
860	DA Spin Reserve Cost	259	Integrated Mkt Activity	PP	Purchased Power
870	DA Supp Reserve Cost	251	Purchased Power	PP	Purchased Power
870	DA Supp Reserve Cost	259	Integrated Mkt Activity	PP	Purchased Power
880	DA Other PP Expense	251	Purchased Power	PP	Purchased Power
880	DA Other PP Expense	259	Integrated Mkt Activity	PP	Purchased Power
900	RT Asset Energy Purchases	251	Purchased Power	PP	Purchased Power
900	RT Asset Energy Purchases	259	Integrated Mkt Activity	PP	Purchased Power
910	RT NonAsset Energy Purchase	259	Integrated Mkt Activity	PP	Purchased Power
920	RT Virtual Energy Purchases	251	Purchased Power	PP	Purchased Power
920	RT Virtual Energy Purchases	259	Integrated Mkt Activity	PP	Purchased Power
940	RT Reg Up Cos	251	Purchased Power	PP	Purchased Power
940	RT Reg Up Cos	259	Integrated Mkt Activity	PP	Purchased Power
950	RT Reg Down Cost	251	Purchased Power	PP	Purchased Power
950	RT Reg Down Cost	259	Integrated Mkt Activity	PP	Purchased Power
960	RT Spin Reserve Cost	251	Purchased Power	PP	Purchased Power
960	RT Spin Reserve Cost	259	Integrated Mkt Activity	PP	Purchased Power
970	RT NonAsset Energy Purchase	251	Purchased Power	PP	Purchased Power
970	RT NonAsset Energy Purchase	259	Integrated Mkt Activity	PP	Purchased Power
980	RT Other PP Expense	251	Purchased Power	PP	Purchased Power
980	RT Other PP Expense	259	Integrated Mkt Activity	PP	Purchased Power

565 Major - Transmission Expense					
Minor		Department		Product	
413	Trans Of Electicity By Others	250	Electric Procurement	OT	Others
413	Trans Of Electicity By Others	250	Electric Procurement	PA	Payroll Accrual
413	Trans Of Electicity By Others	250	Electric Procurement	PP	Purchased Power
413	Trans Of Electicity By Others	250	Electric Procurement	PRS	Payroll Salary - Reg Time
413	Trans Of Electicity By Others	250	Electric Procurement	VO	Vehicles 1 thru 99
414	SPP Fixed Chg - Native Load	250	Electric Procurement	OT	Others
414	SPP Fixed Chg - Native Load	250	Electric Procurement	PP	Purchased Power
415	SPP Var Chg - Native Load	250	Electric Procurement	OT	Others
415	SPP Var Chg - Native Load	250	Electric Procurement	PP	Purchased Power
416	Non SPP Fixed Chg - Native Load	250	Electric Procurement	CB	Cash Back
416	Non SPP Fixed Chg - Native Load	250	Electric Procurement	PP	Purchased Power
416	Non SPP Fixed Chg - Native Load	250	Electric Procurement	OT	Others